### APPENDIX G

Hazelden Betty Ford Center Noise Impact Analysis City of Rancho Mirage

February 9, 2020

Prepared by

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# **Hazelden Betty Ford Center**

NOISE IMPACT ANALYSIS CITY OF RANCHO MIRAGE

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12720-02 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
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
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
PPV	Peak Particle Velocity
Project	Hazelden Betty Ford Center
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels



# **EXECUTIVE SUMMARY**

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and any necessary noise mitigation measures for the proposed Hazelden Betty Ford Center development ("Project"). The Project site is located site is located immediately west of Vista del Sol and east of the existing Eisenhower Medical Center Campus in the City of Rancho Mirage. The Project proposes the removal of four inpatient buildings totaling 51,694± square feet and a total of 80 beds. The Alumni Renewal Center will have a reduction of 30 beds. These five buildings will be replaced by two 2-story inpatient buildings, each providing 46 beds for a total of 92 beds. Each new inpatient building will encompass 30,935± square feet for a total of 61,870± square feet.

The project also includes the construction of a new one-story, 22,748± square foot day-treatment building. This new building will house 44-day treatment patients, associated support space, and 6,399 square feet of administrative space including a computer lab and lecture hall. This study has been prepared consistent with applicable City of Rancho Mirage noise standards, and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

### OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the Project will influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 14 roadway segments were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Hazelden Betty Ford Center Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) To assess the off-site noise level impacts associated with the proposed Project, noise level contours were developed for Existing 2019, Existing plus Ambient (EA), Existing plus Ambient plus Cumulative (EAC), and General Plan Buildout 2040 traffic conditions. The off-site traffic noise analysis shows that the Project-related traffic noise level increases at receiving land uses under all traffic scenarios will be *less than significant*.

### **OPERATIONAL NOISE ANALYSIS**

Using reference noise levels to represent the potential noise sources within Hazelden Betty Ford Center site, this analysis estimates the Project-related operational (stationary-source) noise levels at the nearby receiver locations. The Project-related operational noise sources are expected to include air conditioning units, parking lot activity and outdoor courtyard activity.

The analysis shows that the operational noise levels associated with Hazelden Betty Ford Center Project will satisfy the City of Rancho Mirage 55 dBA  $L_{eq}$  daytime, 50 dBA  $L_{eq}$  evening and 45 dBA  $L_{eq}$  nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations



### **CONSTRUCTION NOISE ANALYSIS**

Construction-related noise impacts are expected to create short-term and intermittent high-level noise conditions at receivers surrounding the Project site. Using sample reference noise levels to represent the planned construction activities of the Hazelden Betty Ford Center site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the City of Rancho Mirage General Plan and Municipal Codes do not identify specific construction noise level thresholds, a construction noise level threshold is identified based on the National Institute for Occupational Safety and Health (NIOSH) limits. The Project-related short-term construction noise levels are expected to range from 52.1 to 74.6 dBA L<sub>eq</sub> and will satisfy the 85 dBA L<sub>eq</sub> NIOSH construction noise level threshold at all receiver locations. Therefore, based on the results of this analysis, all nearby sensitive receiver locations will experience *less than significant* impacts due to Project construction noise levels.

### **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. The analysis shows the highest construction vibration levels are estimated to range 61.7 to 76.0 VdB at nearby sensitive receiver locations. Based on the vibration standards used in this report, the unmitigated Project construction vibration levels will satisfy the 80 VdB residential vibration thresholds identified by the Federal Transit Administration (FTA) at all the nearby sensitive receiver locations. Therefore, the vibration impacts due to Project construction are considered *less than significant*. Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter.

### SUMMARY OF CEQA SIGNIFICANCE FINDINGS

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

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

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



# 1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Hazelden Betty Ford Center ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for transportation noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential short-term construction noise and vibration impacts.

### **1.1** SITE LOCATION

The Project site is located immediately west of Vista del Sol and east of the existing Eisenhower Medical Center Campus, in the City of Rancho Mirage, as shown on Exhibit 1-A. The Project site is located north of the Wilshire Palms residential community, south of the Rancho Mirage Country Club and west of undeveloped residential land use.

### **1.2 PROJECT DESCRIPTION**

The proposed changes to the Hazelden Betty Ford Center campus as shown on Exhibit 1-B include the removal of four inpatient buildings totaling 51,694± square feet and a total of 80 beds. The Alumni Renewal Center will have a reduction of 30 beds. These five buildings will be replaced by two 2-story inpatient buildings, each providing 46 beds for a total of 92 beds. Each new inpatient building will encompass 30,935± square feet for a total of 61,870± square feet. The project also includes the construction of a new one-story, 22,748± square foot day-treatment building. This new building will house 44-day treatment patients, associated support space, and 6,399 square feet of administrative space including a computer lab and lecture hall.

As a result, the proposed Project will have a net increase of 56 beds (existing 100 beds; proposed 156 beds) and a net increase of 6,399 square feet of administrative office space. For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development with a projected Opening Year of 2023.





### EXHIBIT 1-A: LOCATION MAP



# EXHIBIT 1-B: SITE PLAN

Hazelden Betty Ford Center Noise Impact Analysis



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

### EXHIBIT 2-A: TYPICAL NOISE LEVELS

### 2.1 RANGE OF NOISE

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

# 2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level ( $L_{eq}$ ). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level ( $L_{eq}$ ) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period 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 City of Rancho Mirage relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

# 2.3 SOUND PROPAGATION

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

### 2.3.1 GEOMETRIC SPREADING

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

### 2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those

sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (5)

### 2.3.3 ATMOSPHERIC EFFECTS

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

### 2.3.4 SHIELDING

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

### 2.4 NOISE CONTROL

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

# **2.5** Noise Barrier Attenuation

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

# 2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic



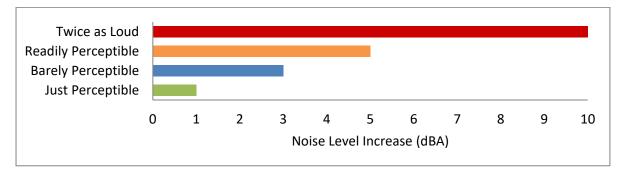
health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate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

### 2.7 COMMUNITY RESPONSE TO NOISE

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

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

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







### 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. (8)

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 construction noise levels at the nearby sensitive receiver locations in the Project study area.

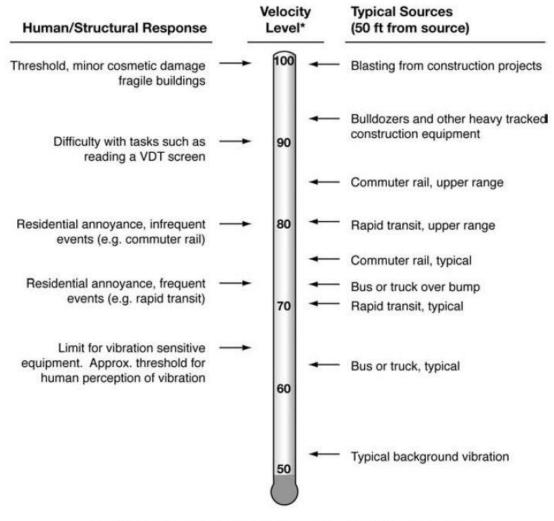
### 2.9 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (9), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

(especially older masonry structures), people (especially residents, the elderly, and sick), vibration-sensitive equipment and/or activities

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



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

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

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



# **3 REGULATORY SETTING**

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

# 3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research. (10) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

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

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

# 3.3 CITY OF RANCHO MIRAGE GENERAL PLAN NOISE ELEMENT

The City of Rancho Mirage has adopted a Noise Element of the General Plan (12) to control and abate environmental noise, and to protect the citizens of the City of Rancho Mirage from excessive exposure to noise. The Noise Element is intended to help align the community's various land uses with the existing and future noise environment and thus ensure that any negative effects of noise are minimized or completely avoided.



The noise criteria identified in the City of Rancho Mirage Noise Element are guidelines to evaluate the land use compatibility of transportation related noise. To assist the City in the planning compatible uses, a range of exterior noise thresholds for various land uses have been developed. Particularly sensitive land uses include residences, schools, libraries, churches, hospitals and nursing homes, and destination resort areas. In addition, parks, golf courses, and other outdoor activity areas can be sensitive to noise disturbances. Less sensitive land uses include commercial uses, conventional hotels and motels, and playgrounds. east sensitive to noise are heavy commercial uses, transportation, communication, and utility land uses.

The Noise Level and Land Use Compatibility matrix in the Noise Element shown on Exhibit 3-A provides guidelines to evaluate the acceptability of the transportation related noise level impacts. Single-family residential land uses are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL and *conditionally acceptable* with noise levels below 70 dBA CNEL. Hospitals land uses are considered *normally acceptable* with exterior noise levels below 70 dBA CNEL. For *conditionally acceptable* land use, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed* 

### **3.4 OPERATIONAL NOISE STANDARDS**

To analyze noise impacts originating from a designated fixed location or private property such as the Hazelden Betty Ford Center Project, stationary-source (operational) noise such as the expected air conditioning units, parking lot activity and outdoor courtyard activity are typically evaluated against standards established under a jurisdiction's Municipal Code. The City of Rancho Mirage Municipal Code noise standards are provided in Appendix 3.1. The City of Rancho Mirage Municipal Code, Chapter 8.45 establishes the noise level standards for stationary noise sources. The Project's land use will potentially impact nearby noise-sensitive uses in the Project study area. For nearby noise-sensitive residential land uses in the Project study area, Section 8.45.030 identifies the base exterior noise level standard of 55 dBA  $L_{eq}$  during the daytime hours (7:00 a.m. to 6:00 p.m.), 50 dBA  $L_{eq}$  during the evening hours (6:00 p.m. to 10:00 p.m.) and 45 dBA  $L_{eq}$  during the nighttime hours (10:00 p.m. to 7:00 a.m.). (11) Table 3-1 provides a summary of the City of Rancho Mirage operational exterior noise level standards.

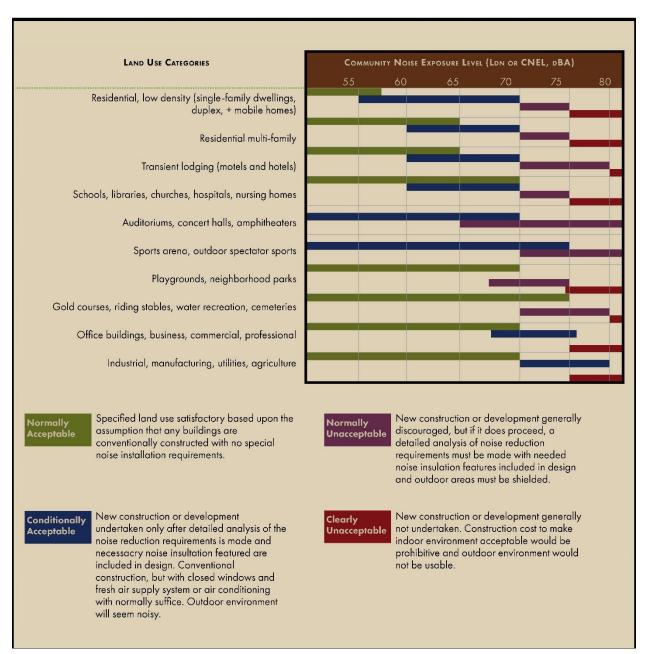
Land Use <sup>1</sup>	Time Period	Exterior Noise Level Standards (dBA L <sub>eq</sub> ) <sup>2</sup>
	Daytime (7:00 a.m. to 6:00 p.m.)	55
Residential	Evening (6:00 p.m. to 10:00 p.m.)	50
	Nighttime (10:00 p.m. to 7:00 a.m.)	45

### TABLE 3-1: OPERATIONAL NOISE STANDARDS

<sup>1</sup> Source: City of Rancho Mirage Municipal Code, Section 8.45.030 Exterior noise level limits (Appendix 3.1).

<sup>2</sup> 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.





### EXHIBIT 3-A: NOISE LEVEL AND LAND USE COMPATIBILITY



# **3.5 CONSTRUCTION NOISE STANDARDS**

To analyze noise impacts originating from the construction of Hazelden Betty Ford Center, noise from construction activities are typically evaluated against standards established under a City's Municipal Code. The Municipal Code noise standards for construction are described below for the City of Rancho Mirage to determine the potential noise impacts at nearby receiver locations.

To control noise impacts associated with the construction of the proposed Project, the City has established limits to the hours of operation. The City of Rancho Mirage Municipal Code, Section 15.04.030 indicates that construction, shall be limited to the hours of 7:00 a.m. to 7:00 p.m. weekdays. Construction activity is not permitted on Sundays or major holidays. (12) However, the City's General Plan and Municipal Code do not establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes as the *generation of noise levels in excess of standards* or as a *substantial temporary or periodic noise increase*, therefore, the following construction noise level thresholds are used in this noise study.

To evaluate whether the Project will generate potentially significant temporary construction noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the Criteria for Recommended Standard: Occupational Noise Exposure prepared by the National Institute for Occupational Safety and Health (NIOSH). (13) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3-dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (13) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

### **3.6** VIBRATION STANDARDS

The City of Rancho Mirage has not identified or adopted specific, quantified vibration level standards. However, the United States Department of Transportation Federal Transit Administration (FTA) provides guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines allow 80 VdB for residential uses and buildings where people normally sleep, and 83 VdB for institutional land uses typically occupied during the daytime hours. (9) Construction activities can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. The FTA guidelines provide a substantiated basis for determining the relative significance of potential Project vibration impacts due to on-site construction activities.



# 4 SIGNIFICANCE CRITERIA

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

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

While the City of Rancho Mirage General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

### 4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Palm Springs Airport (PSP) is located roughly 6 miles north west of the Project site Since the Project is located more than two miles away from the nearest airport, the potential impacts are considered *less than significant*, and no further noise analysis is provided under Guideline C.

### 4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (15) 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) (16) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft

noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level ( $L_{eq}$ ).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (15) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level 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.

### 4.3 NON-NOISE-SENSITIVE RECEIVERS

The City of Rancho Mirage General Plan Noise Element (Figure 8-2), *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*.

To determine if Project-related traffic noise level increases are significant at off-site non-noisesensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria were used. When the without Project noise levels at the non-noise-sensitive land uses are below the *normally acceptable* 70 dBA CNEL compatibility criteria, a *readily perceptible* 5 dBA or greater noise level increase is considered a significant impact. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Rancho Mirage General Plan Noise Element (Figure 8-2) *Land Use Compatibility for Community Noise Exposure normally acceptable* 70 dBA CNEL exterior noise level criteria.



### 4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix.

### OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
  - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
  - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
  - already exceed 65 dBA CNEL, and the Project creates a community noise level increase of greater than 1.5 dBA CNEL (FICON, 1992).
- When the noise levels at existing and future non-noise-sensitive land uses (e.g., office, commercial, industrial):
  - are less than the City of Rancho Mirage General Plan Noise Element (Figure 8-2), normally acceptable 70 dBA CNEL and the Project creates a readily perceptible 5 dBA CNEL or greater Project related noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
  - are greater than the City of Rancho Mirage General Plan Noise Element (Figure 8-2), 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 base exterior noise level standard of 55 dBA L<sub>eq</sub> during the daytime hours (7:00 a.m. to 6:00 p.m.), 50 dBA L<sub>eq</sub> during the evening hours (6:00 p.m. to 10:00 p.m.) and 45 dBA L<sub>eq</sub> during the nighttime hours (10:00 p.m. to 7:00 a.m.) for noise-sensitive residential and institutional uses in the Project study area. (11)
- When the noise levels at existing and future noise-sensitive land uses (e.g., residential, etc.):
  - $\circ~$  are less than 60 dBA  $L_{eq}$  and the Project creates a readily perceptible 5 dBA  $L_{eq}$  or greater Project-related noise level increase; or
  - range from 60 to 65 dBA L<sub>eq</sub> and the Project creates a barely perceptible 3 dBA L<sub>eq</sub> or greater Project-related noise level increase; or
  - $\circ~$  already exceed 65 dBA  $L_{eq},$  and the Project creates a community noise level impact of greater than 1.5 dBA  $L_{eq}$  (FICON, 1992).

### CONSTRUCTION NOISE & VIBRATION

- If Project-related construction activities create noise levels which exceed the 85 dBA  $L_{eq}$  acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure).
- If short-term Project generated construction vibration levels exceed the FTA vibration standards of 80 VdB at residential uses (Federal Transit Administration, Transit Noise and Vibration Impact Assessment).



Analasia	Receiving	Constitution (a)	Significance Criteria			
Analysis	Land Use	Condition(s)	Daytime	Nighttime		
		If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL P	Project increase		
	Noise- Sensitive <sup>1,2</sup>	If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL P	Project increase		
Off-Site Traffic <sup>1</sup>	Sensitive	If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL	Project increase		
Traffic	Non-Noise-	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase			
	Sensitive <sup>1,2</sup>	If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase			
		Exterior Noise Level Standards	See Table 3-1			
Operational	Residential <sup>3</sup>	If ambient is < 60 dBA $L_{eq}^1$	≥ 5 dBA L <sub>eq</sub> Project increase			
Operational		If ambient is 60 - 65 dBA $L_{eq}^1$	≥ 3 dBA L <sub>eq</sub> Project increase			
		If ambient is > 65 dBA $L_{eq}^{1}$	≥ 1.5 dBA L <sub>eq</sub> Project increase			
Constantion	Noise-	Permitted between 7:00 a.m. to 6:00 p.m. Monday to Saturdays; v activity allowed on Sundays or holidays. <sup>4</sup>				
Construction	Sensitive	Noise Level Threshold <sup>5</sup>	85 dBA L <sub>eq</sub>	n/a		
		Vibration Level Threshold <sup>6</sup>	80 VdB n/a			

### TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

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

<sup>2</sup> Source: City of Rancho Mirage General Plan Noise Element.

<sup>3</sup> Source: City of Rancho Mirage General Plan Municipal Code, Section 8.45.030

<sup>4</sup> Source: City of Rancho Mirage General Plan Municipal Code, Section15.04.030

<sup>5</sup> Acceptable threshold for construction noise based on the Criteria for Recommended Standard: Occupational Noise Exposure prepared by the National Institute for Occupational Safety and Health.

<sup>6</sup> Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment.

"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, 24-hour noise level measurements were taken at five 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 Thursday, December 5<sup>th</sup>, 2019. Appendix 5.1 includes study area photos.

### 5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

### 5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources. (3) Further, FTA guidance states, that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community. (9)* 

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



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

### 5.3 NOISE MEASUREMENT RESULTS

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

- Location L1 represents the noise levels north of the Project site near the Barbara Sinatra Children's center. The noise levels at this location consist primarily of parking lot vehicle movements. The noise level measurements collected show an overall 24-hour exterior noise level of 57.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 49.3 dBA L<sub>eq</sub> with an average nighttime noise level of 51.1 dBA L<sub>eq</sub>.
- Location L2 represents the noise levels east of the project site on Vista Del Sol next to undeveloped residential land. The noise level measurements collected show an overall 24hour exterior noise level of 57.6 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 49.2 dBA L<sub>eq</sub> with an average nighttime noise level of 51.2 dBA L<sub>eq</sub>.
- Location L3 represents the noise levels south of the project site near Oral, Facial and Implant surgery offices. The 24-hour CNEL indicates that the overall exterior noise level is 58.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 55.7 dBA L<sub>eq</sub> with an average nighttime noise level of 49.9 dBA L<sub>eq</sub>. Background traffic noise from Country Club Drive and parking lot vehicle movements represent the primary source of noise at this location.
- Location L4 represents the noise levels near the western boundary of the Project site by the Bannan Building. The noise level measurements collected show an overall 24-hour exterior noise level of 59.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 55.8 dBA L<sub>eq</sub> with an average nighttime noise level of 51.5 dBA L<sub>eq</sub>. The noise levels at this location consist primarily of parking lot vehicle movements.
- Location L5 represents the noise levels northwest of Project site near Hal B. Wallis Building Cardiology. The 24-hour CNEL indicates that the overall exterior noise level is 63.7 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.8 dBA L<sub>eq</sub> with an average nighttime noise level of 56.2 dBA L<sub>eq</sub>. Traffic on Stanford Drive and parking lot vehicle movements represents the primary source of noise at this location.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L<sub>1</sub>, L<sub>2</sub>, L<sub>5</sub>, L<sub>8</sub>, L<sub>25</sub>, L<sub>50</sub>, L<sub>90</sub>, L<sub>95</sub>, and L<sub>99</sub> percentile noise levels observed during the daytime and nighttime periods.



The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network. The 24-hour existing noise level measurements shown on Table 5-1 present the existing ambient noise conditions.

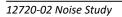
Location <sup>1</sup>	Description	Energy Average Noise Level (dBA L <sub>eq</sub> ) <sup>2</sup>				
		Daytime	Evening	Nighttime		
L1	Located north of the Project site near the Barbara Sinatra Children's center.	51.5	49.7	47.4		
L2	Located east of the project site on Vista Del Sol next to vacant residential land.	51.0	49.0	48.9		
L3	Located south of the project site near Oral, Facial and Implant surgery offices.	56.2	52.4	49.9		
L4	Located near the western boundary of the Project site by the Bannan Building.	56.3	52.4	51.5		
L5	Located northwest of Project site near Hal B. Wallis Building Cardiology.	61.6	52.2	56.2		

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

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

<sup>2</sup> Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.

"Day" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.





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

LEGEND: A Measurements



# 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 using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (18) 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. (19) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (5)

### 6.1.1 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 14 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Rancho Mirage General Plan Circulation Element, and the posted vehicle speeds. Consistent with *Hazelden Betty Ford Center Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) the off-site traffic noise analysis maintains a peak hour to average daily traffic (peak-to-daily) relationship of approximately 8.38% and includes the following traffic scenarios.

- Existing (2019)
- Existing Plus Project (E+P)
- Existing Plus Ambient Growth Plus Project (EAP) (2023)
- Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (EAPC) (2023)
- General Plan Buildout (2040) Without Project Conditions
- General Plan Buildout (2040) With Project Conditions

The average daily traffic (ADT) volumes used for this study are presented on Table 6-2. Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.



ID	Roadway	Segment	Receiving Land Use <sup>1</sup>	Classification <sup>1</sup>	Distance from Centerline to Receiving Land Use (Feet) <sup>2</sup>	Vehicle Speed (mph)
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	Minor Arterial	55'	45
2	Bob Hope Dr.	s/o Street A	Hospital	Minor Arterial	55'	45
3	Bob Hope Dr.	s/o Country Club Dr.	Office	Minor Arterial	55'	45
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	Local	30'	25
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	Local	30'	25
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	Local	30'	25
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	Local	30'	25
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	Local	30'	25
9	Street A	e/o Bob Hope Dr.	Hospital	Local	30'	25
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	Local	30'	25
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	Major Collector	55'	45
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	Minor Arterial	55'	50
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	Minor Arterial	55'	50
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	Minor Arterial	55'	50

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

<sup>1</sup> Sources: City of Rancho Mirage General Plan, Chapter 3, Exhibit 8, Circulation Roadway Plan.

<sup>2</sup> Distance to receiving land use is based upon the right-of-way distances for each roadway classification provided in the General Plan Circulation Element. "RW" = Location of the respective noise contour falls within the right-of-way of the road. "POS" = Private Open Space; "MDR" = Medium Density Residential; "RE" = Residential Estate; "LDR" = Low Density Residential.



			Average Daily Traffic Volumes <sup>1</sup>								
ID	Roadway	Roadway Segment		Existing		Existing + Ambient (EA)		Existing + Ambient + Cumulative (EAC)		General Plan Buildout	
			Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	
1	Bob Hope Dr.	n/o MacMillan Wy.	23,723	23,779	25,678	25,734	27,108	27,164	29,881	29,937	
2	Bob Hope Dr.	s/o Street A	19,193	19,249	20,775	20,831	22,205	22,261	24,487	24,543	
3	Bob Hope Dr.	s/o Country Club Dr.	19,765	19,821	21,394	21,450	22,564	22,620	24,882	24,938	
4	John L. Sinn Rd.	s/o Street A	3,755	3,923	4,065	4,233	4,065	4,233	4,656	4,824	
5	Joe Friend Ln.	s/o MacMillan Wy.	2,050	2,106	2,219	2,275	2,219	2,275	2,503	2,559	
6	Vista Del Sol	n/o Betty Ford Wy.	119	175	129	185	213	269	2,199	2,339	
7	Vista Del Sol	n/o Country Club Dr.	1,252	1,476	1,355	1,579	1,439	1,663	2,199	2,339	
8	MacMillan Wy.	e/o Bob Hope Dr.	3,374	3,430	3,652	3,708	3,652	3,708	4,079	4,135	
9	Street A	e/o Bob Hope Dr.	2,074	2,130	2,245	2,301	2,245	2,301	2,531	2,587	
10	Betty Ford Wy.	e/o Joe Friend Ln.	887	1,167	960	1,240	960	1,240	1,364	1,646	
11	Country Club Dr.	w/o Bob Hope Dr.	9,680	9,792	10,478	10,590	10,648	10,760	24,124	24,236	
12	Country Club Dr.	e/o Bob Hope Dr.	14,794	14,906	16,014	16,126	16,706	16,818	27,458	27,570	
13	Country Club Dr.	e/o John L. Sinn Rd.	18,931	19,043	20,491	20,603	21,007	21,119	27,458	27,570	
14	Country Club Dr.	e/o Vista Del Sol	19,753	20,033	21,382	21,662	21,838	22,118	27,532	27,728	

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

<sup>1</sup> Source: Hazelden Betty Ford Center Traffic Impact Analysis



Vehicle Type	Time of Day Splits <sup>1</sup>			Total of Time of
	Daytime	Evening	Nighttime	Day Splits
Autos	75.55%	13.96%	10.49%	100.00%
Medium Trucks	48.91%	2.17%	48.91%	100.00%
Heavy Trucks	47.30%	5.41%	47.30%	100.00%

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

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

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

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

Classification	Total % Traffic Flow			Total
Classification	Autos	Medium Trucks	Heavy Trucks	Total
All Roadways <sup>1</sup>	97.42%	1.84%	0.74%	100.00%

<sup>1</sup> Source: Typical Southern California vehicle mix and the County of Riverside Office of Industrial Hygiene.

### 6.2 VIBRATION ASSESSMENT

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 6-5. 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:  $L_{VdB}(D) = L_{VdB}(25 \text{ ft}) - 30\log(D/25)$ 

### TABLE 6-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Vibration Decibels (VdB) at 25 feet <sup>1</sup>		
Small bulldozer	58		
Jackhammer	79		
Loaded Trucks	86		
Large bulldozer	87		

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



# 7 OFF-SITE TRANSPORTATION NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on *Hazelden Betty Ford Center 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 2019 noise conditions, without and with the development of the full Project. The existing with Project scenario will not actually occur since the Project would not be fully constructed and operational until 2023 conditions.
- <u>Existing plus Ambient (EA) 2023 Without / With Project</u>: This scenario refers to the existing noise conditions plus the estimated 4 years of background growth in ambient traffic conditions without and with the development of the full Project.
- <u>Existing plus Ambient plus Cumulative (EAC) 2023 Without / With Project</u>: This scenario refers to the existing plus ambient plus cumulative noise conditions at 2023 without and with the proposed Project.
- <u>General Plan Buildout 2040 Without / With Project</u>: This scenario refers to the future General Plan buildout conditions at Year 2040 without and with the proposed Project. This scenario represents buildout of the General Plan land use 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 consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 and 7-8 present a summary of the exterior traffic noise levels for each traffic condition.



			Dessiving	CNEL at Nearest		Distance to Contour from Centerline (Feet)			
ID	Road	Segment	Receiving Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL		
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	72.6	82	178	383		
2	Bob Hope Dr.	s/o Street A	Hospital	71.7	72	154	332		
3	Bob Hope Dr.	s/o Country Club Dr.	Office	71.8	73	157	339		
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	62.0	RW	RW	41		
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	59.4	RW	RW	RW		
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	47.1	RW	RW	RW		
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	57.3	RW	RW	RW		
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	61.6	RW	RW	38		
9	Street A	e/o Bob Hope Dr.	Hospital	59.5	RW	RW	RW		
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	55.8	RW	RW	RW		
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	68.5	RW	94	203		
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	71.6	71	152	329		
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	72.7	83	180	387		
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	72.9	86	185	398		

<sup>1</sup> Sources: City of Rancho Mirage General Plan, Chapter 3, Exhibit 8, Circulation Roadway Plan.

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



			Bassiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	Segment	Receiving Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	72.6	83	178	383	
2	Bob Hope Dr.	s/o Street A	Hospital	71.7	72	155	333	
3	Bob Hope Dr.	s/o Country Club Dr.	Office	71.9	73	158	340	
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	62.2	RW	RW	42	
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	59.5	RW	RW	RW	
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	48.7	RW	RW	RW	
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	58.0	RW	RW	RW	
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	61.6	RW	RW	39	
9	Street A	e/o Bob Hope Dr.	Hospital	59.6	RW	RW	RW	
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	57.0	RW	RW	RW	
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	68.6	RW	95	205	
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	71.7	71	153	330	
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	72.7	84	180	389	
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	73.0	87	187	402	

TABLE 7-2: EXISTING 2019 WITH PROJECT NOISE CONTOURS

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



			Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	Road Segment Land Lead Lead		65 dBA CNEL	60 dBA CNEL			
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	73.0	87	187	403	
2	Bob Hope Dr.	s/o Street A	Hospital	72.1	75	163	350	
3	Bob Hope Dr.	s/o Country Club Dr.	Office	72.2	77	166	357	
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	62.4	RW	RW	43	
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	59.8	RW	RW	RW	
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	47.4	RW	RW	RW	
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	57.6	RW	RW	RW	
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	61.9	RW	RW	40	
9	Street A	e/o Bob Hope Dr.	Hospital	59.8	RW	RW	RW	
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	56.1	RW	RW	RW	
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	68.9	RW	99	214	
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	72.0	75	161	346	
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	73.1	88	189	408	
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	73.2	90	195	420	

TABLE 7-3: EA 2023 WITHOUT PROJECT NOISE CONTOURS

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



			Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	Road     Segment     Land Use <sup>1</sup> Receiving Land Use     70 dBA     65 dBA       (dBA) <sup>2</sup> CNEL     CNEL			60 dBA CNEL			
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	73.0	87	188	404	
2	Bob Hope Dr.	s/o Street A	Hospital	72.1	76	163	351	
3	Bob Hope Dr.	s/o Country Club Dr.	Office	72.2	77	166	358	
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	62.6	RW	RW	44	
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	59.9	RW	RW	RW	
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	49.0	RW	RW	RW	
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	58.3	RW	RW	RW	
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	62.0	RW	RW	41	
9	Street A	e/o Bob Hope Dr.	Hospital	59.9	RW	RW	30	
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	57.2	RW	RW	RW	
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	68.9	RW	100	216	
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	72.0	75	162	348	
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	73.1	88	190	410	
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	73.3	91	197	424	

TABLE 7-4: EA 2023 WITH PROJECT NOISE CONTOURS

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



			Bessiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	Segment	Receiving Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	73.2	90	194	418	
2	Bob Hope Dr.	s/o Street A	Hospital	72.4	79	170	366	
3	Bob Hope Dr.	s/o Country Club Dr.	Office	72.4	80	172	370	
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	62.4	RW	RW	43	
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	59.8	RW	RW	RW	
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	49.6	RW	RW	RW	
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	57.9	RW	RW	RW	
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	61.9	RW	RW	40	
9	Street A	e/o Bob Hope Dr.	Hospital	59.8	RW	RW	RW	
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	56.1	RW	RW	RW	
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	68.9	RW	100	216	
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	72.2	77	165	356	
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	73.2	89	193	415	
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	73.3	92	198	426	

TABLE 7-5: EAC 2023 WITHOUT PROJECT NOISE CONTOURS

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



			Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	ad Segment Land Use <sup>1</sup> Receiving Land Use 70 dBA 65 dBA (dBA) <sup>2</sup> CNEL CNEL		60 dBA CNEL				
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	73.2	90	194	419	
2	Bob Hope Dr.	s/o Street A	Hospital	72.4	79	170	367	
3	Bob Hope Dr.	s/o Country Club Dr.	Office	72.4	80	172	371	
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	62.6	RW	RW	44	
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	59.9	RW	RW	RW	
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	50.6	RW	RW	RW	
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	58.5	RW	RW	RW	
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	62.0	RW	RW	41	
9	Street A	e/o Bob Hope Dr.	Hospital	59.9	RW	RW	30	
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	57.2	RW	RW	RW	
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	69.0	RW	101	218	
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	72.2	77	166	358	
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	73.2	90	193	417	
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	73.4	93	199	430	

TABLE 7-6: EAC 2023 WITH PROJECT NOISE CONTOURS

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



			Dessiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	Segment	Receiving Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	73.6	96	207	446	
2	Bob Hope Dr.	s/o Street A	Hospital	72.8	84	181	391	
3	Bob Hope Dr.	s/o Country Club Dr.	Office	72.8	85	183	395	
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	63.0	RW	RW	47	
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	60.3	RW	RW	31	
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	59.7	RW	RW	RW	
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	59.7	RW	RW	RW	
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	62.4	RW	RW	43	
9	Street A	e/o Bob Hope Dr.	Hospital	60.3	RW	RW	32	
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	57.6	RW	RW	RW	
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	72.5	80	173	373	
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	74.3	107	230	496	
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	74.3	107	230	496	
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	74.3	107	231	497	

TABLE 7-7: GENERAL PLAN BUILDOUT 2040 WITHOUT PROJECT NOISE CONTOURS

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



			Dessiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	Segment	Receiving Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	73.6	96	207	447	
2	Bob Hope Dr.	s/o Street A	Hospital	72.8	84	182	391	
3	Bob Hope Dr.	s/o Country Club Dr.	Office	72.9	85	184	396	
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	63.1	RW	RW	48	
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	60.4	RW	RW	32	
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	60.0	RW	RW	30	
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	60.0	RW	RW	30	
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	62.5	RW	RW	44	
9	Street A	e/o Bob Hope Dr.	Hospital	60.4	RW	RW	32	
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	58.5	RW	RW	RW	
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	72.5	81	174	374	
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	74.3	107	231	498	
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	74.3	107	231	498	
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	74.4	108	232	499	

TABLE 7-8: GENERAL PLAN BUILDOUT 2040 WITH PROJECT NOISE CONTOURS

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

"RW" = Location of the respective noise contour falls within the right-of-way of the road. "POS" = Private Open Space; "MDR" = Medium Density Residential; "RE" = Residential Estate; "LDR" = Low Density Residential.

## 7.2 EXISTING 2019 PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the *Hazelden Betty Ford Center Traffic Impact Analysis* prepared by Urban Crossroads, Inc. However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until future year 2023 plus cumulative conditions. Therefore, no mitigation measures are considered to reduce the Existing Plus Project traffic noise level increases. The EAC 2023 and General Plan Buildout 2040 traffic noise conditions that include all cumulative projects are used to determine the significance of the Project off-site traffic noise level increases on the study area roadway segments.

Table 7-1 shows the Existing 2019 without Project conditions CNEL noise levels. The Existing 2019 without Project exterior noise levels are expected to range from 47.1 to 72.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing 2019 with Project conditions range from 48.7 to 73.0 dBA CNEL. Table 7-9



shows that the Project off-site traffic noise level increases range from 0.0 to 1.6 dBA CNEL on the study area roadway segments.

## 7.3 EA 2023 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the EA 2023 without Project conditions CNEL noise levels. The EA 2023 without Project exterior noise levels are expected to range from 47.4 to 73.26 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the EA 2023 with Project conditions range from 49.0 to 73.3 dBA CNEL. Table 7-10 shows that the Project off-site traffic noise level increases range from 0.0 to 1.6 dBA CNEL.

## 7.4 EAC 2023 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the EAC 2023 without Project conditions CNEL noise levels. The EAC 2023 without Project exterior noise levels are expected to range from 49.6 to 73.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the EAC 2023 with Project conditions range from 50.6 to 73.4 dBA CNEL. Table 7-11 shows that the Project off-site traffic noise level increases range from 0.0 to 1.1 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

### 7.5 GENERAL PLAN BUILDOUT 2040 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-7 presents the General Plan Buildout 2040 without Project conditions CNEL noise levels. The General Plan Buildout 2040 without Project exterior noise levels are expected to range from 57.6 to 74.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-8 shows the General Plan Buildout 2040 with Project conditions range from 58.5 to 74.4 dBA CNEL. Table 7-12 shows that the Project off-site traffic noise level increases range from 0.0 to 0.9 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.



ID	Road	Segment	Receiving	Noise- Sensitive		EL at Receiv and Use (dBA	Noise Level Increase Significance Criteria <sup>2</sup>		
			Land Use <sup>1</sup>	Land Use?	No Project	With Project	Project Increase	Criteria	Exceeded?
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	Yes	72.6	72.6	0.0	1.5	No
2	Bob Hope Dr.	s/o Street A	Hospital	Yes	71.7	71.7	0.0	1.5	No
3	Bob Hope Dr.	s/o Country Club Dr.	Office	No	71.8	71.9	0.1	3.0	No
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	Yes	62.0	62.2	0.2	3.0	No
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	Yes	59.4	59.5	0.1	5.0	No
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	Yes	47.1	48.7	1.6	5.0	No
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	Yes	57.3	58.0	0.7	5.0	No
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	Yes	61.6	61.6	0.0	3.0	No
9	Street A	e/o Bob Hope Dr.	Hospital	Yes	59.5	59.6	0.1	5.0	No
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	Yes	55.8	57.0	1.2	5.0	No
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	Yes	68.5	68.6	0.1	1.5	No
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	Yes	71.6	71.7	0.1	1.5	No
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	Yes	72.7	72.7	0.0	1.5	No
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	Yes	72.9	73.0	0.1	1.5	No

#### TABLE 7-9: EXISTING 2019 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

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

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



ID	Road	Segment	Receiving Land Use <sup>1</sup>	Noise- Sensitive		EL at Receiv and Use (dBA	Noise Level Increase Significance Criteria <sup>2</sup>		
				Land Use?	No Project	With Project	Project Increase	Criteria	Exceeded?
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	Yes	73.0	73.0	0.0	1.5	No
2	Bob Hope Dr.	s/o Street A	Hospital	Yes	72.1	72.1	0.0	1.5	No
3	Bob Hope Dr.	s/o Country Club Dr.	Office	No	72.2	72.2	0.0	3.0	No
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	Yes	62.4	62.6	0.2	3.0	No
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	Yes	59.8	59.9	0.1	5.0	No
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	Yes	47.4	49.0	1.6	5.0	No
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	Yes	57.6	58.3	0.7	5.0	No
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	Yes	61.9	62.0	0.1	3.0	No
9	Street A	e/o Bob Hope Dr.	Hospital	Yes	59.8	59.9	0.1	5.0	No
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	Yes	56.1	57.2	1.1	5.0	No
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	Yes	68.9	68.9	0.0	1.5	No
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	Yes	72.0	72.0	0.0	1.5	No
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	Yes	73.1	73.1	0.0	1.5	No
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	Yes	73.2	73.3	0.1	1.5	No

#### TABLE 7-10: EA 2023 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

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

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



ID	Road	Segment	Receiving	Noise- Sensitive	CNEL at Receiving Land Use (dBA) <sup>1</sup>			Noise Lev Significan	Significant Impact?	
			Land Use <sup>1</sup>	Land Use?	No Project	With Project	Project Increase	Criteria	Exceeded?	inpact.
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	Yes	73.2	73.2	0.0	1.5	No	No
2	Bob Hope Dr.	s/o Street A	Hospital	Yes	72.4	72.4	0.0	1.5	No	No
3	Bob Hope Dr.	s/o Country Club Dr.	Office	No	72.4	72.4	0.0	3.0	No	No
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	Yes	62.4	62.6	0.2	3.0	No	No
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	Yes	59.8	59.9	0.1	5.0	No	No
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	Yes	49.6	50.6	1.0	5.0	No	No
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	Yes	57.9	58.5	0.6	5.0	No	No
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	Yes	61.9	62.0	0.1	3.0	No	No
9	Street A	e/o Bob Hope Dr.	Hospital	Yes	59.8	59.9	0.1	5.0	No	No
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	Yes	56.1	57.2	1.1	5.0	No	No
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	Yes	68.9	69.0	0.1	1.5	No	No
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	Yes	72.2	72.2	0.0	1.5	No	No
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	Yes	73.2	73.2	0.0	1.5	No	No
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	Yes	73.3	73.4	0.1	1.5	No	No

#### TABLE 7-11: EAC 2023 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

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

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



ID	ID Road	d Segment	Receiving	-		IEL at Receiv and Use (dBA	0	Noise Lev Significan	Significant	
			Land Use <sup>1</sup>	Use?	No Project	With Project	Project Increase	Criteria	Exceeded?	Impact?
1	Bob Hope Dr.	n/o MacMillan Wy.	POS	Yes	73.6	73.6	0.0	1.5	No	No
2	Bob Hope Dr.	s/o Street A	Hospital	Yes	72.8	72.8	0.0	1.5	No	No
3	Bob Hope Dr.	s/o Country Club Dr.	Office	No	72.8	72.9	0.1	3.0	No	No
4	John L. Sinn Rd.	s/o Street A	MDR/Hospital	Yes	63.0	63.1	0.1	3.0	No	No
5	Joe Friend Ln.	s/o MacMillan Wy.	Hospital	Yes	60.3	60.4	0.1	3.0	No	No
6	Vista Del Sol	n/o Betty Ford Wy.	RE/Hospital	Yes	59.7	60.0	0.3	5.0	No	No
7	Vista Del Sol	n/o Country Club Dr.	RE/Hospital	Yes	59.7	60.0	0.3	5.0	No	No
8	MacMillan Wy.	e/o Bob Hope Dr.	POS/Hospital	Yes	62.4	62.5	0.1	3.0	No	No
9	Street A	e/o Bob Hope Dr.	Hospital	Yes	60.3	60.4	0.1	3.0	No	No
10	Betty Ford Wy.	e/o Joe Friend Ln.	Hospital	Yes	57.6	58.5	0.9	5.0	No	No
11	Country Club Dr.	w/o Bob Hope Dr.	LDR/Office	Yes	72.5	72.5	0.0	1.5	No	No
12	Country Club Dr.	e/o Bob Hope Dr.	Hospital/Office	Yes	74.3	74.3	0.0	1.5	No	No
13	Country Club Dr.	e/o John L. Sinn Rd.	MDR/Office/Public/RE	Yes	74.3	74.3	0.0	1.5	No	No
14	Country Club Dr.	e/o Vista Del Sol	LDR/Office	Yes	74.3	74.4	0.1	1.5	No	No

#### TABLE 7-12: GENERAL PLAN BUILDOUT 2040 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

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

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

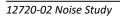


# 8 SENSITIVE RECEIVER LOCATIONS

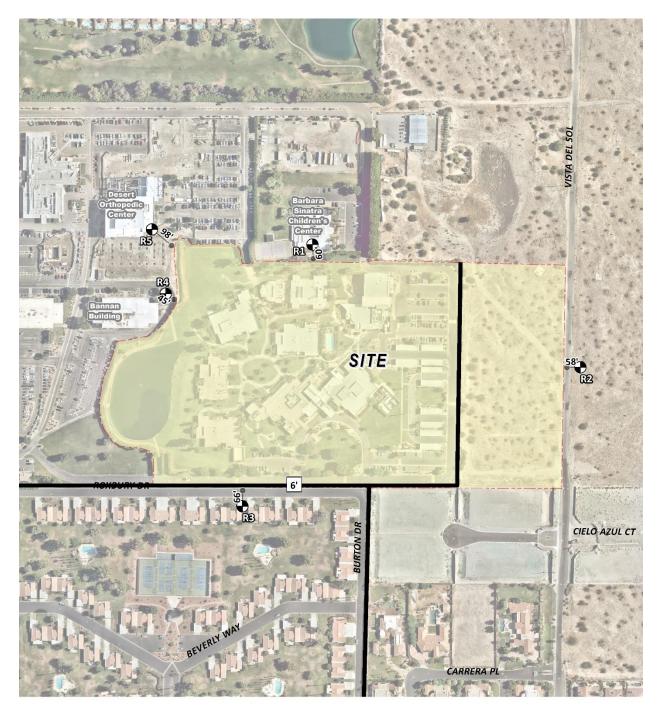
To assess the potential for long-term short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence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

Receiver locations are located in outdoor living areas (e.g., backyards) at 10 feet from any existing or proposed barriers or at the building façade, whichever is closer to the Project site, based on FHWA guidance, and consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Sensitive receiver locations in the Project study area include the nearby residential uses, as described below. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

- R1: Located approximately 60 feet north of the Project site, R1 the Barbara Sinatra Children's Center. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R2: Location R2 represents the vacant land located approximately 58 feet east of the Project site across Vista Del Sol. A 24-hour noise measurement near this location, L2, is used to describe the existing ambient noise environment.
- R3: Location R3 represents the existing homes within Wilshire Palms gated community located roughly 66 feet south of the Project site across Roxbury Drive.
- R4: Location R4 represents the Bannan building at approximately 45 feet from the Project site. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.
- R5: Location R5 represents the Desert Orthopedic building at approximately 98 feet from the Project site. A 24-hour noise measurement near this location, L5, is used to describe the existing ambient noise environment.





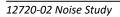


#### **EXHIBIT 8-A: RECEIVER LOCATIONS**

#### LEGEND:

Receiver Locations

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



N



# 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 the operation of the proposed Hazelden Betty Ford Center Project. Exhibit 9-A identifies the noise source locations used to assess the operational noise levels.

## 9.1 OPERATIONAL NOISE SOURCES

It is expected the on-site Project-related noise sources will include: air conditioning units, parking lot activity and outdoor courtyard activity. This noise analysis is intended to describe noise level impacts associated with the typical operational activities at the Project site.

### 9.2 **REFERENCE NOISE LEVELS**

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the air conditioning units, parking lot activity and outdoor courtyard activity all operating at the same time. These noise level impacts will likely vary throughout the day.

#### 9.2.1 MEASUREMENT PROCEDURES

12720-02 Noise Study

The reference noise level measurements presented in this section were collected using Larson Davis Lxt Type 1 and Piccolo Type 2 integrating sound level meters and dataloggers. All sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)







EXHIBIT 9-A: OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS

#### LEGEND:



- Air Conditioning Units
- Courtyard Activity
- Parking Lot Vehicle Movements



N



Noise Source	Duration	Ref. Distance	Noise Source	N	lin./Ho	ur <sup>4</sup>		ce Noise JBA L <sub>eq</sub> )	Sound Power
Noise Source	(hh:mm:ss)	(Feet)	Height (Feet)	Day	Eve.	Night	@ Ref. Dist.	@ 50 Feet	Level (dBA) <sup>5</sup>
Air Conditioning Units <sup>1</sup>	96:00:00	5'	5'	39	39	28	77.2	57.2	88.9
Parking Lot Activity <sup>2</sup>	00:23:00	10'	4'	60	60	0	57.9	47.4	88.6
Courtyard Activity <sup>3</sup>	00:08:00	10'	5'	60	60	0	73.8	59.8	91.5

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

<sup>1</sup> As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.

<sup>2</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>3</sup> As measured by Urban Crossroads, Inc. on 9/21/2019 on the Patio at Louie's by the Bay in the City of Newport Beach.

<sup>4</sup> Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Day" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.

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

#### 9.2.2 AIR CONDITIONING UNITS

To assess the impacts created by the roof-top air conditioning units at the Project buildings, reference noise levels measurements were taken over a four-day total duration at the Santee Walmart. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe mechanical roof-top air conditioning units on the roof of an existing Walmart store, with additional roof-top units operating in the background. The reference noise level represents Lennox SCA120 series 10-ton model packaged air conditioning units. At 5 feet from the closest roof-top air conditioning unit, the highest exterior noise level from all four days of the measurement period was measured at 77.2 dBA  $L_{eq}$ . Using the uniform reference noise level measurement reflect peak summer cooling requirements. The air conditioning units were observed to operate 39 minutes during the daytime and evening hours and 28 minutes per hour during the nighttime hours.

#### 9.2.3 PARKING LOT ACTIVITY

To determine the noise levels associated with parking lot activity, Urban Crossroads collected reference noise level measurements over a 24-hour period at the parking lot for the Panasonic Avionics Corporation in the City of Lake Forest. The peak hour of activity measured over the 24-hour noise level measurement period occurred between 12:00 p.m. to 1:00 p.m., or the typical lunch hour for employees working in the area. The measured reference noise level at 50 feet from parking lot vehicle movements was measured at 47.4 dBA  $L_{eq}$ . The parking lot noise levels are mainly due to cars pulling in and out of spaces during peak lunch hour activity and employees talking. Noise associated with parking lot activities are expected to operate during the daytime and evening for the entire hour (60 minutes).



#### 9.2.4 COURTYARD ACTIVITY

To describe the outdoor common area courtyards activity areas, a reference noise level measurement was taken at the Louie's by the Bay in Newport Beach on September 21, 2019. At 50 feet, the reference noise level is 59.8 dBA L<sub>eq</sub> at a noise source height of 5 feet. The reference noise level measurement includes outdoor eating, drinking, with patrons laughing and talking. Courtyard activities are limited to the daytime and evening hours.

## 9.3 CADNAA NOISE PREDICTION MODEL

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

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

Using the ISO 9613 protocol, the CadnaA noise prediction model will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level calculations at each receiver location and the partial noise level contributions by noise source. The reference sound power level (PWL) for the highest noise source expected at the Project site was input into the CadnaA noise prediction model. While sound pressure levels (e.g.  $L_{ea}$ ) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish as a result of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6.0 dBA for each doubling of distance from a point source, based on existing conditions in the Project study area.



## 9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Tables 9-2 shows the calculated Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m., evening hours of 7:00 p.m. to 10:00 p.m. and the nighttime hours of 10:00 p.m. to 7:00 a.m. Table 9-2 shows that the Project operational noise levels will range from 31.4 to 49.8 dBA Leq.

Receiver Location <sup>1</sup>	Project Operational Noise Levels (dBA Leq) <sup>2</sup>				Level Star (dBA Leq)		Threshold Exceeded? <sup>4</sup>			
Location	Day	Eve.	Night	Day	Eve.	Night	Day Eve. Nig		Night	
R1	49.8	49.8	41.3	55	50	45	No	No	No	
R2	48.6	48.6	43.1	55	50	45	No	No	No	
R3	44.2	44.2	34.8	55	50	45	No	No	No	
R4	40.6	40.6	34.1	55	50	45	No	No	No	
R5	39.2	39.2	35.5	55	50	45	No	No	No	

TABLE 9-2: PROJECT OPERATIONAL NOISE LEVELS

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

<sup>2</sup> Proposed Project operational noise level calculations included in Appendix 9.1.

<sup>3</sup> City of Rancho Mirage exterior noise level standards for residential land use, as shown on Table 3-1.

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

"Day" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Rancho Mirage exterior noise level standards at nearby noise-sensitive receiver locations. Table 9-2 shows that the operational noise levels associated with Hazelden Betty Ford Center Project will satisfy the City of Rancho Mirage 55 dBA L<sub>eq</sub> daytime, 50 dBA L<sub>eq</sub> evening and 45 dBA L<sub>eq</sub> nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

#### 9.5 PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTIONS

To describe the Project operational noise level contributions, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (3) Instead, they must be logarithmically added using the following base equation:

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



Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime, evening and nighttime ambient conditions are presented on Tables 9-3, 9-4 and 9-5, respectively. As indicated on Tables 9-3, 9-4 and 9-5, the Project will generate an unmitigated operational noise level increases ranging from 0.0 to 4.4 dBA L<sub>eq</sub> at the nearby receiver locations.

Tables 9-3, 9-4 and 9-5 show that the Project operational noise level contributions satisfy the operational noise level increase significance criteria presented in Table 4-1. Therefore, the Project related operational noise level increases at all sensitive receiver locations will be *less than significant*.



Receiver Location <sup>1</sup>	Total Project Operational Noise Level <sup>2</sup>	Measurement Location <sup>3</sup>	Reference Ambient Noise Levels <sup>4</sup>	Combined Project and Ambient <sup>5</sup>	Project Increase <sup>6</sup>	Increase Criteria <sup>7</sup>	Increase Criteria Exceeded? <sup>7</sup>
R1	49.8	L1	51.5	53.7	2.2	5.0	No
R2	48.6	L2	51.0	53.0	2.0	5.0	No
R3	44.2	L3	56.2	56.5	0.3	5.0	No
R4	40.6	L4	56.3	56.4	0.1	5.0	No
R5	39.2	L5	61.6	61.6	0.0	3.0	No

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

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

<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.



Receiver Location <sup>1</sup>	Total Project Operational Noise Level <sup>2</sup>	Measurement Location <sup>3</sup>	Reference Ambient Noise Levels <sup>4</sup>	Combined Project and Ambient <sup>5</sup>	Project Increase <sup>6</sup>	Increase Criteria <sup>7</sup>	Increase Criteria Exceeded? <sup>7</sup>
R1	49.8	L1	49.7	52.8	3.1	5.0	No
R2	48.6	L2	49.0	51.8	2.8	5.0	No
R3	44.2	L3	52.4	53.0	0.6	5.0	No
R4	40.6	L4	52.4	52.7	0.3	5.0	No
R5	39.2	L5	52.2	52.4	0.2	5.0	No

TABLE 9-4: EVENING OPERATIONAL NOISE LEVEL CONTRIBUTIONS

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

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

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

<sup>4</sup> Observed evening 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.



Receiver Location <sup>1</sup>	Total Project Operational Noise Level <sup>2</sup>	Measurement Location <sup>3</sup>	Reference Ambient Noise Levels <sup>4</sup>	Combined Project and Ambient <sup>5</sup>	Project Increase <sup>6</sup>	Increase Criteria <sup>7</sup>	Increase Criteria Exceeded? <sup>7</sup>
R1	49.8	L1	47.4	51.8	4.4	5.0	No
R2	48.6	L2	48.9	51.8	2.9	5.0	No
R3	44.2	L3	49.9	50.9	1.0	5.0	No
R4	40.6	L4	51.5	51.8	0.3	5.0	No
R5	39.2	L5	56.2	56.3	0.1	5.0	No

TABLE 9-5: NIGHTTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS

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

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

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

<sup>4</sup> Observed night 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.



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# **10 CONSTRUCTION ANALYSIS**

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 activity boundaries in relation to the nearby sensitive receiver locations.

#### **10.1** CONSTRUCTION NOISE LEVELS

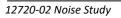
Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction 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 (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver.

## **10.2** CONSTRUCTION REFERENCE NOISE LEVELS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of construction activity area for each stage of construction to the nearest receiver location. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.







**EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS** 

#### LEGEND:

Receiver Locations

- Distance from receiver to nearest source of construction activity (in feet)
  - Demolition Stage of Construction Activity
- Building Construction/Architectural Coating Stages of Construction Activity
- Site Preparation/Grading/Paving Stages of Construction Activity



N

Construction Stage	Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>eq</sub> )	Highest Reference Noise Level (dBA L <sub>eq</sub> )
	Demolition Activity	67.9	
Demolition	Backhoe	64.2	71.9
	Water Truck Pass-By & Backup Alarm	71.9	
<u></u>	Scraper, Water Truck, & Dozer Activity	75.3	
Site Preparation	Backhoe	64.2	75.3
reputation	Water Truck Pass-By & Backup Alarm	71.9	
	Rough Grading Activities	73.5	
Grading	Water Truck Pass-By & Backup Alarm	71.9	73.5
	Construction Vehicle Maintenance Activities	67.5	
	Foundation Trenching	68.2	
Building Construction	Framing	62.3	71.6
construction	Concrete Mixer Backup Alarms & Air Brakes	71.6	
	Concrete Mixer Truck Movements	71.2	
Paving	Concrete Paver Activities	65.6	71.2
	Concrete Mixer Pour & Paving Activities	65.9	
	Air Compressors	65.2	
Architectural Coating	Generator	64.9	65.2
couting	Crane	62.3	

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

 $^{1}\,\mathrm{Reference}$  construction noise level measurements taken by Urban Crossroads, Inc.

## 10.3 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the edge of the construction activity areas to each of the nearby receiver locations. As shown on Table 10-2, the unmitigated construction noise levels are expected to range from 52.1 to 74.6 dBA  $L_{eq}$  at the nearby receiver locations. Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Rancho Mirage Municipal Code Section 15.04.030 of 7:00 a.m. to 7:00 p.m. on weekdays.

To evaluate whether the Project will generate potentially significant short-term noise levels at nearby receiver locations a construction-related the NIOSH noise level threshold of 85 dBA  $L_{eq}$  is used as acceptable thresholds for construction noise at the nearby sensitive receiver locations. The construction noise analysis shows that the noise sensitive residential receiver locations will satisfy the 85 dBA  $L_{eq}$  significance threshold during Project construction activities. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all noise sensitive receiver locations



Dessions	Construction Noise Levels (dBA L <sub>eq</sub> )									
Receiver Location <sup>1</sup>	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels <sup>2</sup>			
R1	60.4	65.7	63.9	62.7	61.6	56.3	65.7			
R2	52.1	74.6	72.8	63.5	70.5	57.1	74.6			
R3	60.5	63.6	61.8	61.4	59.5	55.0	63.6			
R4	62.1	62.0	60.2	65.3	57.9	58.9	65.3			
R5	58.6	61.2	59.4	61.7	57.1	55.3	61.7			

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

<sup>1</sup>Construction noise source and receiver locations are shown on Exhibit 10-A.

<sup>2</sup> Construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

#### **10.4** 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. 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, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site during various stages of construction. Using the vibration source level of construction equipment provided on Table 6-5 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts.

Table 10-4 shows the highest construction vibration levels are estimated to range from 61.7 to 76.0 VdB at nearby sensitive receiver locations. Based on the vibration standards used in this report, the unmitigated Project construction vibration levels will satisfy the 80 VdB residential vibration thresholds identified by the FTA at all the nearby sensitive receiver locations. Therefore, the vibration impacts due to Project construction are considered *less than significant*. Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter.



	Distance to Const. Activity (Feet) <sup>2</sup>		Receiver					
Receiver <sup>1</sup>		Small Bulldozer	Jack- hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels	Threshold (VdB) <sup>4</sup>	Threshold Exceeded? <sup>5</sup>
R1	131'	36.4	57.4	64.4	65.4	65.4	80	No
R2	58'	47.0	68.0	75.0	76.0	76.0	80	No
R3	194'	31.3	52.3	59.3	60.3	60.3	80	No
R4	131'	36.4	57.4	64.4	65.4	65.4	80	No
R5	238'	28.6	49.6	56.6	57.6	57.6	80	No

#### TABLE 10-4: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

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

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

<sup>3</sup> Based on the Vibration Source Levels of Construction Equipment included on Table 6-5.

<sup>4</sup> Does the peak vibration exceed the vibration thresholds?

<sup>5</sup> Does the vibration level exceed the FTA acceptable vibration level?



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## **11 REFERENCES**

- 1. State of California. California Environmental Quality Act, Appendix G. 2018.
- 2. Urban Crossroads, Inc. Hazelden Betty Ford Center Traffic Impact Analysis. February 2020.
- 3. California Department of Transportation Environmental Program. *Technical Noise Supplement A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
- 4. Environmental Protection Agency Office of Noise Abatement and Control. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. March 1974. EPA/ONAC 550/9/74-004.
- 5. U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch. *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
- 6. U.S. Department of Transportation, Federal Highway Administration. *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
- 7. U.S. Environmental Protection Agency Office of Noise Abatement and Control. *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
- 8. Occupational Safety and Health Administration. Standard 29 CRF, Part 1910.
- 9. U.S. Department of Transportation, Federal Transit Administration. *Transit Noise and Vibration Impact Assessment.* September 2018.
- 10. Office of Planning and Research. State of California General Plan Guidelines. 2018.
- 11. City of Rancho Mirage. Municipal Code, Chapter 8.45 Noise.
- 12. —. Municipal Code, Sections 15.04.030.
- 13. National Institute for Occupational Safety and Health. Criteria for Recommended Standard: Occupational Noise Exposure. June 1998.
- 14. U.S. Department of Transportation, Federal Transit Administration. *Transit Noise and Vibration Impact Assessment*. September 2018.
- 15. California Court of Appeal. *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; Cal.Rptr.3d, October 2008.
- 16. Federal Interagency Committee on Noise. Federal Agency Review of Selected Airport Noise Analysis Issues. August 1992.
- 17. American National Standards Institute (ANSI). Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.
- 18. U.S. Department of Transportation, Federal Highway Administration. *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
- 19. California Department of Transportation Environmental Program, Office of Environmental Engineering. Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction. September 1995. TAN 95-03.



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# 12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Hazelden Betty Ford Center Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 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 RANCHO MIRAGE MUNICIPAL CODE



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Rancho	Mirage Municipal	Code					
Up	Previous	Next	Main	Collapse	Search	Print	
Title 8 H	HEALTH AND SAFETY						
Chapter	8.45 NOISE						

# 8.45.010 Purpose.

The city has established a quality of life and environment in which peace and quiet is highly valued by its residents, visitors and businesses. The existence of excessive noise within the city is a condition which is detrimental to the health, safety, comfort, welfare and quality of life of the citizenry and shall be regulated in the public interest. This chapter has been created to implement the goals and policies of the noise element of the city's general plan and to prohibit undesirable noises in the community. This chapter shall be referred to and cited as the Rancho Mirage noise ordinance. (Ord. 633 § 1(Exh. A), 1995)

#### 8.45.020 Definitions.

Ambient noise level means the all encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

Cumulative period means an additive period of time consisting of individual time segments which may be continuous or interrupted.

Decibel (dBA) means a unit of sound level measured on a sound level meter using the A-weighting network.

Emergency means any occurrence or set of circumstances involving actual or imminent physical danger, crisis, trauma or property damage which demands immediate action.

Noise level means the same as sound level the terms are interchangeable.

Person means any individual, association, partnership, corporation, organization, or public agency, including associated officer(s), employee(s) or department(s).

Sound level means the quantity of decibels measured using the frequency weighting of A of a sound level meter.

Sound level meter means an instrument meeting the American National Standards Institute's standard S1.4-1983 or later revision, for Type 1 or Type 2 specifications; or an instrument and the associated recording and analyzing equipment which will provide equivalent data. (Ord. 633 § 1(Exh. A), 1995)

## 8.45.030 Exterior noise level limits.

No person shall operate or cause to be operated any source of sound or allow the creation of sound or noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, as measured on any other property, to exceed:

The noise level for the applicable zone specified in Table A-1 for a cumulative period of more than thirty A minutes in any hour of the applicable time period.

Land Use/Zone	Time of Day	Noise Level (dBA)
	7:00 a.m. to 6:00 p.m.	55
Residential, Low Density (R-E, H-R, R-L-2, R-L-3)	6:00 p.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Residential, Medium and High Density, Hospital, Open	7:00 a.m. to 6:00 p.m.	60
Space (OS, R-M, R-H, MHP)	6:00 p.m. to 10:00 p.m.	55
67		

Table A-1

	10:00 p.m. to 7:00 a.m.	50
	7:00 a.m. to 6:00 p.m.	65
Commercial Office, Resort Commercial, Mixed Use, Institutional (O, P, Rs-H, M-U)	6:00 p.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55
	7:00 a.m. to 6:00 p.m.	70
Commercial Neighborhood, General Commercial, Commercial Recreation, Light Industrial (C-N, C-G, I-L)	6:00 p.m. to 10:00 p.m.	65
Commercial Recreation, Eight Industrial (C-IV, C-O, I-E)	10:00 p.m. to 7:00 a.m.	60

B. For cumulative periods of time less than thirty minutes in an hour, all the noise standards in Table A-1 are increased according to Table B-1.

Table B-1	
-----------	--

Duration of Sound	dBA Adjustment
15—30 minutes per hour	+ 3
10—15 minutes per hour	+ 5
5—10 minutes per hour	+ 10
1—5 minutes per hour	+ 15
Any period of time less than 1 minute per hour	+ 20

C. If the measured ambient noise level exceeds the dBA limits in Table A-1, the noise limits and their adjustments for the first three categories in Table B-1 shall be increased in five dBA increments as needed to encompass or reflect said ambient noise level. The maximum noise level under the last two categories in Table B-1 shall be increased, if necessary, only to equal the ambient noise level. (Ord. 1015 § 2, 2011; Ord. 633 § 1(Exh. A), 1995)

#### 8.45.040 Noise level measurement.

A. The location selected for measuring exterior noise levels shall be at the point of the property line of the affected property nearest the alleged offending noise source. If possible, the ambient noise shall be measured at the same location along the property line.

B. If the measurement location is on a boundary between two different locations, the noise level limit applicable to the lower noise zone shall apply.

C. Upon receipt of a complaint or a request to investigate, the code compliance officer, equipped with an American National Standards Institute Type 2 or better sound level meter, may investigate the complaint. The investigation shall consist of measurements and the gathering of data to adequately define the noise problem and shall include the following:

- 1. Type and measurement of noise source;
- 2. Location of noise source relative to complainant's or affected property;
- 3. Time period during which noise source is considered to be intrusive;
- 4. Total duration of noise levels measured;
- 5. Date(s) and time(s) of noise measurement survey. (Ord. 633 § 1(Exh. A), 1995)

## 8.45.050 Special provisions and exemptions.

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

A. School bands, school athletic and other activities occurring on a school campus;

B. Outdoor gatherings, dance, shows, entertainment for events authorized through the city's special events process;

C. Activities conducted in public parks and public playgrounds that are dependent upon such facilities for their operation;

D. Any emission of sound for purposes of alerting persons to an emergency or the general emission of sound during performance of emergency work;

E. Construction, alteration, repair, grading or improvement of any building, structure, road or improvement to real property for which a permit has been issued by the city if said construction occurs within the allowable hours set forth in Section 15.04.030(A)(10);

F. The operation of any equipment and machinery at any time within any zone by the city, its employees, or any agent or franchisee of the city in the course of performing maintenance, construction or trash collection. (Ord. 633 1(Exh. A), 1995)

#### 8.45.060 Additional prohibition.

It is unlawful and a nuisance for any person to keep, maintain or permit upon any lot or parcel of land within the city under his or her control any animal, including any fowl, which by any sound or cry shall habitually disturb the peace and comfort of any person in the reasonable and comfortable enjoyment of life or property. (Ord. 633 § 1(Exh. A), 1995)

#### 8.45.065 Landscape maintenance.

A. It is unlawful and a public nuisance for any person to permit or perform for-hire landscape and non- emergency exterior hardscape maintenance activities such as, but not limited to, tree trimming, re-seeding, lawn mowing, leaf blowing, dust and debris clearing and any other landscaping or nonemergency exterior hardscape maintenance activities which utilize any motorized saw, sander, drill, grinder, leaf-blower, lawnmower, hedge trimmer, edger, or any other similar tool or device any time on Saturday and Sunday and between the hours of six p.m. and seven a.m. the next day during weekdays, unless otherwise provided in this section.

B. The regular mowing or grooming of golf courses, grass tennis courts, grass croquet courts, and lawn bowling areas shall be exempt from the restrictions set forth in this section. The allowed work hours for mowing or green preparation for golf courses, grass tennis courts, grass croquet courts, and lawn bowling areas shall be between five thirty a.m. and seven p.m., seven days per week and during all seasons of the year.

C. Nothing set forth in this section shall permit any person from engaging in any activities that exceed the exterior noise level limits set forth in Section 8.45.030 or otherwise constitute a public nuisance as set forth in Section 14.60.325 of the Municipal Code. (Ord. 979, § 1, 2009; Ord. 936, § 3, 2006)

#### 8.45.070 Administration.

The noise control program established by this chapter shall be administered by and is the responsibility of the code compliance division as directed by the director of the community development department. (Ord. 633 § 1(Exh. A), 1995)

#### 8.45.080 Violations and enforcement procedures.

Violations of this chapter are declared to be a nuisance and subject to the procedures, remedies and penalties set forth in Title 14. (Ord. 916 §4, 2006; Ord. 633 § 1(Exh. A), 1995)

#### View the mobile version.

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APPENDIX 5.1:

**STUDY AREA PHOTOS** 



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# JN: 12720 Study Area Photos



L1\_N 33, 45' 49.990000", 116, 24' 0.010000"



L1\_S 33, 45' 49.990000", 116, 24' 0.010000"



L1\_W 33, 45' 49.970000", 116, 23' 59.980000"



L2\_E 33, 45' 45.520000", 116, 23' 50.690000"



L2\_N 33, 46' 2.170000", 116, 27' 29.730000"



L2\_S 33, 45' 45.100000", 116, 23' 51.220000"

## JN: 12720 Study Area Photos



L2\_W 33, 45' 45.630000", 116, 23' 50.670000"



L3\_E 33, 45' 31.750000", 116, 23' 57.530000"



L3\_N 33, 45' 32.770000", 116, 24' 15.960000"



33, 45' 31.790000", 116, 23' 57.590000"



L3\_W 33, 45' 31.720000", 116, 23' 57.590000"



L4\_E 33, 45' 46.360000", 116, 24' 10.440000"

#### 75

L5\_S 33, 45' 53.390000", 116, 24' 9.450000"

L5\_N 33, 45' 53.430000", 116, 24' 9.430000"



L4\_W 33, 45' 46.380000", 116, 24' 10.470000"



33, 45' 53.370000", 116, 24' 9.430000"

L4\_N 33, 45' 46.380000", 116, 24' 10.470000"

L4\_S 33, 45' 46.380000", 116, 24' 10.440000"



JN: 12720 Study Area Photos

# JN: 12720 Study Area Photos



L5\_W 33, 45' 53.390000", 116, 24' 9.430000"

APPENDIX 5.2:

**NOISE LEVEL MEASUREMENT WORKSHEETS** 



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Date:         Thursday, Decemb           Project:         Hazelden Betty For           85.0         80.0           75.0         75.0           90, 75.0         75.0           965.0         65.0           965.0         65.0	rd Center			L1 - Located Children's ce	enter.	e Project site dBA Readings			Meter:	Piccolo I			JN: Analyst:	12720 P. Mara					
85.0						dBA Readings	(unadjusted)						Analyst:	P. Mara					
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Timeframe Hour L	eq L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>					
	.5 52.2	44.4	47.0	46.0	46.0	46.0	45.0	45.0	44.0	44.0	44.0	45.5	10.0	55.5					
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	6.2 66.0	43.4	51.0	48.0	46.0	45.0	44.0	44.0	43.0	43.0	43.0	46.2	10.0	56.2					
	i.9 58.2	43.6	52.0	51.0	50.0	49.0	47.0	46.0	44.0	44.0	43.0	46.9	10.0	56.9					
	7.8 59.1	45.0	52.0	51.0	50.0	50.0	48.0	47.0	45.0	45.0	45.0	47.8	10.0	57.8					
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	.4 72.2	44.4	66.0	61.0	55.0	52.0	48.0	46.0	45.0	44.0	44.0	52.4	0.0	52.4					
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Day 13 50	.2 68.6	43.6	61.0	58.0	55.0	53.0	47.0	45.0	44.0	44.0	43.0	50.2	0.0	50.2					
	0.6 67.7	43.6	61.0	57.0	53.0	50.0	47.0	45.0	44.0	44.0	44.0	49.6	0.0	49.6					
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	0.6 70.7	44.6	61.0	57.0	52.0	51.0	48.0	47.0	46.0	45.0	45.0	50.6	0.0	50.6					
	.1 69.4	44.3	62.0	56.0	50.0	49.0	47.0	46.0	45.0	44.0	44.0	50.1	0.0	50.1					
	0.4 70.4 0.1 67.0	44.4 45.2	60.0 62.0	56.0 60.0	51.0 52.0	49.0 50.0	47.0 47.0	46.0 46.0	45.0 46.0	44.0 45.0	44.0 45.0	50.4 50.1	5.0 5.0	55.4 55.1					
	69.1	44.9	55.0	50.0	48.0	47.0	46.0	46.0	45.0	45.0	45.0	48.5	5.0	53.5					
Night	.5 66.2	44.6	59.0	58.0	56.0	51.0	46.0	46.0	45.0	45.0	44.0	49.5	10.0	59.5					
TimeframeHourL	5.7 57.4 L <sub>max</sub>	44.5 L <sub>min</sub>	48.0 <b>L1%</b>	48.0 <b>L2%</b>	47.0 <b>L5%</b>	46.0 <b>L8%</b>	45.0 <b>L25%</b>	45.0 <b>L50%</b>	44.0 <b>L90%</b>	44.0 <b>L95%</b>	44.0 <b>L99%</b>	45.7	10.0 L <sub>eg</sub> (dBA)	55.7					
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	.2 73.2	45.9	66.0	63.0	59.0	58.0	53.0	49.0	47.0	47.0	46.0	24-Hour	Daytime	Nighttime					
	5 Av 8.5 67.0	erage: 44.4	62.4 55.0	58.8 50.0	54.3 48.0	52.4 47.0	48.4 46.0	46.2	44.8 45.0	44.3 44.0	43.9 44.0	50.1	51.2	47.4					
Evening	0.4 70.4	44.4	62.0	60.0	48.0 52.0	50.0	40.0	46.0	45.0	44.0	44.0		Hour CNEL (d						
Energy Average 49	0.7 Av	erage:	59.0	55.3	50.3	48.7	46.7	46.0	45.3	44.7	44.7								
Night	50.4 50.5 68.0	43.4 46.6	47.0 59.0	46.0 58.0	46.0 56.0	45.0 51.0	44.0 50.0	44.0 49.0	43.0 48.0	43.0 48.0	43.0 47.0		55.0						
		erage:	59.0	49.9	48.8	47.8	46.1	49.0	48.0	48.0	47.0		30.0						



Data	Thursday	a combour E	2010			L2 - Located		evel Measo project site o		-	1 d a t a m	Discolori				42720
		ecember 5, 2 etty Ford Cer			Location	; vacant wilde	erness.				Meter:	Piccolo I				12720 P. Mara
							Hourly L and	dBA Readings	(unadjusted)							
	_						, eq	<i></i>								
85.0	$\frac{1}{2}$															
( <b>Y B B B C C C B C C C C C C C C C C</b>	Š															
→ 55.0	2															
<b>A</b> 55.0 <b>5</b> 0.0 <b>6</b> 45.0 <b>6</b> 45.0 <b>6</b> 40.0	<b>46.7</b>	47.3 46.7	48.1	49.9 50.1	52.4	<mark>52.5</mark> 49.1		52.0 51.5	20.9 20.9	20.3	49.0	4	<u>o</u> <u>m</u>	<u>.</u>	<mark>48.2</mark> 48.1	46.6
± 40.0 35.0	2 - 4 -	47	- 4	- 56 50 -	22	<mark>52</mark>	<mark></mark>		- <mark>0</mark> 6	20	- <mark>6</mark> 6	22	<mark>51</mark>	49	<mark>4</mark> 4	- 46
55.0	0	1 2	3	4 5	6	7 8	9 :	10 11	12 1	.3 14	15 16	5 17	18 19	20	21 22	23
								Hour B	eginning					_		
Timeframe	Hour	L <sub>eq</sub>	L max	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
	0	46.7	50.5	45.4	48.0	47.0	47.0	47.0	46.0	46.0	46.0	45.0	45.0	46.7	10.0	56.7
	1 2	47.3 46.7	49.8 49.3	45.9 45.5	49.0 48.0	48.0 47.0	48.0 47.0	48.0 47.0	47.0 47.0	47.0 46.0	46.0 46.0	46.0 46.0	46.0 45.0	47.3 46.7	10.0 10.0	57.3 56.7
Night	3	48.1	58.8	46.1	51.0	49.0	49.0	49.0	48.0	47.0	46.0	46.0	46.0	48.1	10.0	58.1
	4	49.9	53.6	47.8	51.0	51.0	51.0	50.0	50.0	49.0	48.0	48.0	48.0	49.9	10.0	59.9
	5	50.1	52.9	48.1	51.0	51.0	51.0	51.0	50.0	50.0	49.0	49.0	48.0	50.1	10.0	60.1
	6	52.4 52.5	61.8 61.9	50.1 49.8	54.0 54.0	54.0 54.0	53.0 53.0	53.0 53.0	52.0 53.0	52.0 52.0	51.0 51.0	51.0 50.0	50.0 50.0	52.4 52.5	10.0 0.0	62.4 52.5
	8	49.1	73.2	43.2	54.0	51.0	49.0	48.0	47.0	45.0	44.0	44.0	43.0	49.1	0.0	49.1
	9	51.9	70.2	40.9	66.0	63.0	55.0	53.0	46.0	44.0	42.0	42.0	41.0	51.9	0.0	51.9
	10	52.0	72.9	38.0	65.0	64.0	57.0	53.0	44.0	41.0	39.0	39.0	39.0	52.0	0.0	52.0
	11	51.5	78.6	38.8	63.0	58.0	51.0	49.0	43.0	42.0	39.0	39.0	39.0	51.5	0.0	51.5
Day	12 13	50.9 48.7	70.4 67.1	39.3 39.3	63.0	61.0 58.0	55.0 53.0	52.0 50.0	45.0 45.0	43.0	41.0 41.0	41.0 41.0	39.0 41.0	50.9	0.0	50.9
	15	48.7 50.3	71.2	39.5 39.5	61.0 64.0	60.0	52.0	49.0	45.0 45.0	43.0 44.0	41.0	41.0	41.0	48.7 50.3	0.0 0.0	48.7 50.3
	15	49.0	68.0	40.7	62.0	58.0	50.0	48.0	45.0	44.0	42.0	41.0	41.0	49.0	0.0	49.0
	16	50.9	69.9	42.5	63.0	60.0	53.0	50.0	46.0	45.0	44.0	44.0	43.0	50.9	0.0	50.9
	17	52.4	71.7	45.0	63.0	58.0	55.0	54.0	51.0	48.0	46.0	46.0	45.0	52.4	0.0	52.4
	18 19	51.0 49.3	72.4 67.3	45.2 45.3	61.0 59.0	55.0 54.0	51.0 50.0	50.0 48.0	48.0 47.0	47.0 47.0	46.0 46.0	46.0 45.0	45.0 45.0	51.0 49.3	0.0	51.0 54.3
Evening	20	49.3	62.3	45.5 46.6	59.0	55.0	50.0	48.0	47.0	47.0	46.0	45.0	45.0	49.3	5.0	54.5
	21	48.2	62.5	46.5	52.0	49.0	48.0	48.0	48.0	47.0	47.0	47.0	46.0	48.2	5.0	53.2
Night	22	48.1	60.0	45.7	54.0	51.0	49.0	49.0	47.0	47.0	46.0	46.0	46.0	48.1	10.0	58.1
	23	46.6	57.8	45.3	48.0	47.0	47.0	47.0	46.0	46.0	46.0	45.0	45.0	46.6	10.0	56.6
Timeframe	Hour Min	L <sub>eq</sub> 48.7	L <sub>max</sub> 61.9	L <sub>min</sub> 38.0	<b>L1%</b> 54.0	<i>L2%</i> 51.0	<b>L5%</b> 49.0	<b>L8%</b> 48.0	<b>L25%</b> 43.0	41.0	<i>L90%</i> 39.0	<i>L95%</i> 39.0	<i>L99%</i> 39.0		L <sub>eq</sub> (dBA)	
Day	Max	52.5	78.6	49.8	66.0	64.0	57.0	54.0	53.0	52.0	51.0	50.0	50.0	24-Hour	Daytime	Nighttime
Energy	Average	51.0		erage:	61.6	58.3	52.8	50.8	46.5	44.8	43.1	42.8	42.3	50.1	50.7	48.9
Evening	Min	48.2	62.3	45.3	52.0	49.0	48.0	48.0	47.0	47.0	46.0	45.0	45.0			
	Max Average	49.3 49.0	67.3	46.6 rerage:	59.0 56.7	55.0 52.7	50.0 49.3	49.0 48.3	48.0 47.7	48.0 47.3	47.0 46.7	47.0 46.3	46.0 45.7	24	Hour CNEL (	аВА)
	Min	49.0	49.3	45.3	48.0	47.0	49.3	48.3	47.7	47.3	46.7	46.3	45.7			
Night	Max	52.4	61.8	50.1	54.0	54.0	53.0	53.0	52.0	52.0	51.0	51.0	50.0		55.8	
Energy	Average	48.9	Av	verage:	50.4	49.4	49.1	49.0	48.1	47.8	47.1	46.9	46.6			



						24-Hou	ur Noise L	evel Meas	urement S	ummary						
Date:	Thursday, D	ecember 5.	2019		Location	. L3 - Located	l south of th	e project site	e near Oral, F	acial and	Meter:	Piccolo II			JN:	12720
	Hazelden B	-				Implant sur	gery offices.								Analyst:	
							Hourly L <sub>eq</sub>	dBA Readings	(unadjusted)							
	2															
85.0 - 80.0	ע און אין אין אין אין אין אין אין אין אין אי		_													
(80.0 75.0 70.0																
(Vap) 65.0 65.0 60.0	ğ ———															
00.0 <u>ح</u> 55.0	5							<b>1</b> 1			- <mark>+</mark>					
<b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0	<b>47.8</b>	0.4	1.6	47.9	23.4	55.6		57.5	26.3	54.3 53.4	<mark>57./</mark>	<mark></mark>	56.1	<u>2</u>	<mark>51.6</mark> 52.0	48.3
± 40.0 35.0		4 4		50 50	<u>0</u>	<u>ы</u> ц		<u>0</u>		5 <mark>. 54</mark>			23 L	<b>22</b>	52.	- 48
55.0	0	1 2	3	4 5	6	7 8	9 :	10 11	12 1	13 14	15 16	17	18 19	20	21 22	23
	C C		0		Ū.		<b>.</b>		eginning		10 10		10 10	20		20
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
	0	47.8	55.8	43.7	55.4	54.8	53.0	51.3	48.3	45.3	44.1	43.9	43.7	47.8	10.0	57.8
	1	44.9	52.6	41.4	52.2	51.6	49.8	48.2	44.7	43.2	41.8	41.6	41.5	44.9	10.0	54.9
	2	44.4	51.9	41.0	51.4	50.9	49.0	47.5	44.1	42.8	41.4	41.2	41.1	44.4	10.0	54.4
Night	3 4	51.6 47.9	63.0 56.9	44.2 43.8	62.4 56.2	61.3 55.2	58.1 53.2	55.6 51.6	49.7 47.5	47.5 45.8	45.2 44.2	44.7 44.0	44.3 43.9	51.6 47.9	10.0 10.0	61.6 57.9
	4 5	50.2	58.7	45.8	58.2	57.5	55.6	51.0	50.3	45.8	44.2	44.0	45.3	50.2	10.0	60.2
	6	53.4	59.4	48.9	59.1	58.6	57.5	56.8	54.3	52.0	49.5	49.2	48.9	53.4	10.0	63.4
	7	55.6	64.0	49.2	63.5	62.7	60.5	59.3	56.1	53.9	50.4	49.8	49.3	55.6	0.0	55.6
	8	54.7	61.2	49.1	60.8	60.3	59.3	58.5	55.6	53.2	50.1	49.7	49.3	54.7	0.0	54.7
	9	54.0	59.9	48.4	59.6	59.1	58.1	57.4	55.1	52.7	49.4	49.0	48.6	54.0	0.0	54.0
	10 11	57.5 54.8	64.4 62.2	48.3 48.6	63.9 61.6	63.5 60.8	62.7 59.5	62.0 58.6	59.0 55.7	54.3 53.0	49.7 49.7	49.1 49.2	48.5 48.8	57.5 54.8	0.0 0.0	57.5 54.8
	11	56.3	63.6	48.3	63.0	62.5	61.7	61.0	57.5	53.3	49.5	49.0	48.4	56.3	0.0	56.3
Day	13	54.3	61.9	47.9	61.4	60.6	59.0	58.1	55.0	52.7	49.1	48.5	48.0	54.3	0.0	54.3
	14	53.4	59.2	47.8	58.9	58.4	57.3	56.4	54.2	52.5	49.3	48.5	48.0	53.4	0.0	53.4
	15	57.4	63.8	49.0	63.5	63.1	62.4	62.0	58.8	55.3	50.5	49.8	49.2	57.4	0.0	57.4
	16 17	59.1 57.2	65.3 64.2	50.7 49.4	64.8 63.8	64.4 63.5	63.5 62.4	62.9 61.4	60.9 58.1	57.8 55.2	52.3 50.5	51.6 49.9	50.8 49.5	59.1 57.2	0.0 0.0	59.1 57.2
	18	56.1	63.1	49.1	62.9	62.5	61.5	60.8	57.1	53.2	49.9	49.5	49.2	56.1	0.0	56.1
	19	53.3	62.4	46.7	62.0	61.1	59.6	57.4	53.1	50.6	47.6	47.1	46.8	53.3	5.0	58.3
Evening	20	52.2	60.1	46.3	59.7	59.1	57.5	56.2	52.9	49.8	47.1	46.7	46.4	52.2	5.0	57.2
	21	51.6	58.8	45.7	58.4	57.8	56.4	55.7	52.8	49.1	46.4	46.1	45.8	51.6	5.0	56.6
Night	22 23	52.0 48.3	61.0 56.1	45.7 44.4	60.4 55.6	59.6 55.0	57.7 53.2	56.4 51.9	52.0 48.3	49.4 46.4	46.3 44.9	46.0 44.7	45.8 44.5	52.0 48.3	10.0 10.0	62.0 58.3
Timeframe	Hour	L <sub>eq</sub>	L max	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	+0.5	L <sub>eq</sub> (dBA)	50.5
Day	Min	53.4	59.2	47.8	58.9	58.4	57.3	56.4	54.2	52.5	49.1	48.5	48.0	24-Hour	Daytime	Nighttime
	Max	59.1	65.3	50.7	64.8	64.4	63.5	62.9	60.9	57.8	52.3	51.6	50.8	24-11001	Duytime	Nighttime
Energy	Average	56.2		erage:	62.3	61.8	60.7	59.8	56.9	53.9	50.0	49.5	49.0	54.3	55.7	49.9
Evening	Min Max	51.6 53.3	58.8 62.4	45.7 46.7	58.4 62.0	57.8 61.1	56.4 59.6	55.7 57.4	52.8 53.1	49.1 50.6	46.4 47.6	46.1 47.1	45.8 46.8		Hour CNEL (d	
Energy	Average	52.4	-	erage:	60.0	59.3	57.8	56.4	53.0	49.8	47.0	46.6	46.3	61		
Night	Min	44.4	51.9	41.0	51.4	50.9	49.0	47.5	44.1	42.8	41.4	41.2	41.1	1	58.1	
, , , , , , , , , , , , , , , , , , ,	Max	53.4	63.0	48.9	62.4	61.3	58.1	56.8	54.3	52.0	49.5	49.2	48.9		<b>JO</b> .T	
Energy	Average	49.9	Av	erage:	56.8	56.0	54.1	52.6	48.8	46.7	44.8	44.5	44.3			



						24-Hou	ur Noise L	evel Meas	urement S	ummary						
	Thursday, D Hazelden B	-			Location	L4 - Located the Bannan		estern bound	lary of the Pi	roject site by	Meter:	Piccolo II			JN: Analyst:	12720 P. Mara
,		,					Hourly L <sub>eq</sub>	dBA Readings	(unadjusted)						,	
85.0	2															
(80.0 (80.0 75.0 70.0																
e 60 (																
1 55.0 55.0 50.0 45.0		رة 14 1	. <u>v</u>	0. 6j	54.5	57.4 58.6		<mark>55.8</mark> 55.3	56.0		55.1	20.3		4	<mark>51.9</mark> 52.0	4
± 40.0 35.0		50.5 49.4	20.3	51.0	2		<u> </u>	<u> </u>	- <mark></mark> -	52.4 59	55	<b>b b b b b b b b b b</b>	23.0	<b>22</b>	52.	50.4
	0	1 2	3	4 5	6	7 8	9	10 11 Hour P	12 1 eginning	.3 14	15 10	5 17	18 19	20	21 22	23
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
	0	51.1	55.9	49.0	55.4	55.1	54.4	53.5	51.5	50.3	49.4	49.3	49.1	- eq 51.1	10.0	61.1
	1	50.5	54.7	48.7	54.5	54.2	53.3	52.5	50.6	49.9	49.1	49.0	48.8	50.5	10.0	60.5
Night	2	49.4 50.3	50.9 54.6	48.5 48.1	50.8 54.3	50.7 54.0	50.5 53.5	50.3 53.1	49.6 50.8	49.3 49.3	48.8 48.5	48.7 48.4	48.6 48.2	49.4 50.3	10.0 10.0	59.4 60.3
Might	3 4	50.3	54.6	48.1 49.0	54.3 54.9	54.0 54.7	53.5 54.1	53.1	50.8	49.3 50.2	48.5	48.4	48.2	50.3	10.0	61.0
	5	51.9	56.1	49.8	55.9	55.6	54.9	54.2	52.3	51.3	50.3	50.1	49.9	51.9	10.0	61.9
	6	54.5	58.6	52.6	58.2	57.9	57.1	56.5	54.8	53.9	53.0	52.8	52.6	54.5	10.0	64.5
	7	57.4	62.8	53.5	62.3	61.8	61.0	60.4	58.3	56.4	54.2	54.0	53.7	57.4	0.0	57.4
	8 9	58.6 55.1	75.3 64.9	54.1 47.4	74.1 63.6	73.3 62.3	70.2 59.7	68.0 58.4	63.7 56.1	61.3 52.8	56.6 48.6	55.7 48.0	54.6 47.5	58.6 55.1	0.0 0.0	58.6 55.1
	10	55.8	63.5	47.4	63.0	62.5	61.3	60.6	57.1	52.8	48.0	47.5	47.2	55.8	0.0	55.8
	11	55.3	68.0	46.7	66.2	64.3	60.2	58.6	54.8	51.6	49.0	48.6	46.9	55.3	0.0	55.3
Day	12	56.0	65.2	50.3	64.5	63.4	60.3	59.8	56.5	52.8	50.8	50.6	50.3	56.0	0.0	56.0
,	13	52.4	61.3	46.2	60.4	59.4	57.7	56.6	53.4	49.7	47.0	46.6	46.3	52.4	0.0	52.4
	14 15	59.9 55.1	70.7 63.8	53.4 47.5	69.6 63.0	68.5 62.2	66.0 60.4	63.9 59.2	58.2 55.7	57.5 52.8	54.0 48.5	53.8 48.1	53.6 47.7	59.9 55.1	0.0 0.0	59.9 55.1
	16	54.2	61.4	47.5	61.0	60.5	59.1	58.3	55.8	51.8	49.0	48.7	48.5	54.2	0.0	54.2
	17	56.3	64.4	50.8	64.0	63.6	62.0	60.7	56.5	53.6	51.7	51.2	50.9	56.3	0.0	56.3
	18	54.5	60.1	51.0	59.8	59.5	58.9	58.6	55.1	52.4	51.4	51.2	51.1	54.5	0.0	54.5
Evening	19 20	53.0 52.4	58.3 56.9	50.1 50.5	57.9 56.4	57.6 55.9	56.8 55.2	56.0 54.5	54.0 52.8	51.5 51.7	50.5 50.8	50.4 50.6	50.2 50.5	53.0 52.4	5.0 5.0	58.0 57.4
Lvening	20	52.4 51.9	56.9	50.5 49.6	56.4 56.2	55.9	55.2 55.7	54.5 55.2	52.8 52.0	51.7	50.8 49.9	50.6 49.8	50.5 49.7	52.4 51.9	5.0	57.4
Night	22	52.0	56.1	49.6	55.9	55.6	55.2	54.6	52.6	50.9	50.0	49.9	49.7	52.0	10.0	62.0
Night	23	50.4	53.7	49.0	53.4	53.0	52.4	51.9	50.7	50.1	49.3	49.2	49.1	50.4	10.0	60.4
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%		L <sub>eq</sub> (dBA)	
Day	Min Max	52.4 59.9	60.1 75.3	46.2 54.1	59.8 74.1	59.4 73.3	57.7 70.2	56.6 68.0	53.4 63.7	49.7 61.3	47.0 56.6	46.6 55.7	46.3 54.6	24-Hour	Daytime	Nighttime
Energy	Average	56.3		verage:	64.3	63.4	61.4	60.2	56.8	53.7	50.0	50.3	49.8			<b>F4 F</b>
Evening	Min	51.9	56.4	49.6	56.2	55.9	55.2	54.5	52.0	50.6	49.9	49.8	49.7	54.6	55.8	51.5
, i i i i i i i i i i i i i i i i i i i	Max	53.0	58.3	50.5	57.9	57.6	56.8	56.0	54.0	51.7	50.8	50.6	50.5	24	Hour CNEL (a	IBA)
Energy	Average Min	52.4 49.4	Av 50.9	verage: 48.1	56.8 50.8	56.5 50.7	55.9 50.5	55.2 50.3	53.0 49.6	51.3 49.3	50.4 48.5	50.3 48.4	50.1 48.2			
Night	Max	54.5	50.9 58.6	48.1 52.6	58.2	57.9	57.1	56.5	54.8	53.9	48.5 53.0	52.8	52.6		59.1	
Energy	Average	51.5	Av	verage:	54.8	54.5	53.9	53.4	51.6	50.6	49.8	49.6	49.5			



						24-Ho	our Noise L	evel Meas	urement S	ummary						
Date:	Thursday, [	December 5	5, 2019		Locati	011.	ed northwest	of Project sit	e near Hal B.	Wallis	Meter:	Piccolo II			JN:	12720
Project:	Hazelden B	etty Ford C	Center			Building Ca	ardiology.								Analyst:	P. Mara
							Hourly L <sub>eq</sub>	dBA Readings	(unadjusted)							
85.0	۱															
	ξ <b> </b> −−−															
( <b>80.0</b> 75.0 70.0																
65.0 60.0	3				o;		<u>o</u>		4							
<b>2</b> 55.0						60.4		62.6		9.6						
<b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0 <b>1</b> 55.0	49.3	48.6	48.2	52.1	56.8		+ +		·	23 <sup>-</sup>	54.3		52.5 53.3	<b>51.6</b>	<mark>51.5</mark> 52.2	49.8
± 40.0 35.0		4	4 4										- <u>0</u> <u>0</u>	<u>0</u>	<u> </u>	4
	0	1	2 3	4	5 6	7 8	9	10 11	12 1	.3 14	15 16	5 17	18 19	20	21 22	23
									eginning							
Timeframe	Hour	L <sub>eq</sub>	L max	L mi			L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
	0	49.3	52.1	48.			51.0	50.5	49.6	49.0	48.3	48.2	48.1	49.3	10.0	59.3
	1 2	48.6 48.2	50.4 49.7	47. 47.			49.7 49.1	49.5 48.9	48.9 48.5	48.4 48.1	47.9 47.7	47.7 47.6	47.6 47.4	48.6 48.2	10.0 10.0	58.6 58.2
Night	3	48.2	55.4	47.			53.3	52.7	50.5	48.5	47.7	47.0	47.4	48.2	10.0	59.8
Ŭ	4	52.1	56.2	49.			55.3	54.8	52.4	51.3	50.1	49.8	49.6	52.1	10.0	62.1
	5	56.8	64.4	51.			62.6	61.0	56.8	54.8	52.1	51.7	51.3	56.8	10.0	66.8
	6	64.0	70.0	56.			68.0	67.5	65.2	62.4	59.7	58.9	57.2	64.0	10.0	74.0
	7 8	63.4 60.4	70.3 70.6	56. 51.			67.8 65.1	67.0 63.8	64.4 60.9	62.1 58.1	58.3 54.0	57.4 53.1	56.4 52.2	63.4 60.4	0.0 0.0	63.4 60.4
	9	63.6	70.0	57.			67.5	66.6	64.4	62.3	58.7	58.2	57.6	63.6	0.0	63.6
	10	62.6	71.1	55.	L 70.3	69.7	67.3	66.1	63.3	60.4	56.6	56.0	55.3	62.6	0.0	62.6
	11	65.1	72.3	59.			69.8	69.1	65.3	63.6	60.9	60.4	59.8	65.1	0.0	65.1
Day	12	65.4	74.5	60.			69.8	68.7	65.5	63.8	61.4	60.9	60.5	65.4	0.0	65.4
	13 14	61.2 59.6	68.8 67.0	54. 51.			65.6 64.7	64.6 63.7	61.9 60.3	59.7 57.5	56.1 52.4	55.5 51.8	54.8 51.3	61.2 59.6	0.0 0.0	61.2 59.6
	14	54.3	63.5	44.4			60.2	58.3	55.1	51.5	46.3	45.8	44.8	54.3	0.0	54.3
	16	55.2	62.4	51.	62.1	61.4	59.7	58.4	55.5	53.5	52.0	51.8	51.5	55.2	0.0	55.2
	17	55.6	61.8	50.			60.1	59.5	56.4	53.9	51.6	51.3	50.9	55.6	0.0	55.6
	18 19	52.5 53.3	57.5 58.9	48.			56.5	56.0 57.1	53.5 54.4	50.8 51.2	49.4 49.7	49.2 49.5	49.0 49.4	52.5 53.3	0.0	52.5 58.3
Evening	19 20	53.3 51.6	58.9	49.			57.7	57.1	54.4 52.4	51.2	49.7 50.0	49.5 49.8	49.4 49.7	53.3 51.6	5.0	58.3
- 0	21	51.5	57.7	48.			56.1	55.4	51.4	49.6	48.6	48.5	48.3	51.5	5.0	56.5
Night	22	52.2	57.5	48.		-	56.5	55.8	53.0	50.2	49.2	49.0	48.8	52.2	10.0	62.2
, , , , , , , , , , , , , , , , , , ,	23	49.8	53.8	48.			52.3	51.5	50.2	49.2	48.4	48.3	48.1	49.8	10.0	59.8
Timeframe	Hour Min	L <sub>eq</sub> 52.5	L <sub>max</sub> 57.5	L <sub>mit</sub> 44.4			<b>L5%</b> 56.5	<i>L8%</i> 56.0	L25%	<i>L50%</i> 50.8	46.3	<b>L95%</b> 45.8	<b>L99%</b> 44.8		L <sub>eq</sub> (dBA)	
Day	Max	65.4	74.5	60.			69.8	69.1	65.5	63.8	61.4	60.9	60.5	24-Hour	Daytime	Nighttime
Energy	Average	61.6		Average:	67.0	66.2	64.5	63.5	60.6	58.1	54.8	54.3	53.7	59.6	60.8	56.2
Evening	Min	51.5	54.9	48.			54.0	53.6	51.4	49.6	48.6	48.5	48.3			
	Max Average	53.3 52.2	58.9	49.0 Average:	5 58.6		57.7 55.9	57.1 55.4	54.4 52.7	51.2 50.6	50.0 49.5	49.8 49.3	49.7 49.1	24-	Hour CNEL (d	ава)
	Min	48.2	49.7	46.			49.1	48.9	48.5	48.1	49.5	49.3	49.1		<b>C 7</b>	
Night	Max	64.0	70.0	56.			68.0	67.5	65.2	62.4	59.7	58.9	57.2		63.7	
Energy	Average	56.2		Average:	56.3	56.0	55.3	54.7	52.8	51.3	50.1	49.8	49.5			



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APPENDIX 7.1:

**OFF-SITE TRAFFIC NOISE LEVEL CONTOURS** 



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	FHW	'A-RD-77-108 HI	IGHWAY	NOISE PF	REDICTIO	N MODEL		
Road Nam	io: Existing ie: Bob Hope D nt: n/o MacMilla					ame: Hazel nber: 12720	lden Betty For )	d Cent
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOD	EL INPUTS	
Highway Data				Site Con	ditions (H	ard = 10, S	Goft = 15)	
Peak Hour	Traffic (Adt): 2 Percentage: lour Volume:	3,723 vehicles 8.38% 1,988 vehicles				Autos (s (2 Axles) (3+ Axles)	: 15	
Vei	hicle Speed:	45 mph		Vehicle I	Mix			
Near/Far Lar	ne Distance:	58 feet			icleType	Dav	Evening 1	Vight Daily
Site Data					Au		•	10.5% 97.42%
Ba	rrier Heiaht:	0.0 feet		Me	edium Truc	ks: 48.99	% 2.2%	48.9% 1.84%
Barrier Type (0-W		0.0		ŀ	leavy Truc	ks: 47.39	% 5.4%	47.3% 0.74%
Centerline Dis	st. to Barrier:	55.0 feet		Noise So	ource Elev	ations (in	feet)	
Centerline Dist.	to Observer:	55.0 feet			Autos:	0.000		
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297		
Observer Height (	Above Pad): ad Elevation:	5.0 feet 0.0 feet			y Trucks:	8.006	Grade Adjus	stment: 0.0
	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance (in	feet)	
	Road Grade:	0.0%			Autos:	47.000		
	Left View:	-90.0 degrees		Mediur	m Trucks:	46.811		
	Right View:	90.0 degrees		Heav	y Trucks:	46.830		
FHWA Noise Mode	el Calculations	:						
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.03	0.	30	-1.20	-4.67	0.00	D 0.000
Medium Trucks:	79.45	-16.21	0.	33	-1.20	-4.87	0.00	0.000
Heavy Trucks:	84.25	-20.16	0.3	32	-1.20	-5.38	0.00	0.000
Unmitigated Noise	e Levels (witho	out Topo and ba	arrier atte	nuation)				
VehicleType	Leq Peak Hour		,	Evening	Leq Ni		Ldn	CNEL
Autos:	68.			66.0		60.0	68.4	69.1
Medium Trucks:	62.4			51.7		60.5	66.7	66.7
Heavy Trucks:	63.			56.5		61.2	67.4	67.5
Vehicle Noise:	70.4		.6	66.6		65.4	72.3	72.6
Centerline Distant	ce to Noise Co	ntour (in feet)	70	10.4	05 -15		00 -10 4	<i></i>
		10		dBA	65 dB		60 dBA	55 dBA
		CNE		79 82	169 178		365 383	787 825
		CIVE	.L	02	178		383	820

FHW	/A-RD-77-108 H	IGHWA	Y NOISE PI	REDICT	ION MODE	L		
Scenario: Existing Road Name: Bob Hope E Road Segment: s/o Street A					Name: Ha lumber: 12	zelden Betty F 720	ord Cen	t
SITE SPECIFIC IN	PUT DATA			r	IOISE MO	DEL INPUT	s	
Highway Data			Site Cor	nditions	(Hard = 10	, Soft = 15)		
Average Daily Traffic (Adt): 1	9.193 vehicles				Au	tos: 15		
Peak Hour Percentage:	8.38%		Me	dium Tr	ucks (2 Axle	es): 15		
•	1.608 vehicles		He	avy Tru	cks (3+ Axle	es): 15		
Vehicle Speed:	45 mph					,		
Near/Far Lane Distance:	58 feet		Vehicle					
			Veh	icleType		, , ,		Daily
Site Data						.5% 14.0%	10.5%	
Barrier Height:	0.0 feet			edium T		.9% 2.2%		
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy T	rucks: 47	.3% 5.4%	47.3%	0.74%
Centerline Dist. to Barrier:	55.0 feet		Noise S	ource E	levations (	in feet)		
Centerline Dist. to Observer:	55.0 feet			Auto		,		
Barrier Distance to Observer:	0.0 feet		Mediu	m Truck				
Observer Height (Above Pad):	5.0 feet			vy Truck			liustment	t: 0.0
Pad Elevation:	0.0 feet			·			,	
Road Elevation:	0.0 feet		Lane Eq		t Distance			
Road Grade:	0.0%			Auto				
Left View:	-90.0 degrees			m Truck				
Right View:	90.0 degrees		Hear	vy Truck	s: 46.830	)		
FHWA Noise Model Calculation			1					
VehicleType REMEL	Traffic Flow	Distanc		Road	Fresnel	Barrier At		rm Atten
Autos: 68.46	0.11		0.30	-1.20			000	0.00
Medium Trucks: 79.45	-17.13		0.33	-1.20	-4.		000	0.00
Heavy Trucks: 84.25	-21.08	1	0.32	-1.20	-5.	38 0.	000	0.00
Unmitigated Noise Levels (with			,					
VehicleType Leq Peak Hou			q Evening	,	Night	Ldn		NEL
Autos: 67.		5.4	65.1		59.1	67.		68.
Medium Trucks: 61.		3.3	50.8		59.6	65.		65.
Heavy Trucks: 62		9.0	55.6		60.3	66.		66.
Vehicle Noise: 69		7.7	65.7		64.4	71.	4	71.
Centerline Distance to Noise Co	ntour (in feet)							
			70 dBA		dBA	60 dBA		5 dBA
	L	dn:	68	1	47	317		683
	CNI		72		54	332		716

	SHIWA I	NOISE PI						
Scenario: Existing						en Betty Fo	ord Cen	t
Road Name: Bob Hope Dr.			Job N	umber: 1	2720			
Road Segment: s/o Country Club Dr.								
SITE SPECIFIC INPUT DATA						L INPUTS	S	
Highway Data		Site Cor	nditions	(Hard = 1	10, So	oft = 15)		
Average Daily Traffic (Adt): 19,765 vehicles				A	utos:	15		
Peak Hour Percentage: 8.38%		Me	edium Tru	icks (2 A	kles):	15		
Peak Hour Volume: 1,656 vehicles		He	eavy Truc	ks (3+ A	kles):	15		
Vehicle Speed: 45 mph		Vehicle	Mix					
Near/Far Lane Distance: 58 feet			icleType	1	Day	Evening	Night	Daily
Site Data				Autos: 7	75.5%	14.0%	10.5%	97.429
Barrier Height: 0.0 feet		М	ledium Tr	ucks: 4	18.9%	2.2%	48.9%	1.84
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Ti	ucks: 4	17.3%	5.4%	47.3%	0.749
Centerline Dist. to Barrier: 55.0 feet		Noise S	ource El	evations	(in fe	et)		
Centerline Dist. to Observer: 55.0 feet			Auto					
Barrier Distance to Observer: 0.0 feet		Modiu	m Truck					
Observer Height (Above Pad): 5.0 feet			vv Truck			Grade Adj	ustment	0.0
Pad Elevation: 0.0 feet								
Road Elevation: 0.0 feet		Lane Eq				eet)		
Road Grade: 0.0%			Auto					
Left View: -90.0 degrees			m Truck					
Right View: 90.0 degrees		Hea	vy Truck	s: 46.8	30			
FHWA Noise Model Calculations								
VehicleType REMEL Traffic Flow	Distance	e Finite	Road	Fresne	el .	Barrier Atte	en Bei	m Atter
Autos: 68.46 0.24	-	0.30	-1.20		4.67	0.0		0.00
Medium Trucks: 79.45 -17.00	-	).33	-1.20		4.87	0.0		0.00
Heavy Trucks: 84.25 -20.95	C	0.32	-1.20	-	5.38	0.0	00	0.00
Unmitigated Noise Levels (without Topo and ba	rrier att	tenuation)						
	Leq	Evening	Leq	Night		Ldn	C	NEL
VehicleType Leq Peak Hour Leq Day		65.2		59.2		67.7		68.
VehicleType Leq Peak Hour Leq Day Autos: 67.8 66.	-			59.7		65.9		65.
VehicleType         Leq Peak Hour         Leq Day           Autos:         67.8         66.           Medium Trucks:         61.6         58.	4	50.9						66.
VehicleType         Leq Peak Hour         Leq Day           Autos:         67.8         66.           Medium Trucks:         61.6         58.           Heavy Trucks:         62.4         59.	4	50.9 55.8		60.4		66.6	·	
VehicleType         Leq Peak Hour         Leq Day           Autos:         67.8         66.           Medium Trucks:         61.6         58.	4 1					71.5		71.
VehicleType         Leq Peak Hour         Leq Day           Autos:         67.8         66.           Medium Trucks:         61.6         58.           Heavy Trucks:         62.4         59.           Vehicle Noise:         69.6         67.	4 1 8	55.8 65.9		60.4			5	
VehicleType         Leq Peak Hour         Leq Day           Autos:         67.8         66.           Medium Trucks:         61.6         58.           Heavy Trucks:         62.4         59.           Vehicle Noise:         69.6         67.	4 1 8	55.8		60.4	6		5	71. dBA
VehicleType         Leq Peak Hour         Leq Day           Autos:         67.8         66.           Medium Trucks:         61.6         58.           Heavy Trucks:         62.4         59.	4 1 8 7	55.8 65.9	65	60.4 64.6	6	71.5	55	71. dBA 397 730

	FHV	/A-RD-77-108	HIGHWA	Y NOISE P	REDICTIO	ON MODEL			
Road Nam	o: Existing e: John L. Sin nt: s/o Street A					Name: Haz ımber: 127	elden Betty F 20	ord Cen	t
SITE	SPECIFIC IN	PUT DATA			N	OISE MO	DEL INPUT	S	
Highway Data				Site Co.	nditions (	'Hard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	3,755 vehicles				Aut	os: 15		
Peak Hour	Percentage:	8.38%		Me	edium Tru	cks (2 Axle	s): 15		
Peak H	our Volume:	315 vehicles		H	avy Truc	ks (3+ Axle	s): 15		
Vel	hicle Speed:	25 mph		Vehicle	Mix				
Near/Far Lar	ne Distance:	12 feet				De	( Evening	Night	Dailu
Site Data				vei	nicleType	Utos: 75	0	Night	Daily
									97.42%
	rier Height:	0.0 feet			ledium Tri			48.9%	
Barrier Type (0-Wa		0.0			Heavy Tr	ucks: 47.	3% 5.4%	47.3%	0.74%
Centerline Dis		30.0 feet		Noise S	ource Ele	evations (i	n feet)		
Centerline Dist. t		30.0 feet			Autos		,		
Barrier Distance t		0.0 feet		Medii	im Trucks				
Observer Height (/	Above Pad):	5.0 feet			vy Trucks		Grade Ad	ustment	: 0.0
Pa	d Elevation:	0.0 feet					-		
Roa	d Elevation:	0.0 feet		Lane Ed		Distance (	,		
F	Road Grade:	0.0%			Autos				
	Left View:	-90.0 degree	s	Mediu	ım Trucks	: 29.518			
	Right View:	90.0 degree	S	Hea	vy Trucks	: 29.547			
	•				vy mucho				
FHWA Noise Mode	el Calculation	s			vy muons				
FHWA Noise Mode VehicleType	el Calculation REMEL	s Traffic Flow	Distan	ce Finite	Road	Fresnel	Barrier Att	en Bei	m Atten
		-		ce Finite 3.26		Fresnel -4.4			
VehicleType	REMEL	Traffic Flow			e Road		19 0.0		0.000
VehicleType Autos:	REMEL 58.73	Traffic Flow -4.42		3.26	e Road -1.20	-4.4	49 0.0 36 0.0	000	0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	REMEL 58.73 70.80 77.97 2 Levels (with	Traffic Flow -4.42 -21.66 -25.61 out Topo and		3.26 3.33 3.32	<i>Road</i> -1.20 -1.20	-4.4	49 0.0 36 0.0	000	0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	REMEL 58.73 70.80 77.97 E Levels (with Leq Peak Hou	Traffic Flow           -4.42           -21.66           -25.61           Dut Topo and I           r         Leq Day	barrier at	3.26 3.33 3.32 ttenuation) q Evening	e Road -1.20 -1.20 -1.20 <i>Leq I</i>	-4.4 -4.8 -5.1	49 0.0 36 0.0 77 0.0	000 000 000 C	0.000 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	REMEL 58.73 70.80 77.97 2 Levels (with Leq Peak Hou 56	Traffic Flow         -4.42         -21.66         -25.61           out Topo and P         -21.64         -25.61 <td< td=""><td>barrier at Le</td><td>3.26 3.33 3.32 ttenuation) q Evening 53.8</td><td><ul> <li>Road</li> <li>-1.20</li> <li>-1.20</li> <li>-1.20</li> <li>-1.20</li> </ul></td><td>-4.4 -4.8 -5.2 Vight 47.8</td><td>19 0.0 36 0.0 77 0.0 <u>Ldn</u> 56.2</td><td>000 000 000 C</td><td>0.000 0.000 0.000 NEL 56.9</td></td<>	barrier at Le	3.26 3.33 3.32 ttenuation) q Evening 53.8	<ul> <li>Road</li> <li>-1.20</li> <li>-1.20</li> <li>-1.20</li> <li>-1.20</li> </ul>	-4.4 -4.8 -5.2 Vight 47.8	19 0.0 36 0.0 77 0.0 <u>Ldn</u> 56.2	000 000 000 C	0.000 0.000 0.000 NEL 56.9
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	REMEL 58.73 70.80 77.97 E Levels (with Leq Peak Hou	Traffic Flow         -4.42         -21.66         -25.61           out Topo and P         -21.64         -25.61 <td< td=""><td>barrier at</td><td>3.26 3.33 3.32 ttenuation) q Evening</td><td><ul> <li>Road</li> <li>-1.20</li> <li>-1.20</li> <li>-1.20</li> <li>-1.20</li> </ul></td><td>-4.4 -4.8 -5.1</td><td>49 0.0 36 0.0 77 0.0</td><td>000 000 000 C</td><td>0.000 0.000 0.000 NEL 56.9</td></td<>	barrier at	3.26 3.33 3.32 ttenuation) q Evening	<ul> <li>Road</li> <li>-1.20</li> <li>-1.20</li> <li>-1.20</li> <li>-1.20</li> </ul>	-4.4 -4.8 -5.1	49 0.0 36 0.0 77 0.0	000 000 000 C	0.000 0.000 0.000 NEL 56.9
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	REMEL 58.73 70.80 77.97 2 Levels (with Leq Peak Hou 56	Traffic Flow         -4.42         -21.66         -25.61           out Topo and P         -25.61 <td< td=""><td>barrier at Le</td><td>3.26 3.33 3.32 ttenuation) q Evening 53.8</td><td>Road -1.20 -1.20 -1.20 -1.20</td><td>-4.4 -4.8 -5.2 Vight 47.8</td><td>19 0.0 36 0.0 77 0.0 <u>Ldn</u> 56.2</td><td>000 000 000 C 2</td><td>0.000 0.000 0.000 NEL 56.9 55.6</td></td<>	barrier at Le	3.26 3.33 3.32 ttenuation) q Evening 53.8	Road -1.20 -1.20 -1.20 -1.20	-4.4 -4.8 -5.2 Vight 47.8	19 0.0 36 0.0 77 0.0 <u>Ldn</u> 56.2	000 000 000 C 2	0.000 0.000 0.000 NEL 56.9 55.6
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	REMEL 58.73 70.80 77.97 2 Levels (with Leq Peak Hou 56 51	Traffic Flow           -4.42           -21.66           -25.61           Out Topo and I           r         Leg Day           .4         5	barrier at Le	3.26 3.33 3.32 ttenuation) q Evening 53.8 40.6	e Road -1.20 -1.20 -1.20 -1.20 Leq 1	-4. -4. -5. -5. -5. - -5. - -5. - 	19 0.0 36 0.0 77 0.0 <u>Ldn</u> 56.2 55.6	000 000 000 2 3	0.000 0.000 0.000 NEL 56.9 55.6 58.8
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 58.73 70.80 77.97 2 Levels (with Leg Peak Hou 56 51 54 54	Traffic Flow         -4.42         -4.42         -21.66         -25.61           Dout Topo and D         r         Leq Day         4         5 <t< td=""><td>barrier at 55.1 18.1 51.2 57.2</td><td>3.26 3.33 3.32 ttenuation) q Evening 53.8 40.6 47.8 55.0</td><td>PRoad -1.20 -1.20 -1.20 -1.20 Leq N</td><td>-4.4 -4.8 -5.1 Vight 47.8 49.4 52.5 55.1</td><td>19 0.0 36 0.0 77 0.0 <i>Ldn</i> 56.2 55.6 58.7 61.8</td><td>000 000 000 2 3 7 3</td><td>0.000 0.000 0.000 NEL 56.9 55.6 58.8 62.0</td></t<>	barrier at 55.1 18.1 51.2 57.2	3.26 3.33 3.32 ttenuation) q Evening 53.8 40.6 47.8 55.0	PRoad -1.20 -1.20 -1.20 -1.20 Leq N	-4.4 -4.8 -5.1 Vight 47.8 49.4 52.5 55.1	19 0.0 36 0.0 77 0.0 <i>Ldn</i> 56.2 55.6 58.7 61.8	000 000 000 2 3 7 3	0.000 0.000 0.000 NEL 56.9 55.6 58.8 62.0
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 58.73 70.80 77.97 2 Levels (with Leg Peak Hou 56 51 54 54	Traffic Flow           -4.42           -21.66           -25.61           Dut Topo and I           r         Leq Day           4         5           .5         5           .3         5           .3         5	barrier at Les 55.1 48.1 51.2 57.2	3.26 3.33 3.32 (ttenuation) g Evening 53.8 40.6 47.8 55.0	■ Road -1.20 -1.20 -1.20 -1.20	-4. -4. -5. Vight 47.8 49.4 52.5 55.1 IBA	19 0.0 36 0.0 77 0.0 <i>Ldn</i> 55.0 58.7 61.8	000 000 000 2 3 3 55	0.000 0.000 0.000 NEL 56.9 55.6 58.8 62.0 dBA
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 58.73 70.80 77.97 2 Levels (with Leg Peak Hou 56 51 54 54	Traffic Flow           -4.42           -21.66           -25.61           Dut Topo and I           r         Leq Day           4         5           5         5           5         5           6         -25.61           0         0           1         Leq Day           4         5           5         5           5         5           6         5           9         0           1         1	barrier at 55.1 18.1 51.2 57.2	3.26 3.33 3.32 ttenuation) q Evening 53.8 40.6 47.8 55.0	PRoad -1.20 -1.20 -1.20 -1.20 Leq N	-4. -4. -5. -5. -5. 49.4 52.5 55.1 	19 0.0 36 0.0 77 0.0 <i>Ldn</i> 56.2 55.6 58.7 61.8	000 000 2 3 7 3	0.000 0.000 0.000 NEL 56.9 55.6 58.8 62.0

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHW	A-RD-77-108	HIGHW	/AY NC	ISE PR	EDICTIO	N MOD	EL			
Road Name	<ul> <li>D: Existing</li> <li>D: Joe Friend L</li> <li>t: s/o MacMilla</li> </ul>						lame: H mber: 1:	azelden Be 2720	etty Ford	Cent	
SITE S	SPECIFIC INF	PUT DATA				NC	DISE M	ODEL INI	PUTS		
Highway Data				S	ite Con	ditions (H	Hard = 1	0, Soft = 1	(5)		
Average Daily 1 Peak Hour F Peak Ho	. ,	2,050 vehicles 8.38% 172 vehicles				lium Truc avy Truck	ks (2 Ax	,			
Veh	icle Speed:	25 mph		V	ehicle N	<i>Nix</i>					
Near/Far Lan	e Distance:	12 feet				cleType	Г	Day Ever	nina Ni	ight	Dailv
Site Data					VOIN			.,	~	•	97.42%
Par	rier Heiaht:	0.0 feet			Ме	dium Tru	cks: 4	8.9% 2	.2% 4	8.9%	1.84%
Barrier Type (0-Wa		0.0			H	leavy Tru	cks: 4	7.3% 5	.4% 4	7.3%	0.74%
Centerline Dis	t. to Barrier:	30.0 feet		N	oise So	urce Ele	vations	(in feet)			
Centerline Dist. te	o Observer:	30.0 feet				Autos:		. /			
Barrier Distance to	o Observer:	0.0 feet			Mediur	n Trucks:					
Observer Height (A	Above Pad): d Elevation:	5.0 feet 0.0 feet				y Trucks:			e Adjust	ment: 0	0.0
	d Elevation: d Elevation:	0.0 feet		Li	ane Eau	ivalent l	Distance	e (in feet)			
	oad Grade:	0.0%		_	no Equ	Autos:		. ,			
	Left View:	-90.0 degree	c .		Mediur	n Trucks:	20.0				
	Right View:	90.0 degree				y Trucks:	20.0				
FHWA Noise Mode	l Calculations										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	l Barrie	er Atten	Berm	Atten
Autos:	58.73	-7.05		3.26		-1.20	-4	4.49	0.000		0.000
Medium Trucks:	70.80	-24.29		3.33		-1.20		4.86	0.000		0.000
Heavy Trucks:	77.97	-28.24		3.32		-1.20	-	5.77	0.000		0.000
Unmitigated Noise			barrier	attenu	ation)						
,1	Leq Peak Hour			.eq Eve	~	Leq N	•	Ldn		CNE	
Autos:	53.8		52.5		51.2		45.2		53.6		54.2
Medium Trucks:	48.6	-	15.5		38.0		46.8		52.9		53.0
Heavy Trucks:	51.9	·	18.6		45.2		49.8		56.0		56.1
Vehicle Noise:	56.1		54.6		52.3		52.5		59.2		59.4
Centerline Distanc	e to Noise Col	ntour (in feet)		70 dE	24	65 dł	DA I	60 dB/	4	55 dl	DA
			dn:	70 8	м	65 di 12		26	ч	55 at	
		-	_an: IFL :	6		12		26		57 59	
		CA	1 <u>L</u> .	6		13		21		59	

	FHW	/A-RD-77-108	HIGHW	AY NO	ISE PREDICT	ION MC	DEL			
	o: Existing							len Betty F	ord Cent	
	e: Vista Del So nt: n/o Betty Fo				JOD I	Number:	12720			
							MODE			
Highway Data	SPECIFIC IN	PUIDAIA		61	te Conditions			L INPUTS	>	
* /				31	le contaitions	(i lai u -		,		
Average Daily	, ,	119 vehicles	•				Autos:			
	Percentage:	8.38%			Medium Ti					
	our Volume:	10 vehicles			Heavy Tru	icks (3+	Axles):	15		
	hicle Speed:	25 mph		Ve	ehicle Mix					
Near/Far Lar	ne Distance:	12 feet			VehicleTyp	е	Day	Evening	Night	Daily
Site Data						Autos:	75.5%	14.0%	10.5%	97.42%
Bar	rier Height:	0.0 feet			Medium 1	rucks:	48.9%	2.2%	48.9%	1.84%
Barrier Type (0-W		0.0			Heavy T	rucks:	47.3%	5.4%	47.3%	0.74%
Centerline Dis		30.0 feet		_						
Centerline Dist.		30.0 feet		No	oise Source E			eet)		
Barrier Distance		0.0 feet			Auto		.000			
Observer Height (		5.0 feet			Medium Truck		.297			
0 1	d Flevation:	0.0 feet			Heavy Truck	ks: 8	.006	Grade Adj	ustment.	0.0
Roa	d Elevation:	0.0 feet		La	ne Equivaler	nt Distar	nce (in	feet)		
	Road Grade:	0.0%			Auto	os: 29	.816	,		
	Left View:	-90.0 degree	s		Medium Truck	ks: 29	.518			
	Right View:	90.0 degree			Heavy Truck	ks: 29	.547			
FHWA Noise Mode	el Calculation									
VehicleType	REMEL	Traffic Flow	Dista		Finite Road	Fres		Barrier Atte		m Atten
Autos:	58.73	-19.40		3.26	-1.20		-4.49	0.0		0.00
Medium Trucks:	70.80	-36.64		3.33	-1.20		-4.86	0.0		0.00
Heavy Trucks:	77.97	-40.60		3.32	-1.20		-5.77	0.0	00	0.00
Unmitigated Noise					,					
,1	Leq Peak Hou	1 1		eq Eve		Night		Ldn		NEL
Autos:	41.		10.2		38.8	32		41.2		41.
Medium Trucks:	36.		33.2		25.7	34		40.6		40.
Heavy Trucks:	39.	-	36.2		32.8	37.	-	43.7		43.
Vehicle Noise:	44.	-	12.2		40.0	40	1	46.8	3	47.
Centerline Distance	ce to Noise Co	ontour (in feet)								
				70 dE	65 KA	dBA	6	60 dBA		dBA
			dn:	1		2		4		9
		~	IFI :	1		2		4		9

	FHW	A-RD-77-108	HIGH	WAY N	OISE PR	EDICTIC	N MOD	EL			
Road Nam	o: Existing e: Vista Del So nt: n/o Country					Project N Job Nu			en Betty F	ord Cen	t
	SPECIFIC IN	PUT DATA							L INPUTS	5	
Highway Data				1	Site Con	ditions (l	lard = 1	10, So	oft = 15)		
Average Daily	Traffic (Adt):	1,252 vehicles	5				A	utos:	15		
Peak Hour	Percentage:	8.38%			Med	dium Truc	ks (2 A)	des):	15		
Peak H	our Volume:	105 vehicles	5		Hea	avy Truck	s (3+ A)	des):	15		
Vel	hicle Speed:	25 mph			Vehicle I	Nix					
Near/Far Lar	ne Distance:	12 feet			Vehi	cleType	1	Day	Evening	Night	Daily
Site Data								5.5%	•	10.5%	
Par	rier Heiaht:	0.0 feet			Me	edium Tru	cks: 4	8.9%	2.2%	48.9%	1.84%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tru	cks: 4	7.3%	5.4%	47.3%	0.74%
Centerline Dis		30.0 feet		1	Noise So	urce Ele	vations	(in fe	et)		
Centerline Dist. I		30.0 feet				Autos:	0.0	00			
Barrier Distance i		0.0 feet			Mediur	n Trucks:	2.2	97			
Observer Height ()	,	5.0 feet			Heav	y Trucks:	8.0	06	Grade Adj	ustment	: 0.0
	d Elevation:	0.0 feet		H							
	d Elevation:	0.0 feet		Ľ	Lane Equ	uivalent l			eet)		
F	Road Grade:	0.0%				Autos:					
	Left View: Right View:	-90.0 degree 90.0 degree				n Trucks: y Trucks:					
FHWA Noise Mode	- Calculations	-									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fresne	2	Barrier Atte	en Be	rm Atten
Autos:	58.73	-9.19		3.26	3	-1.20		4.49	0.0	00	0.000
Medium Trucks:	70.80	-26.43		3.33	3	-1.20	-	4.86	0.0	00	0.000
Heavy Trucks:	77.97	-30.38		3.3	2	-1.20	-	5.77	0.0	00	0.000
Unmitigated Noise											
	Leq Peak Hou	. ,		Leg Ev	v	Leq N	v		Ldn	-	NEL
Autos:	51.	-	50.4		49.1		43.0		51.5		52.1
Medium Trucks:	46.	-	43.4		35.9		44.6		50.8		50.8
Heavy Trucks:	49.	7	46.4		43.0		47.7		53.9	)	54.0
Vehicle Noise:	54.	5	52.4		50.2		50.3		57.0	)	57.3
Centerline Distance	e to Noise Co	ntour (in feet	)	70 0		65 di	34	6	0 dBA	66	dBA
			I dn:	70 0		65 ai	574	0	19		41
			VFL:	4		9			20		42

	FRV	VA-RD-77-108	HIGHW	AY NOISE I	PREDICTI	ON MOD	DEL			
Road Nam	io: Existing ne: MacMillan nt: e/o Bob Ho					Name: H umber: 1		den Betty F	ord Cent	t
SITE	SPECIFIC IN	IPUT DATA			N	IOISE N	IODE		s	
Highway Data				Site Co	onditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	3,374 vehicle	s			A	Autos:	15		
Peak Hour	Percentage:	8.38%		N	ledium Tru	icks (2 A	xles):	15		
Peak H	lour Volume:	283 vehicle	s	F	leavy Truc	ks (3+ A	xles):	15		
Vel	hicle Speed:	25 mph		Vehicle	Mix					
Near/Far Lar	ne Distance:	12 feet			hicleType		Day	Evening	Night	Daily
Site Data				VC			75.5%	0	· ·	97.42%
				_	, Medium Ti		18.9%		48.9%	
	rrier Height:	0.0 feet			Heavy Ti		47.3%		47.3%	
Barrier Type (0-W		0.0			,					0.1176
Centerline Dis Centerline Dist.		30.0 feet		Noise	Source El	evations	; (in f	eet)		
Barrier Distance		30.0 feet			Auto	s: 0.0	00			
		0.0 feet		Med	um Truck	s: 2.2	97			
Observer Height (	,	5.0 feet		He	avy Truck	s: 8.0	06	Grade Adj	iustment	: 0.0
	ad Elevation:	0.0 feet		Long F	quivalen	Distance	e (in	faa4)		
	ad Elevation:	0.0 feet		Lane	Auto:			leel)		
,	Road Grade: Left View:	0.0%		Mod	um Truck					
		-90.0 degree	es	wear	uni muck					
		00.0 -1		Ho	and Truck					
	Right View:	90.0 degree	es	He	avy Truck	s: 29.5	47			
FHWA Noise Mode	Right View:		es	He	avy Truck	s: 29.5	47			
FHWA Noise Mode VehicleType	Right View:		es Distai		e Road	s: 29.5 Fresn		Barrier Att	en Ber	m Atten
	Right View: el Calculation	s			-	Fresn			en Ber	
VehicleType	Right View: el Calculation REMEL	s Traffic Flow -4.88	Dista	nce Finit	e Road	Fresn	el	0.0		0.000
VehicleType Autos:	Right View: el Calculation REMEL 58.73	s Traffic Flow -4.88	Dista	nce Finit 3.26	e Road -1.20	Fresn	el -4.49	0.0	000	0.000
VehicleType Autos: Medium Trucks: Heavy Trucks:	Right View: el Calculation REMEL 58.73 70.80 77.97	s Traffic Flow -4.88 -22.12 -26.08	Dista	nce Finit 3.26 3.33 3.32	e Road -1.20 -1.20 -1.20	Fresn	el -4.49 -4.86	0.0	000	0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	Right View: el Calculation REMEL 58.73 70.80 77.97	s Traffic Flow -4.88 -22.12 -26.08 out Topo and	Distai barrier	nce Finit 3.26 3.33 3.32	<i>e Road</i> -1.20 -1.20 -1.20	Fresn	el -4.49 -4.86	0.0	000	0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	Right View: el Calculation REMEL 58.73 70.80 77.97 e Levels (with	s Traffic Flow -4.88 -22.12 -26.08 out Topo and Ir Leq Day	Distai barrier	nce Finit 3.26 3.33 3.32 attenuation	e Road -1.20 -1.20 -1.20 ) Leq	Fresn	el -4.49 -4.86	0.0 0.0 0.0	000 000 000 C	0.000 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: <b>Unmitigated Noise</b> VehicleType	Right View: el Calculation REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou	s Traffic Flow -4.88 -22.12 -26.08 out Topo and ur Leq Day 5.9	Distai barrier a	nce Finit 3.26 3.33 3.32 attenuation eq Evening	e Road -1.20 -1.20 -1.20 ) Leq 4	Fresn Night	el -4.49 -4.86	0.0 0.0 0.0	000 000 000 C	0.000 0.000 0.000 NEL 56.4
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	Right View: el Calculation REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 55	s Traffic Flow -4.88 -22.12 -26.08 out Topo and ir Leq Day 5.9 1.8	Distai	nce Fini 3.26 3.33 3.32 attenuation eq Evening 53.	e Road -1.20 -1.20 -1.20 ) Leq 4 2	Fresn Night 47.3	el -4.49 -4.86	0.0 0.0 0.0 <i>Ldn</i> 55.8	000 000 000 C	0.000 0.000 0.000 NEL 56.4 55.1
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	Right View: el Calculation REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 55 50 54	s Traffic Flow -4.88 -22.12 -26.08 out Topo and IT Leq Day 5.9 1.8 -0	Distai barrier ( / L 54.7 47.7	nce         Finit           3.26         3.33           3.32         attenuation           eq Evening         53.40           40.         40.	<i>e Road</i> -1.20 -1.20 -1.20 -1.20 ) <i>Leq</i> 4 2 3	Fresn Night 47.3 48.9	el -4.49 -4.86	0.0 0.0 0.0 <i>Ldn</i> 55.8 55.1	000 000 000 C 3	0.000 0.000 0.000 NEL 56.4 55.1 58.3
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	Right View:           el Calculation           REMEL           58.73           70.80           77.97           e Levels (with           Leq Peak Hod           50           54           56	s Traffic Flow -4.88 -22.12 -26.08 out Topo and rr Leq Day .9 .8 .0 .8	Distan barrier ( / L 54.7 47.7 50.7 56.7	nce Finit 3.26 3.33 3.32 attenuation eq Evening 53. 40. 47. 54.	<u>e Road</u> -1.20 -1.20 -1.20 ) -1.20 ) Leq 4 2 3 5	Fresnu Night 47.3 48.9 52.0 54.6	el -4.49 -4.86 -5.77	0.0 0.0 0.0 55.1 55.1 58.2 61.3	000 000 000 3 1 2 3	0.000 0.000 0.000 NEL 56.4 55.1 58.3 61.6
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	Right View:           el Calculation           REMEL           58.73           70.80           77.97           e Levels (with           Leq Peak Hod           50           54           56	Traffic Flow -4.88 -22.12 -26.08 out Topo and <i>Ir</i> Leq Day 5.9 .8 8.8 001000 (in feet	Distan	nce         Finite           3.26         3.33           3.32	e Road -1.20 -1.20 -1.20 ) -1.20 ) (Leq 4 2 3 5 5	Fresnu Night 47.3 48.9 52.0 54.6	el -4.49 -4.86 -5.77	0.0 0.0 0.0 55.8 55.1 58.2 61.3 60 dBA	000 000 000 3 1 2 3	0.000 0.000 0.000 NEL 56.4 55.1 58.3
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	Right View:           el Calculation           REMEL           58.73           70.80           77.97           e Levels (with           Leq Peak Hod           50           54           56	Traffic Flow -4.88 -22.12 -26.08 out Topo and <i>Ir</i> Leq Day 5.9 .8 8.8 001000 (in feet	Distai barrier ( / L 54.7 47.7 50.7 56.7	nce Finit 3.26 3.33 3.32 attenuation eq Evening 53. 40. 47. 54.	e Road -1.20 -1.20 -1.20 ) -1.20 ) (Leq 4 2 3 5 5	Fresnu Night 47.3 48.9 52.0 54.6	el -4.49 -4.86 -5.77	0.0 0.0 0.0 55.1 55.1 58.2 61.3	000 000 000 200 3 1 2 3 3 55	0.000 0.000 0.000 NEL 56.4 55.1 58.3 61.6

Tuesday, February 4, 2020

Tuesday, February 4, 2020

_	FHWA-	RD-77-108 HI	GHWAY	NOISE PI	REDICTION	N MODEL		
Scenario: Exis Road Name: Stre Road Segment: e/o E	et Å	Dr.				ame: Haz nber: 1272	elden Betty F 20	ord Cent
SITE SPECI	FIC INPL	JT DATA			NO	ISE MOD	EL INPUT	S
Highway Data				Site Cor	nditions (H	ard = 10,	Soft = 15)	
Average Daily Traffic (, Peak Hour Percent Peak Hour Volu	age: 8	074 vehicles .38% 174 vehicles			dium Truck avy Trucks		s): 15	
Vehicle Sp	eed:	25 mph		Vehicle	Mix			
Near/Far Lane Dista	nce:	12 feet			icleType	Dav	Evening	Night Daily
Site Data				1011	Aut			10.5% 97.42
Barrier He	iaht:	0.0 feet		М	edium Truc	ks: 48.9	9% 2.2%	48.9% 1.84
Barrier Type (0-Wall, 1-Be	0	0.0		1	Heavy Truc	ks: 47.3	3% 5.4%	47.3% 0.74
Centerline Dist. to Ba	rrier:	30.0 feet		Noise S	ource Elev	ations (in	feet)	
Centerline Dist. to Obse	rver:	30.0 feet			Autos:	0.000		
Barrier Distance to Obse	rver:	0.0 feet		Mediu	m Trucks:	2,297		
Observer Height (Above F Pad Fleve	,	5.0 feet 0.0 feet			/y Trucks:	8.006	Grade Adj	iustment: 0.0
Road Eleva		0.0 feet		Lane Fo	uivalent D	istance (i	n feet)	
Road G		0.0%		Lano Lq	Autos:	29.816		
Left \		90.0 degrees		Madiu	m Trucks:	29.518		
Right		90.0 degrees			/y Trucks:	29.547		
FHWA Noise Model Calcu	Ilations							
VehicleType REM	IEL Tr	raffic Flow	Distance	Finite	Road	Fresnel	Barrier Att	en Berm Atter
Autos:	58.73	-7.00	3.2	26	-1.20	-4.4	9 0.0	0.00
Medium Trucks:	70.80	-24.24	3.3	33	-1.20	-4.8	6 0.0	0.00
Heavy Trucks:	77.97	-28.19	3.3	32	-1.20	-5.7	7 0.0	0.00
Unmitigated Noise Levels	s (without	t Topo and ba	rrier atte	nuation)				
VehicleType Leq Pe	ak Hour	Leq Day	Leq E	vening	Leq Nig	ght	Ldn	CNEL
Autos:	53.8	52		51.2		45.2	53.7	
Medium Trucks:	48.7	45		38.1		46.8	53.0	
Heavy Trucks:	51.9	48	.6	45.2		49.9	56.1	1 56
Vehicle Noise:	56.7	54.	.6	52.4		52.5	59.2	2 59
Centerline Distance to No	oise Conte	our (in feet)						
				dBA	65 dB	A	60 dBA	55 dBA
		Ld		6	12		27	57
		CNE	L:	6	13		28	59

	FHV	/A-RD-77-108	HIGH	IWAY NO	DISE PREDICT	ION MC	DEL			
	io: Existing							den Betty F	ord Cent	
	e: Betty Ford				Job I	lumber:	12720			
Road Segmer	nt: e/o Joe Frie	nd Ln.								
SITE	SPECIFIC IN	PUT DATA						L INPUT	s	
Highway Data				S	ite Conditions	(Hard =	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	887 vehicles	s				Autos	15		
Peak Hour	Percentage:	8.38%			Medium Tr	ucks (2	Axles):	15		
Peak H	lour Volume:	74 vehicle:	s		Heavy Tru	cks (3+	Axles).	15		
Ve	hicle Speed:	25 mph		v	ehicle Mix					
Near/Far Lai	ne Distance:	12 feet		-	VehicleTyp	9	Dav	Evening	Night	Daily
Site Data					,1	Autos:	75.5%		10.5%	
Pa	rrier Height:	0.0 feet			Medium 1	rucks:	48.9%	6 2.2%	48.9%	1.849
Barrier Type (0-W		0.0			Heavy 1	rucks:	47.3%	6 5.4%	47.3%	0.749
Centerline Dis		30.0 feet		_						
Centerline Dist.		30.0 feet		^	loise Source E			eet)		
Barrier Distance		0.0 feet			Auto		.000			
Observer Height (	Above Pad):	5.0 feet			Medium Truck		.297			
0,1	ad Elevation:	0.0 feet			Heavy Truck	(s: 8	.006	Grade Adj	ustment.	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equivaler	t Distar	ice (in	feet)		
1	Road Grade:	0.0%			Auto	os: 29	.816			
	Left View:	-90.0 degree	es		Medium Truck	s: 29	.518			
	Right View:	90.0 degree	es		Heavy Truck	(s: 29	.547			
FHWA Noise Mod	el Calculation	5								
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite Road	Fres	nel	Barrier Att	en Ber	m Atten
Autos:	58.73	-10.69		3.26	-1.20		-4.49	0.0	000	0.00
Medium Trucks:	70.80	-27.92		3.33			-4.86		000	0.00
Heavy Trucks:	77.97	-31.88		3.32	-1.20		-5.77	0.0	000	0.00
Unmitigated Noise	e Levels (with	out Topo and	barrie	er attenı	uation)					
VehicleType	Leq Peak Hou			Leq Ev	•	Night		Ldn		NEL
Autos:	50		48.9		47.6	41.		50.0		50.
Medium Trucks:	45		41.9		34.4	43.		49.3		49.
Heavy Trucks:	48		44.9		41.5	46.		52.4		52.
Vehicle Noise:	53	-	50.9		48.7	48.	8	55.5	5	55.
Centerline Distant	ce to Noise Co	ntour (in feet	)	70 .	04 05	-/D.4	1	00 -/04		-10.4
			Ldn:	70 d	ва 65	dBA		60 dBA		dBA
			Lan: VEL:	3		7 7		15 16		33 34

	FHW	/A-RD-77-108	HIGHV	VAY N	OISE PR	EDICTIO		EL			
Road Nam	o: Existing e: Country Clu nt: w/o Bob Ho						Vame: H Imber: 12		n Betty Fo	ord Cent	
	SPECIFIC IN	PUT DATA							INPUTS	;	
Highway Data				1	Site Con	ditions (	Hard = 1	0, Soft	= 15)		
Average Daily	Traffic (Adt):	9,680 vehicles						utos:	15		
	Percentage:	8.38%					cks (2 Ax		15		
	our Volume:	811 vehicles			Hea	avy Trucl	ks (3+ Ax	les):	15		
	nicle Speed:	45 mph			Vehicle I	Nix					
Near/Far Lar	e Distance:	52 feet			Vehi	cleType	E	ay E	vening	Night	Daily
Site Data						A	utos: 7	5.5%	14.0%	10.5%	97.42%
Bar	rier Heiaht:	0.0 feet			Me	edium Tru	icks: 4	8.9%	2.2%	48.9%	1.84%
Barrier Type (0-W		0.0			F	leavy Tru	icks: 4	7.3%	5.4%	47.3%	0.74%
Centerline Dis		55.0 feet		-	Voico Sa	urco Ek	vations	(in foot	6)		
Centerline Dist. t	o Observer:	55.0 feet		-	voise su	Autos			9		
Barrier Distance t	o Observer:	0.0 feet			Marthur	Autos n Trucks		-			
Observer Height (/	Above Pad):	5.0 feet				n Trucks y Trucks			rade Adji	istmont	0.0
Pa	d Elevation:	0.0 feet			Tieav	y mucks	. 0.00	0 0	rade Adje	isuncin.	0.0
Roa	d Elevation:	0.0 feet		1	ane Equ	uivalent	Distance		et)		
F	Road Grade:	0.0%				Autos	: 48.72	24			
	Left View:	-90.0 degree	s			n Trucks					
	Right View:	90.0 degree	S		Heav	y Trucks	48.56	60			
FHWA Noise Mode	el Calculations	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	I Ba	arrier Atte	n Ber	m Atten
Autos:	68.46	-2.86		0.07	7	-1.20	-4	4.67	0.0	00	0.000
Medium Trucks:	79.45	-20.10		0.09	9	-1.20	-4	4.87	0.0	00	0.000
Heavy Trucks:	84.25	-24.05		0.09	9	-1.20	-{	5.38	0.0	00	0.000
Unmitigated Noise											
	Leq Peak Hou			Leq Ev	~	Leq N	•	L	dn	CI	VEL
Autos:	64.		3.2		61.9		55.9		64.3		64.9
Medium Trucks:	58.		5.1		47.6		56.4		62.5		62.6
Heavy Trucks:	59.		5.8		52.4		57.1		63.3		63.4
Vehicle Noise:	66.	.3 6	64.5		62.5		61.2		68.2		68.5
Centerline Distance	e to Noise Co	ontour (in feet)									
			L	70 c		65 a			dBA		dBA
		-	.dn: IFL :	42	-	90			94		17 37
				44		94			03		

	FHWA	A-RD-77-108 H	IGHWA	YNC	ISE PR	EDICTIO	N MODE	L _			
Road Nam	io: Existing e: Country Club nt: e/o Bob Hope					Project N Job Nur	ame: Ha nber: 121		tty Ford	Cent	
SITE	SPECIFIC INP	UT DATA						DEL INF			
Highway Data				Si	te Con	ditions (H	lard = 10	, Soft = 1	5)		
Average Daily	Traffic (Adt): 14	,794 vehicles					Au	tos: 15			
Peak Hour	Percentage:	8.38%			Mee	dium Truc	ks (2 Axle	es): 15			
Peak H	our Volume: 1	,240 vehicles			Hea	avy Truck	s (3+ Axle	es): 15			
Vel	hicle Speed:	50 mph		16			-	-			
Near/Far Lar	ne Distance:	58 feet		Ve	ehicle I		0.		in a All	what .	Delle
				_	veni	cleType	Da	·			Daily
Site Data				_		Au dium True				0.5% 9 3.9%	97.42% 1.84%
	rrier Height:	0.0 feet								3.9% 7.3%	0.74%
Barrier Type (0-Wa		0.0			F	leavy Tru	CKS: 47	.3% 5.	4% 4	1.3%	0.74%
Centerline Dis		55.0 feet		N	oise So	ource Elev	ations (	in feet)			
Centerline Dist. t		55.0 feet				Autos:	0.000	)			
Barrier Distance t		0.0 feet			Mediur	n Trucks:	2.297	,			
Observer Height (/	,	5.0 feet				y Trucks:	8.006	Grade	e Adjusti	nent: (	J.O
	ad Elevation:	0.0 feet							,		
Roa	ad Elevation:	0.0 feet		Lá	ane Equ	uivalent L		. /			
F	Road Grade:	0.0%				Autos:	47.000				
		-90.0 degrees				n Trucks:	46.811				
	Right View:	90.0 degrees			Heav	y Trucks:	46.830	)			
FHWA Noise Mode	el Calculations			-							-
VehicleType	REMEL 1	Fraffic Flow	Distanc	e :	Finite	Road	Fresnel	Barrie	r Atten	Berm	Atten
Autos:	70.20	-1.48		0.30		-1.20	-4.	67	0.000		0.000
Medium Trucks:	81.00	-18.71		0.33		-1.20	-4.	87	0.000		0.000
Heavy Trucks:	85.38	-22.67		0.32		-1.20	-5.	38	0.000		0.000
Unmitigated Noise	e Levels (withou	ıt Topo and b	arrier at	tenu	ation)						
VehicleType	Leq Peak Hour	Leq Day	Leo	q Eve	ning	Leq Ni	ght	Ldn		CNE	EL
Autos:	67.8	6	5.6		65.3		59.3		67.7		68.3
Medium Trucks:	61.4	5	3.3		50.8		59.5		65.7		65.7
Heavy Trucks:	61.8		3.6		55.2		59.8		66.0		66.1
Vehicle Noise:	69.5	6	7.7		65.8		64.3		71.3		71.6
Centerline Distance	ce to Noise Con	tour (in feet)									
				70 dE	BA	65 dE		60 dBA	1	55 di	
		-	dn:	67		145		313		674	
		CN	=L:	71		152		329		708	5

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHV	/A-RD-77-108	HIGHWA	Y NC	ISE PF	REDICTIO	N MOE	DEL			
Road Nam	io: Existing le: Country Clu nt: e/o John L.					Project N Job Nur			len Betty F	ord Cen	t
SITE	SPECIFIC IN	PUT DATA							L INPUT	s	
Highway Data				S	ite Con	ditions (H	lard =	10, Sc	oft = 15)		
	Traffic (Adt): 1 Percentage: lour Volume:	8,931 vehicles 8.38% 1,586 vehicles				dium Truc avy Truck	ks (2 A		15 15 15		
Vei	hicle Speed:	50 mph		14	ehicle l	Mix					
Near/Far Lar	ne Distance:	58 feet				icleType		Dav	Evening	Night	Daily
Site Data				_	Ven			75.5%	•	10.5%	
				-	M	adium Tru		48.9%		48.9%	
	rrier Height:	0.0 feet				leavy Tru		47.3%		47.3%	
Barrier Type (0-W		0.0			'	leavy IIu	una. ·	+7.370	J.4 /0	47.370	0.7470
Centerline Dis		55.0 feet		N	oise Sc	ource Elev	vations	s (in fe	eet)		
Centerline Dist.		55.0 feet				Autos:	0.0	00			
Barrier Distance		0.0 feet			Mediur	m Trucks:	2.2	97			
Observer Height (J	,	5.0 feet			Heav	y Trucks:	8.0	06	Grade Ad	iustment	: 0.0
	ad Elevation:	0.0 feet			no Fa	uivalent L	Victoria	a (in i	fa a f		
	ad Elevation:	0.0 feet		Le	ane Eq	Autos:			eel)		
	Road Grade:	0.0%			Ma dia	n Trucks:	47.0				
	Left View: Right View:	-90.0 degree 90.0 degree				y Trucks:	46.8 46.8				
FHWA Noise Mode	el Calculation:	5									
VehicleType	REMEL	Traffic Flow	Distand	e	Finite	Road	Fresn	e/	Barrier Att	en Be	rm Atten
Autos:	70.20	-0.40		0.30		-1.20		4.67	0.0	000	0.000
Medium Trucks:	81.00	-17.64		0.33		-1.20		4.87	0.0	000	0.000
Heavy Trucks:	85.38	-21.60		0.32		-1.20		-5.38	0.0	000	0.000
Unmitigated Noise											
VehicleType	Leq Peak Hou	r Leq Day	Lei	q Eve	ening	Leq Ni	ight		Ldn	C	NEL
Autos:	68		67.7		66.3		60.3		68.8	-	69.4
Medium Trucks:	62		59.4		51.9		60.6		66.8	-	66.8
Heavy Trucks:	62	.9 5	59.6		56.2		60.9		67.1	1	67.2
Vehicle Noise:	70		\$8.8		66.9		65.4		72.4	1	72.7
Centerline Distant	ce to Noise Co	ontour (in feet)	1	70 /		05.0					
				70 dE	3A	65 dE		6	i0 dBA		dBA
		-	dn:	79		171			369		794
		CN	IEL:	83		180	)		387	8	334

	FHW	'A-RD-77-108 H	IGHWA	Y NOISE PR	REDICT	ION MODEL		
	: Existing : Country Clu : e/o Vista De					Name: Haz lumber: 127:	elden Betty Fo 20	ord Cent
SITE S	PECIFIC IN	PUT DATA			ľ	IOISE MOD	DEL INPUTS	5
Highway Data				Site Cor		(Hard = 10,		
Average Daily Ti Peak Hour P Peak Ho	ercentage:	9,753 vehicles 8.38% 1,655 vehicles				Auto ucks (2 Axles cks (3+ Axles	s): 15	
Vehi	cle Speed:	50 mph		Mahlala			-	
Near/Far Lane		58 feet		Vehicle				
				Ven	icleType	,		Night Daily
Site Data								10.5% 97.429
Barr	ier Height:	0.0 feet			edium T			48.9% 1.849
Barrier Type (0-Wa	ll, 1-Berm):	0.0			Heavy T	rucks: 47.3	3% 5.4%	47.3% 0.749
Centerline Dist.	to Barrier:	55.0 feet		Noise S	ource E	levations (in	(feet)	
Centerline Dist. to	Observer:	55.0 feet			Auto			
Barrier Distance to	Observer:	0.0 feet		Mediu	m Truck			
Observer Height (A	bove Pad):	5.0 feet			/y Truck		Grade Adi	ustment: 0.0
Pac	Elevation:	0.0 feet			·			
Road	Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (i	n feet)	
R	oad Grade:	0.0%			Auto	s: 47.000		
	Left View:	-90.0 degrees		Mediu	m Truck	s: 46.811		
1	Right View:	90.0 degrees		Heav	/y Truck	s: 46.830		
FHWA Noise Model							i.	1
VehicleType	REMEL	Traffic Flow	Distanc		Road	Fresnel	Barrier Atte	
Autos:	70.20	-0.22		0.30	-1.20	-4.6		
Medium Trucks:	81.00	-17.46		0.33	-1.20	-4.8		
Heavy Trucks:	85.38	-21.41		0.32	-1.20	-5.3	8 0.0	00 0.00
Unmitigated Noise				,				
<i>,</i> ,	eq Peak Hou.			q Evening	Leq	Night	Ldn	CNEL
Autos:	69.		7.8	66.5		60.5	68.9	
Medium Trucks:	62.		9.5	52.0		60.8	67.0	
Heavy Trucks:	63.		9.8	56.4		61.1	67.3	67.
Vehicle Noise:	70.	8 69	9.0	67.1		65.6	72.6	72
Centerline Distance	e to Noise Co	ntour (in feet)						
				70 dBA		dBA	60 dBA	55 dBA
		Lo	dn:	82	1	76	379	817
		CNE						

	FHV	/A-RD-77-108	HIGHWA	Y NOISE F	REDICT	ION MODE	EL			
Scenari	p: E+P				Project	Name: Ha	azelden	Betty Fo	ord Cent	
	e: Bob Hope D				Job N	lumber: 12	2720			
Road Segmer	t: n/o MacMill	an Wy.								
	SPECIFIC IN	PUT DATA				NOISE MO			;	
Highway Data				Site Co	nditions	(Hard = 1		,		
Average Daily	raffic (Adt): 2	3,779 vehicles	3					15		
Peak Hour I	Percentage:	8.38%				ucks (2 Ax		15		
Peak He	our Volume:	1,993 vehicles	6	Н	eavy Tru	cks (3+ Ax	les):	15		
Veł	icle Speed:	45 mph		Vehicle	Mix					
Near/Far Lar	e Distance:	58 feet		Ve	hicleType	e D	ay Ev	ening	Night	Daily
Site Data								14.0%	10.5%	97.429
Bar	rier Heiaht:	0.0 feet		/	Aedium T	rucks: 48	8.9%	2.2%	48.9%	1.849
Barrier Type (0-Wa		0.0			Heavy 7	rucks: 41	7.3%	5.4%	47.3%	0.74%
Centerline Dis		55.0 feet		Noiso	Sourco E	levations	(in foot)			
Centerline Dist. t	o Observer:	55.0 feet		Noise	Auto		· /			
Barrier Distance t	o Observer:	0.0 feet		14-15	Auto um Truck					
Observer Height (/	Above Pad):	5.0 feet			am Truck avy Truck			ndo Adii	ıstment:	0.0
Pa	d Elevation:	0.0 feet		1100	ivy much	3. 0.00	0,0	luc Auju	isunicin.	0.0
Roa	d Elevation:	0.0 feet		Lane E	quivalen	t Distance	(in feet	)		
F	Road Grade:	0.0%			Auto	s: 47.00	00			
	Left View:	-90.0 degree	es	Medi	um Truck	s: 46.81	1			
	Right View:	90.0 degree	es	Hea	avy Truck	s: 46.83	80			
FHWA Noise Mode	Calculation	s								
VehicleType	REMEL	Traffic Flow	Distan	ce Finit	e Road	Fresnel	Bar	rier Atte	n Beri	m Atten
Autos:	68.46	1.04		0.30	-1.20		1.67	0.00		0.00
Medium Trucks:	79.45	-16.19		0.33	-1.20		1.87	0.00		0.00
Heavy Trucks:	84.25	-20.15		0.32	-1.20	-5	5.38	0.00	00	0.00
Unmitigated Noise										
	Leq Peak Hou			q Evening		Night	Ld		Cl	VEL
Autos:	68	-	67.4	66.	-	60.0		68.5		69.
Medium Trucks:	62		59.3	51.		60.5		66.7		66.
Heavy Trucks:	63		59.9	56.		61.2		67.4		67.
Vehicle Noise:	70	.4	68.6	66.	7	65.4		72.3		72.
Centerline Distand	e to Noise Co	ontour (in feet	)							
				70 dBA	65	dBA	60 d	BA	55	dBA
			Ldn: VFL:	79 83		70 78	36 38	-		88 26

	FHV	VA-RD-77-108	HIGHWA	Y NOISE P	REDICT	ION MODEL			
Road Nam	io: E+P e: Bob Hope E nt: s/o Street A					Name: Haze lumber: 1272		ord Cent	t
÷	SPECIFIC IN					IOISE MOD		\$	
Highway Data	SI LOII IO IN	I OI DAIA		Site Co		(Hard = 10, 3			
Average Daily	Troffic (Adt): 1	10.240 vohiclo	0			Auto	,		
• •	Percentage:	8.38%	5	14	odium Tr	ucks (2 Axles			
	our Volume:	1,613 vehicle	c			cks (3+ Axles			
	hicle Speed:	45 mph	5		,	101710100	,. 10		
Near/Far La		58 feet		Vehicle					
	ie Distance.	30 1001		Ve	hicleType		Evening	Night	Daily
Site Data						Autos: 75.5		10.5%	
Bai	rier Height:	0.0 feet		٨	ledium T			48.9%	
Barrier Type (0-W	all, 1-Berm):	0.0			Heavy T	rucks: 47.3	% 5.4%	47.3%	0.74%
Centerline Dis	at. to Barrier:	55.0 feet		Noise S	Source E	levations (in	feet)		
Centerline Dist.	to Observer:	55.0 feet			Auto		,		
Barrier Distance	to Observer:	0.0 feet		Modi	ım Truck				
Observer Height (.	Above Pad):	5.0 feet			wy Truck	0	Grade Ad	ustment	. 0.0
Pa	ad Elevation:	0.0 feet							
Roa	ad Elevation:	0.0 feet		Lane E	quivalen	t Distance (ii	n feet)		
1	Road Grade:	0.0%			Auto	s: 47.000			
	Left View:	-90.0 degree	es	Media	um Truck	s: 46.811			
	Right View:	90.0 degre	es	Hea	wy Truck	s: 46.830			
FHWA Noise Mod	el Calculation	s		_					
VehicleType	REMEL	Traffic Flow	Distand	e Finite	e Road	Fresnel	Barrier Att	en Ber	m Atten
Autos:	68.46	0.13		0.30	-1.20	-4.6	7 0.0	000	0.000
				0.00		1.00	7 0.0	000	0.000
Medium Trucks:	79.45	-17.11		0.33	-1.20	-4.8	. 0.0	000	0.000
Medium Trucks: Heavy Trucks:	79.45 84.25	-17.11 -21.07		0.33	-1.20 -1.20	-4.8		000	
	84.25	-21.07		0.32	-1.20				
Heavy Trucks:	84.25	-21.07 out Topo and	barrier at	0.32	-1.20			000	
Heavy Trucks: Unmitigated Noise	84.25 E Levels (with	-21.07 out Topo and r Leq Day	barrier at	0.32 tenuation)	-1.20	-5.3	3 0.0	000 C	0.000
Heavy Trucks: Unmitigated Noise VehicleType	84.25 E Levels (with Leq Peak Hou	-21.07 out Topo and r Leq Day .7	barrier at	0.32 tenuation) q Evening	-1.20	-5.30 Night	3 0.0	000 C	0.000 NEL 68.2
Heavy Trucks: Unmitigated Noise VehicleType Autos:	84.25 E Levels (with Leq Peak Hou 67	-21.07 out Topo and r Leq Day .7 .5	<i>barrier at</i> / <i>Le</i> 66.4	0.32 tenuation) q Evening 65.	-1.20	-5.38 Night 59.1	3 0.0 Ldn 67.5	000 Ci	0.000 NEL 68.2 65.8
Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	84.25 E Levels (with Leq Peak Hou 67 61	-21.07 out Topo and r Leq Day .7 .5 .3	barrier at / Le 66.4 58.3	0.32 (tenuation) (The Evening) (50.8 (50.8)	-1.20	-5.38 Night 59.1 59.6	3 0.0 Ldn 67.5 65.8	000 Ca	0.000 NEL 68.2 65.8 66.6
Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	84.25 <b>E Levels (with</b> Leg Peak Hou 67 61 62 69	-21.07 out Topo and r Leq Day .7 .5 .3 .5	barrier at 66.4 58.3 59.0 67.7	0.32 tenuation) g Evening 65. 50.0 55.0	-1.20	-5.30 Night 59.1 59.6 60.3 64.5	3 0.0 Ldn 67.5 65.8 66.5 71.4	000 Ci 5 3 5	0.000 NEL 68.2 65.8 66.6 71.7
Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	84.25 <b>E Levels (with</b> Leg Peak Hou 67 61 62 69	-21.07 out Topo and r Leg Day 7 5 5 5 5 5 5 5 5 5 5 5 5 5	barrier at 66.4 58.3 59.0 67.7	0.32 tenuation) g Evening 65. 50.8 55.6 65.7 70 dBA	-1.20 Leq 1 3 5 7	-5.34 Night 59.1 59.6 60.3 64.5 dBA	3 0.0 <i>Ldn</i> 67.5 66.5 71.4 60 dBA	000 C. 5 3 5 4 55	0.000 NEL 68.2 65.8 66.6 71.7 dBA
Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	84.25 <b>E Levels (with</b> Leg Peak Hou 67 61 62 69	-21.07 out Topo and r Leq Day .7 .5 .3 .5 ontour (in feet	barrier at 66.4 58.3 59.0 67.7	0.32 tenuation) g Evening 65. 50.0 55.0	-1.20 Leq 1 3 5 7 7	-5.30 Night 59.1 59.6 60.3 64.5	3 0.0 Ldn 67.5 65.8 66.5 71.4	000 C. 5 5 4 55 6	0.000 NEL 68.2 65.8 66.6 71.7

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHV	/A-RD-77-108	HIGHV	VAY NO	DISE PR	EDICTIO		EL			
	io: E+P le: Bob Hope E nt: s/o Country						Name: H Imber: 1		en Betty Fo	ord Cen	t
SITE	SPECIFIC IN	PUT DATA				N	OISE N	IODEL	. INPUTS	5	
Highway Data				S	ite Con	ditions (	Hard =	10, So	ft = 15)		
	Traffic (Adt): 1 Percentage: lour Volume:	9,821 vehicle 8.38% 1,661 vehicle				dium Tru avy Truci	cks (2 A		15 15 15		
Vei	hicle Speed:	45 mph		V	ehicle I	Niv					
Near/Far Lar	ne Distance:	58 feet		ľ		cleType		Dav	Evening	Night	Daily
Site Data					1011			75.5%	14.0%	10.5%	
Ba	rier Height:	0.0 feet			Me	dium Tri	ucks: 4	18.9%	2.2%	48.9%	1.84%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tri	ucks: 4	47.3%	5.4%	47.3%	0.74%
Centerline Dis		55.0 feet		Ν	loise So	urce Ele	evations	in fe	et)		
Centerline Dist.		55.0 feet				Autos	: 0.0	00			
Barrier Distance		0.0 feet			Mediur	n Trucks	: 2.2	97			
Observer Height (	Above Pad): ad Flevation:	5.0 feet 0.0 feet			Heav	y Trucks	: 8.0	06	Grade Adji	ustment	: 0.0
	ad Elevation: ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distanc	e (in f	eet)		
	Road Grade:	0.0%		_		Autos			,		
,	Left View:	-90.0 deared	20		Mediur	n Trucks					
	Right View:	90.0 degree			Heav	y Trucks					
FHWA Noise Mode	el Calculation:	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el L	Barrier Atte	en Bei	m Atten
Autos:	68.46	0.25		0.30		-1.20	-	4.67	0.0	00	0.000
Medium Trucks:	79.45	-16.99		0.33		-1.20	-	4.87	0.0	00	0.000
Heavy Trucks:	84.25	-20.94		0.32		-1.20		5.38	0.0	00	0.000
Unmitigated Noise											
VehicleType	Leq Peak Hou			Leq Ev	~	Leq N			Ldn		NEL
Autos:	67	-	66.6		65.3		59.2		67.7		68.3
Medium Trucks:	61	-	58.5		51.0		59.7		65.9		65.9
Heavy Trucks:	62		59.2		55.8		60.4		66.6		66.7
Vehicle Noise:	69		67.8		65.9		64.6		71.6		71.9
Centerline Distant	ce to Noise Co	ontour (in feet	)	70 d	RA	65 c	/RA	A	0 dBA	55	dBA
			Ldn:	70 0		15			324		698
			NFI :	73		15	-		340		/31
		0.		70		10			0.0	,	0.

	FHW	A-RD-77-108 HI	GHWAY	NOISE PR	EDICT	ON MODEL		
	io: E+P e: John L. Sinn nt: s/o Street A	Rd.				Name: Haze umber: 1272		ord Cent
SITE	SPECIFIC INF	PUT DATA			N	IOISE MOD	EL INPUTS	S
Highway Data				Site Cond	ditions	(Hard = 10, 3	Soft = 15)	
	Traffic (Adt): 3 Percentage: our Volume:	3,923 vehicles 8.38% 329 vehicles				Auto Icks (2 Axles Icks (3+ Axles	): 15	
Vel	hicle Speed:	25 mph		Vehicle N	liv			
Near/Far Lar	ne Distance:	12 feet			leType	Dav	Evening	Night Daily
Site Data				venic		Autos: 75.5		10.5% 97.42%
				Me	, dium T			48.9% 1.84%
Barrier Type (0-W	rier Height:	0.0 feet				ucks: 47.3		47.3% 0.74%
Centerline Dis	. ,	0.0 30.0 feet					-	
Centerline Dist.		30.0 feet		Noise So	urce E	evations (in	feet)	
Barrier Distance		0.0 feet			Auto			
Observer Height (		5.0 feet		Medium	n Truck	s: 2.297		
0 1	ad Elevation:	0.0 feet		Heavy	/ Truck	s: 8.006	Grade Adj	ustment: 0.0
	ad Elevation:	0.0 feet		Lane Fou	ivalen	t Distance (ii	1 feet)	
	Road Grade:	0.0%		Lano Lya	Auto	1	11001)	
1	Left View:	-90.0 degrees		Medium				
	Right View:	90.0 degrees			/ Truck			
FHWA Noise Mode	el Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite F	Road	Fresnel	Barrier Atte	en Berm Atten
Autos:	58.73	-4.23	3.	26	-1.20	-4.4	9 0.0	0.00
Medium Trucks:	70.80	-21.47	3.	33	-1.20	-4.80	6 0.0	0.00
Heavy Trucks:	77.97	-25.42	3.	32	-1.20	-5.7	7 0.0	0.00
Unmitigated Noise	e Levels (witho	ut Topo and ba	rrier atte	enuation)				
VehicleType	Leg Peak Hour	Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	. 56.6	6 55	.3	54.0		48.0	56.4	57.
Medium Trucks:	51.5	5 48	.3	40.8		49.6	55.7	55.
Heavy Trucks:	54.7	7 51	.4	48.0		52.6	58.8	58.
Vehicle Noise:	59.5	5 57	.4	55.1		55.3	62.0	) 62.
	ce to Noise Cor	ntour (in feet)						
Centerline Distand		. /	7/	) dBA	65	dBA	60 dBA	55 dBA
Centerline Distand			//	UDA				00 UDA
Centerline Distant		Ld		9		9	41	88

	FHV	/A-RD-77-108 I	HIGHW	AY NC	DISE PR	EDICTIC	N MODEL	•	
Scenari	o: E+P					Project N	lame: Haz	elden Betty F	ord Cent
Road Nam	e: Joe Friend	Ln.				Job Nu	mber: 127	20	
Road Segmer	nt: s/o MacMill	an Wy.							
	SPECIFIC IN	PUT DATA						DEL INPUTS	6
Highway Data				S	ite Con	ditions (l	lard = 10,	Soft = 15)	
Average Daily	Traffic (Adt):	2,106 vehicles					Auto	os: 15	
Peak Hour	Percentage:	8.38%			Med	lium Truc	ks (2 Axle	s <i>):</i> 15	
Peak H	our Volume:	177 vehicles			Hea	avy Truck	s (3+ Axle	s): 15	
Vei	hicle Speed:	25 mph		V	ehicle N	Niv			
Near/Far Lai	ne Distance:	12 feet		- F		cleType	Da	/ Evening	Night Dail
Site Data							itos: 75.	•	10.5% 97.4
Bai	rier Heiaht:	0.0 feet			Me	dium Tru	cks: 48.	9% 2.2%	48.9% 1.8
Barrier Type (0-W		0.0			H	leavy Tru	cks: 47.	3% 5.4%	47.3% 0.7
Centerline Dis		30.0 feet		N	oiso So	urco Elo	vations (ii	a foot)	
Centerline Dist.	o Observer:	30.0 feet			0130 00	Autos:		neety	
Barrier Distance	o Observer:	0.0 feet			Madium	n Trucks:			
Observer Height (J	Above Pad):	5.0 feet				y Trucks:		Grade Adi	ustment: 0.0
Pa	d Elevation:	0.0 feet			neav.	y mucho.	0.000	erade ridj	
Roa	d Elevation:	0.0 feet		Li	ane Equ	ivalent l	Distance (	in feet)	
I	Road Grade:	0.0%				Autos:			
	Left View:	-90.0 degree	s		Mediur	n Trucks:			
	Right View:	90.0 degree	s		Heav	y Trucks:	29.547		
FHWA Noise Mode	el Calculation:	s							
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresnel	Barrier Atte	en Berm Atte
Autos:	58.73	-6.93		3.26		-1.20	-4.4		
Medium Trucks:	70.80	-24.17		3.33		-1.20	-4.8		
Heavy Trucks:	77.97	-28.12		3.32		-1.20	-5.7	77 0.0	00 0.0
Unmitigated Noise									
VehicleType	Leq Peak Hou			eq Eve	~	Leq N	0	Ldn	CNEL
Autos:	53		2.6		51.3		45.3	53.7	
Medium Trucks:	48		5.6		38.1		46.9	53.0	
Heavy Trucks:	52	-	8.7		45.3		49.9	56.1	-
Vehicle Noise:	56	.8 5	4.7		52.4		52.6	59.3	5
Centerline Distant	e to Noise Co	ontour (in feet)							
				70 dE	BA	65 di	BA	60 dBA	55 dBA
			.dn: IFL:	6 6		12 13		27 28	58 60

	FHV	VA-RD-77-108	HIGHW	VAY N	IOISE PF	REDICT	ON MOD	EL			
	io: E+P								len Betty F	ord Ce	nt
	ne: Vista Del S					Job N	umber: 1	2720			
*	nt: n/o Betty F	,									
	SPECIFIC IN	IPUT DATA							L INPUT	S	
Highway Data				5	Site Con	ditions	(Hard = 1	0, Sc	oft = 15)		
Average Daily	Traffic (Adt):	175 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	8.38%			Me	dium Tru	icks (2 Ax	(les):	15		
Peak H	lour Volume:	15 vehicle	s		He	avy Truc	:ks (3+ A)	des):	15		
Ve	hicle Speed:	25 mph		1	Vehicle I	Mix					
Near/Far La	ne Distance:	12 feet		F		icleType	[	Day	Evening	Night	Daily
Site Data					1011			5.5%	~	~	% 97.42%
		0.0.6			Me	edium Ti		8.9%		48.9	
	rrier Height:	0.0 feet				leavy T		7.3%		47.3	
Barrier Type (0-W Centerline Dis		0.0				,					0.117
Centerline Dist.		30.0 feet		/	Noise So	ource E	evations	(in fe	eet)		
Barrier Distance		30.0 feet				Auto	s: 0.0	00			
		0.0 feet 5.0 feet			Mediur	n Truck	s: 2.2	97			
Observer Height (	,	0.0 feet			Heav	y Truck	s: 8.0	06	Grade Adj	iustmei	nt: 0.0
	ad Elevation:				l ano Ea	uivalon	Distance	) (in	foot)		
	ad Elevation: Road Grade:	0.0 feet 0.0%		-	Lane Ly	Auto			eel)		
1	Road Grade: Left View:				Madiu	n Truck					
		-90.0 degree				y Truck					
	Right View:	90.0 degree	es				s. 29.0	+/			
FHWA Noise Mod	el Calculation	s									
FHWA Noise Mod VehicleType	el Calculation REMEL	s Traffic Flow	Dista	ance	Finite		Fresne	1	Barrier Att	en B	erm Atten
		-	Dista	ance 3.26	Finite			1 4.49	Barrier Att		
VehicleType	REMEL 58.73	Traffic Flow	Dista		Finite	Road	-		0.0		0.000
VehicleType Autos:	REMEL 58.73 70.80	Traffic Flow -17.73	Dista	3.26	<i>Finite</i>	Road -1.20	-	4.49	0.0 0.0	000	0.000
VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 58.73 70.80 77.97	Traffic Flow -17.73 -34.97 -38.92		3.26 3.33 3.32	Finite 6 3 2	Road -1.20 -1.20	-	4.49 4.86	0.0 0.0	000	0.000
VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 58.73 70.80 77.97	Traffic Flow -17.73 -34.97 -38.92 out Topo and	barrier	3.26 3.33 3.32 atten	Finite 6 3 2	Road -1.20 -1.20 -1.20	-	4.49 4.86	0.0 0.0	000 000 000	0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos:	REMEL 58.73 70.80 77.97 e Levels (with	Traffic Flow -17.73 -34.97 -38.92 out Topo and rr Leq Day	barrier	3.26 3.33 3.32 atten	Finite 6 3 2 vening 40.5	Road -1.20 -1.20 -1.20		4.49 4.86	0.0 0.0 0.0 <i>Ldn</i> 42.9		0.000 0.000 0.000 CNEL 43.5
VehicleType Autos: Medium Trucks: Heavy Trucks: <b>Unmitigated Nois</b> VehicleType	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou	Traffic Flow -17.73 -34.97 -38.92 out Topo and ir Leq Day .1	barrier	3.26 3.33 3.32 atten	Finite 6 3 2 vening	Road -1.20 -1.20 -1.20	Night	4.49 4.86	0.0 0.0 0.0		0.000 0.000 0.000 CNEL 43.5
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 43	Traffic Flow           -17.73           -34.97           -38.92           out Topo and           r           Leq Day           .1           .0	<i>barrier</i> / 41.8	3.26 3.33 3.32 atten	Finite 6 3 2 vening 40.5	Road -1.20 -1.20 -1.20		4.49 4.86	0.0 0.0 0.0 <i>Ldn</i> 42.9		0.000 0.000 0.000 CNEL 43.5 42.3
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 43 38	Traffic Flow           -17.73           -34.97           -38.92           out Topo and           r         Leq Day           .1           .0           .2	barrier / L 41.8 34.8	3.26 3.33 3.32 atten	Finite 6 3 2 2 2 2 2 2 2 2 3 3 3 3 2 2 3 3 3 3	Road -1.20 -1.20 -1.20	Night 34.5 36.1	4.49 4.86	0.0 0.0 0.0 <i>Ldn</i> 42.9 42.2	000 000 000	0.000 0.000 0.000 <u>CNEL</u> 43.5 42.3 45.4
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 43 38 41 46	Traffic Flow           -17.73           -34.97           -38.92           Out Topo and           r           Leq Day           .1           .0           .2           .0	barrier / L 41.8 34.8 37.9 43.9	3.26 3.33 3.32 atten	Finite 6 3 2 wening 40.5 27.3 34.5	Road -1.20 -1.20 -1.20	Night 34.5 36.1 39.1	4.49 4.86	0.0 0.0 0.0 <i>Ldn</i> 42.5 42.2 45.3	000 000 000	0.000 0.000 0.000 <u>CNEL</u> 43.5 42.3 45.4
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 43 38 41 46	Traffic Flow           -17.73           -34.97           -38.92           Out Topo and           r           Leq Day           .1           .0           .2           .0	barrier / L 41.8 34.8 37.9 43.9	3.26 3.33 3.32 atten	Finite 6 3 2 <b>vuation)</b> vening 40.5 27.3 34.5 41.6	Road -1.20 -1.20 -1.20 <i>Leq</i>	Night 34.5 36.1 39.1	4.49 4.86 5.77	0.0 0.0 0.0 <i>Ldn</i> 42.5 42.2 45.3	000 000 000 2 3 5	0.000 0.000 0.000 <u>CNEL</u> 43.5 42.3 45.4
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 43 38 41 46	Traffic Flow           -17.73         -34.97           -38.92	barrier / L 41.8 34.8 37.9 43.9	3.26 3.33 3.32 atten Leg Ev	Finite 6 3 2 wening 40.5 27.3 34.5 41.6	Road -1.20 -1.20 -1.20 Leq 65	Night 34.5 36.1 39.1 41.8	4.49 4.86 5.77	0.0 0.0 0.0 42.9 42.2 45.3 48.5	000 000 000 2 3 5	0.000 0.000 0.000 <u>CNEL</u> 43.5 42.3 45.4 48.7

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHW	/A-RD-77-108	HIGHWA	AY NO	DISE PR	EDICTIC	N MOD	EL			
Road Nam	io: E+P ne: Vista Del So nt: n/o Country						<i>lame:</i> ⊢ mber: 1		en Betty Fo	rd Cent	
SITE	SPECIFIC IN	PUT DATA				NC	DISE M	IODEI	L INPUTS		
Highway Data				S	ite Con	ditions (I	Hard = 1	10, So	ft = 15)		
	Traffic (Adt): Percentage: lour Volume:	1,476 vehicles 8.38% 124 vehicles				dium Truc avy Truck	ks (2 A		15 15 15		
Ve	hicle Speed:	25 mph		V	ehicle N	Alter					
Near/Far La	ne Distance:	12 feet		v		cleType		Dav	Evening	Night	Dailv
Site Data					VCIII			75.5%	14.0%	10.5%	
Ba	rrier Heiaht:	0.0 feet			Me	dium Tru	icks: 4	18.9%	2.2%	48.9%	1.84%
Barrier Type (0-W		0.0			H	leavy Tru	icks: 4	47.3%	5.4%	47.3%	0.74%
Centerline Dis	st. to Barrier:	30.0 feet		N	oise So	urce Ele	vations	in fe	et)		
Centerline Dist.	to Observer:	30.0 feet		-		Autos					
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2.2	97			
Observer Height (	Above Pad): ad Elevation:	5.0 feet 0.0 feet				y Trucks:			Grade Adju	stment:	0.0
	ad Elevation:	0.0 feet		L	ane Equ	uivalent l	Distanc	e (in f	eet)		
	Road Grade:	0.0%				Autos:	29.8	16			
	Left View:	-90.0 degree	s		Medium	n Trucks:	29.5	18			
	Right View:	90.0 degree	s		Heav	y Trucks:	29.5	47			
FHWA Noise Mod	el Calculations	5									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresne	el I	Barrier Atte	n Ber	m Atten
Autos:	58.73	-8.48		3.26		-1.20	-	4.49	0.00	00	0.00
Medium Trucks:	70.80	-25.71		3.33		-1.20		4.86	0.00		0.00
Heavy Trucks:	77.97	-29.67		3.32		-1.20	-	-5.77	0.00	00	0.00
Unmitigated Nois					/						
VehicleType	Leq Peak Hou			eq Eve	~	Leq N	·		Ldn	CI	VEL
Autos:	52.		51.1		49.8		43.8		52.2		52.
Medium Trucks:	47.	-	14.1		36.6		45.3		51.5		51.
Heavy Trucks: Vehicle Noise:	50. 55.		17.2 53.1		43.8		48.4		54.6 57.7		54. 58.
Centerline Distan					50.5		01.0		57.1		50.
Centerine Distan	ce to NOISE CO	nitour (in feet)		70 dl	BA	65 di	BA	6	0 dBA	55	dBA
		1	dn:	5	·	10			21		46
		CA	IEL:	5		10			22	4	17

	FHW	/A-RD-77-108	HIGH	WAY NC	ISE PREDI	CTION M	DDEL			
Scenario:	E+P				Proj	ect Name	Hazelo	den Betty F	ord Cent	
Road Name:	MacMillan V	Ny.			Jol	Number	12720			
Road Segment:	e/o Bob Ho	pe Dr.								
	PECIFIC IN	PUT DATA							s	
Highway Data				S	ite Conditio	ns (Hard	= 10, Se	oft = 15)		
Average Daily Tr	affic (Adt):	3,430 vehicle	s				Autos:	15		
Peak Hour Pe	ercentage:	8.38%			Medium	Trucks (2	Axles):	15		
Peak Hou	ur Volume:	287 vehicle	s		Heavy 7	rucks (3+	Axles):	15		
Vehio	cle Speed:	25 mph		14	ehicle Mix					
Near/Far Lane	Distance:	12 feet			VehicleT	me	Dav	Evening	Night	Daily
Site Data					veniererj	Autos:	75.5%		10.5%	
		0.0 feet			Mediun	Trucks:	48.9%		48.9%	
Barrier Type (0-Wal	er Height:	0.0 teet				Trucks:			47.3%	
Centerline Dist.	. ,	30.0 feet		_						
Centerline Dist. to		30.0 feet		N	oise Source			eet)		
Barrier Distance to		0.0 feet					0.000			
Observer Height (At		5.0 feet			Medium Tru		2.297			
	Elevation:	0.0 feet			Heavy Tru	cks: 8	3.006	Grade Ad	iustment.	0.0
	Elevation:	0.0 feet		Li	ane Equival	ent Dista	nce (in	feet)		
	ad Grade:	0.0%					9.816	,		
	Left View:	-90.0 degree	29		Medium Tru		9.518			
F	Right View:	90.0 degree			Heavy Tru	cks: 29	9.547			
FHWA Noise Model	Calculation	s								
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite Road	Fre:	snel	Barrier Att	en Ber	m Atten
Autos:	58.73	-4.81		3.26	-1.2	20	-4.49	0.0	000	0.00
Medium Trucks:	70.80	-22.05		3.33	-1.2		-4.86		000	0.00
Heavy Trucks:	77.97	-26.01		3.32	-1.2	20	-5.77	0.0	000	0.00
Unmitigated Noise I	Levels (with	out Topo and	barrie							
,1	eq Peak Hou			Leq Eve		eq Night		Ldn		NEL
Autos:	56		54.7		53.4	47		55.8		56.
Medium Trucks:	50.		47.7		40.2	49		55.2	-	55.
Heavy Trucks:	54.	.1	50.8		47.4	52	.1	58.3	3	58.
Vehicle Noise:	58	.9	56.8		54.6	54	.7	61.4	4	61.
Centerline Distance	to Noise Co	ontour (in feet	)		ġ.					
				70 dE	BA	65 dBA	(	60 dBA		dBA
			Ldn:	8		17		37		30
			NFI :	8		18		39		33

	FHW	A-RD-77-108	HIGP	IWAY N	IOISE PI	REDICTIO		:L			
Scenario						Project Na			en Betty F	ord Cen	t
Road Name						Job Nun	nber: 12	720			
Road Segment	: e/o Bob Hoj	be Dr.									
	PECIFIC IN	PUT DATA							INPUT	5	
Highway Data					Site Cor	nditions (H		· ·	,		
Average Daily Ti	raffic (Adt):	2,130 vehicle	s					itos:	15		
Peak Hour P	ercentage:	8.38%				dium Truck		· · /	15		
Peak Ho	ur Volume:	179 vehicle	s		He	avy Trucks	: (3+ Axl	es):	15		
	cle Speed:	25 mph		F	Vehicle	Mix					
Near/Far Lane	e Distance:	12 feet		-	Veh	icleType	D	ay	Evening	Night	Daily
Site Data						Au	tos: 75	5.5%	14.0%	10.5%	97.42
Barr	ier Height:	0.0 feet			М	edium Truc	:ks: 48	8.9%	2.2%	48.9%	1.84
Barrier Type (0-Wa	I, 1-Berm):	0.0				Heavy Truc	:ks: 47	7.3%	5.4%	47.3%	0.74
Centerline Dist.		30.0 feet			Noise S	ource Elev	ations (	'in fee	et)		
Centerline Dist. to		30.0 feet		F		Autos:	0.00	0			
Barrier Distance to		0.0 feet			Mediu	m Trucks:	2.29	7			
Observer Height (A	,	5.0 feet			Hear	y Trucks:	8.00	6 (	Grade Adj	ustment	: 0.0
	l Elevation:	0.0 feet		F		· · · · · ·					
	Elevation:	0.0 feet		4	Lane Eq	uivalent D			eet)		
Re	oad Grade:	0.0%				Autos:	29.81	-			
	Left View:	-90.0 degre				m Trucks:	29.51	-			
	Right View:	90.0 degre	es		Hear	/y Trucks:	29.54	7			
FHWA Noise Model		-			1						
VehicleType	REMEL	Traffic Flow		stance			Fresnel		Barrier Att		m Atter
Autos:	58.73	-6.88		3.2	-	-1.20		.49	0.0		0.00
Medium Trucks:	70.80	-24.12		3.3	-	-1.20		.86	0.0		0.00
Heavy Trucks:	77.97	-28.08		3.3		-1.20	-5	.77	0.0	000	0.00
Unmitigated Noise						Land	and a d		Ldn		NEL
VehicleType L Autos:	eq Peak Hou 53		52.7	Leq E	vening 51.4	Leq Ni	45.4		Lan 53.8		INEL 54
Autos: Medium Trucks:	53. 48.	-	52.7 45.7		38.2		45.4 46.9		53.0		54 53
Heavy Trucks:	48. 52	-	45.7		38.2 45.3		46.9 50.0		56.2		53 56
Vehicle Noise:	56	-	40.7 54.7		45.5		52.6		59.3	-	59
		-	• …		52.5		52.0		59.3	,	- 59
Centerline Distance	e to Noise Co	ntour (in fee	9	70	dBA	65 dB	Δ	6(	) dBA	55	dBA
			I dn:		3 5	13	~		27		58
		0	NFI :		5	13			28		61

	FHV	VA-RD-77-108	HIGHWA	Y NOISE P	REDICT	ION MODE	L		
Road Nan	io: E+P ne: Betty Ford \ nt: e/o Joe Frie					Name: Ha lumber: 12	azelden Betty F 720	ord Cen	t
SITE	SPECIFIC IN	IPUT DATA		1	N	IOISE MO	DEL INPUT	s	
Highway Data				Site Col	nditions	(Hard = 10	0, Soft = 15)		
Average Daily	Traffic (Adt):	1,167 vehicles	6			Au	itos: 15		
Peak Hour	Percentage:	8.38%		Me	edium Tru	ucks (2 Axl	les): 15		
Peak F	lour Volume:	98 vehicle:	6	He	eavy Truc	cks (3+ Axl	les): 15		
Ve	hicle Speed:	25 mph		Vehicle	Mix				
Near/Far La	ne Distance:	12 feet			nicleType		ay Evening	Night	Daily
Site Data				Ver			5.5% 14.0%	~	97.42%
					, Iedium T		3.9% 2.2%		
	rrier Height:	0.0 feet			Heavy T		7.3% 5.4%	47.3%	
Barrier Type (0-W		0.0			,			47.070	0.147
Centerline Di		30.0 feet		Noise S	ource E	levations (	(in feet)		
Centerline Dist.		30.0 feet			Auto	s: 0.00	0		
Barrier Distance		0.0 feet		Mediu	ım Truck	s: 2.29	7		
Observer Height	· · · · ·	5.0 feet		Hea	vy Truck	s: 8.00	6 Grade Ad	ljustment	: 0.0
	ad Elevation:	0.0 feet		Long Er		Distance	(in feet)		
	ad Elevation:	0.0 feet		Lane Et		t Distance			
	Road Grade:	0.0%		14-16	Auto Im Truck				
	Left View:	-90.0 degree							
	Right View:	90.0 degree	es	неа	vy Truck	s: 29.54	1		
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distanc	e Finite	Road	Fresnel	Barrier Att	ten Bei	rm Atten
Autos:	58.73	-9.50		3.26	-1.20	-4	.49 0.0	000	0.00
Medium Trucks:	70.80	-26.73		3.33	-1.20	-4	.86 0.0	000	0.00
Heavy Trucks:	77.97	-30.69		3.32	-1.20	-5	.77 0.0	000	0.00
Unmitigated Nois				,					
VehicleType	Leq Peak Hou			g Evening	,	Night	Ldn		NEL
Autos:	÷.		50.1	48.7		42.7	51.		51.8
Medium Trucks:			43.1	35.6		44.3	50.		50.
Heavy Trucks:			46.1	42.7		47.4	53.		53.7
Vehicle Noise:			52.1	49.9	)	50.0	56.	7	57.0
Centerline Distan	ce to Noise Co	ontour (in feet							
				70 dBA		dBA	60 dBA		i dBA
			Ldn: VEL:	4 4		8 9	18 19		39
									41

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FH\	WA-RD-77-108	3 HIGH	WAY N	DISE PR	REDICTIO	N MODE	L		
Scenari Road Nam Road Segmer	e: Country Cl					Project Na Job Nun		zelden Betty F 720	ord Cen	t
SITE	SPECIFIC II	VPUT DATA						DEL INPUT	S	
Highway Data				S	ite Cor	ditions (H	ard = 10	, Soft = 15)		
Peak H	Percentage: our Volume:	9,792 vehicle 8.38% 821 vehicle				dium Trucł avy Trucks	s (2 Axle	.,		
	hicle Speed:	45 mph		V	ehicle	Mix				
Near/Far Lar	ne Distance:	52 feet		_	Veh	icleType	Da	evening	Night	Daily
Site Data						Au	tos: 75	.5% 14.0%	10.5%	97.429
Bar	rier Height:	0.0 feet			М	edium Truc	ks: 48	.9% 2.2%	48.9%	1.84%
Barrier Type (0-W	all, 1-Berm):	0.0			I	Heavy Truc	ks: 47	.3% 5.4%	47.3%	0.74%
Centerline Dis		55.0 feet		٨	loise So	ource Elev	ations (	in feet)		
Centerline Dist. t		55.0 feet				Autos:	0.000	)		
Barrier Distance t		0.0 feet			Mediu	m Trucks:	2.297	,		
Observer Height (/	Above Pad): ad Elevation:	5.0 feet 0.0 feet			Heav	y Trucks:	8.006	Grade Ad	ljustment	: 0.0
	d Elevation:	0.0 feet		L	ane Eq	uivalent D	istance	(in feet)		
	Road Grade:	0.0%		_		Autos:	48.724	1		
	Left View:	-90.0 degre	299		Mediu	m Trucks:	48.54	>		
	Right View:	90.0 degre			Heav	y Trucks:	48.560	)		
FHWA Noise Mode	el Calculation	IS								
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresnel	Barrier At	ten Be	rm Atten
Autos:	68.46	-2.81		0.07		-1.20	-4.	67 0.	000	0.00
Medium Trucks:	79.45			0.09		-1.20			000	0.00
Heavy Trucks:	84.25			0.09		-1.20	-5.	38 0.	000	0.00
Unmitigated Noise										
,1	Leq Peak Ho			Leq Ev		Leq Ni		Ldn		NEL
Autos:		4.5	63.3		62.0		55.9	64.		65.
Medium Trucks:		3.3	55.2		47.7		56.4	62.	-	62.
Heavy Trucks:		9.1	55.9		52.5		57.1	63.	-	63.
Vehicle Noise:		3.4	64.5		62.6		61.3	68.	3	68.
Centerline Distance	ce to Noise C	ontour (in fee	t)	70 d	DA.	65 dB	4	60 dBA	55	dBA
			I dn:	42		91	~	195		121
		0	NFI :	42		91		205		+21 141
		L.	n ILL.	44		90		205	2	*** 1

FHWA-RD-77-108 HI	GHWAY	NOISE PR	EDICT	ION MO	DEL			
Scenario: E+P Road Name: Country Club Dr. Road Segment: e/o Bob Hope Dr.				Name: lumber:		den Betty F	ord Cent	
SITE SPECIFIC INPUT DATA							2	
Highway Data		Site Con					>	
		0.00 00.0	andonio	•		,		
Average Daily Traffic (Adt): 14,906 vehicles		14-			Autos:			
Peak Hour Percentage: 8.38%				ucks (2 /				
Peak Hour Volume: 1,249 vehicles		Hea	avy rruc	cks (3+ /	axies):	15		
Vehicle Speed: 50 mph		Vehicle I	Nix					
Near/Far Lane Distance: 58 feet		Vehi	cleType	9	Day	Evening	Night	Daily
Site Data				Autos:	75.5%	14.0%	10.5%	97.42%
Barrier Height: 0.0 feet		Me	dium T	rucks:	48.9%	2.2%	48.9%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0		F	leavy T	rucks:	47.3%	5.4%	47.3%	0.74%
Centerline Dist. to Barrier: 55.0 feet		Noise So	uree E	lovation	o (in f	a a 41		
Centerline Dist. to Observer: 55.0 feet		Noise 30				eel)		
Barrier Distance to Observer: 0.0 feet			Auto n Truck		000 297			
Observer Height (Above Pad): 5.0 feet					297 006	Grade Adj		
Pad Elevation: 0.0 feet		Heav	y Truck	S: 8.	000	Grade Adj	usuneni	0.0
Road Elevation: 0.0 feet		Lane Equ	uivalen	t Distan	ce (in	feet)		
Road Grade: 0.0%			Auto	s: 47.	000			
Left View: -90.0 degrees		Mediur	n Truck	s: 46.	811			
Right View: 90.0 degrees		Heav	y Truck	s: 46.	830			
FHWA Noise Model Calculations								
	Distance	Finite	Road	Fresr	nel	Barrier Atte	en Ber	m Atten
Autos: 70.20 -1.44	0.3	30	-1.20		-4.67	0.0	00	0.00
Medium Trucks: 81.00 -18.68	0.3		-1.20		-4.87	0.0		0.00
Heavy Trucks: 85.38 -22.64	0.3	32	-1.20		-5.38	0.0	00	0.00
Unmitigated Noise Levels (without Topo and ba	rrier atte	nuation)						
VehicleType Leq Peak Hour Leq Day		evning	Leq	Night		Ldn		NEL
Autos: 67.9 66	6	65.3		59.3	3	67.7	,	68.
Medium Trucks: 61.4 58		50.8		59.6		65.7		65.
Heavy Trucks: 61.9 58		55.2		59.8	3	66.0	)	66.
Vehicle Noise: 69.6 67	8	65.8		64.3	3	71.4	ļ	71.
Centerline Distance to Noise Contour (in feet)								
		dBA		dBA	0	60 dBA		dBA
Ld		68	1	46		314 330	6	77
CNE								

Scenari									en Betty Fo	ord Cen	1
	e: Country Clu					Job N	lumber: 1	2720			
Road Segmen	t: e/o John L.	Sinn Rd.									
SITE S	SPECIFIC IN	PUT DATA							L INPUTS	5	
Highway Data				3	Site Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 1	9,043 vehicle	s				A	Autos:	15		
Peak Hour I	Percentage:	8.38%			Me	dium Tr	ucks (2 A	xles):	15		
Peak He	our Volume:	1,596 vehicle	s		He	avy Tru	cks (3+ A	xles):	15		
Vel	nicle Speed:	50 mph			Vehicle I	Mix					
Near/Far Lar	e Distance:	58 feet		H		icleType		Day	Evening	Night	Daily
Site Data								75.5%	~	10.5%	
Par	rier Height:	0.0 feet			Me	edium T		18.9%		48.9%	
Barrier Type (0-Wa	•	0.0			ŀ	leavy T	rucks: 4	47.3%	5.4%	47.3%	0.749
Centerline Dis		55.0 feet									
Centerline Dist. t		55.0 feet		1	Noise Sc		levations		eet)		
Barrier Distance t	o Observer:	0.0 feet				Auto					
Observer Height ()		5.0 feet				m Truck			Ora da Adi		
0 1	d Elevation:	0.0 feet			Heav	y Truck	s: 8.0	06	Grade Adj	ustment	0.0
Roa	d Elevation:	0.0 feet		1	Lane Eq	uivalen	t Distanc	e (in i	feet)		
F	Road Grade:	0.0%				Auto	s: 47.0	00			
	Left View:	-90.0 degre	es		Mediur	m Truck	s: 46.8	11			
	Right View:	90.0 degre	es		Heav	ry Truck	s: 46.8	30			
FHWA Noise Mode		-									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite		Fresne		Barrier Atte		m Atten
Autos:	70.20	-0.38		0.30	-	-1.20		4.67	0.0		0.00
Medium Trucks:	81.00	-17.62		0.33	-	-1.20		4.87	0.0		0.00
Heavy Trucks:	85.38	-21.57		0.32	2	-1.20	-	5.38	0.0	00	0.00
Unmitigated Noise											
,,	Leq Peak Hou			Leq Ev	•	Leq	Night		Ldn	-	NEL
Autos: Medium Trucks:	68. 62.	-	67.7 59.4		66.4 51.9		60.4 60.6		68.8 66.8		69. 66.
	62.	-	59.4 59.7		51.9 56.3		60.6 60.9		67.1		67.
Heavy Trucks: Vehicle Noise:		-					65.4		67.1 72.4		
	70.		68.8		66.9		65.4		72.4		72.
Centerline Distance	e to Noise Co	ntour (in feet	)	70 c		65	dD A	,			dD A
							dBA	6	0 dBA		dBA '98
			Ldn: NFL:	80 84	-		72 80		370 389		90 338

					OISE PREDIC		ODEL			
Road Nam	io: E+P ne: Country Clu nt: e/o Vista D					ct Name Number		den Betty F	ord Cent	
SITE	SPECIFIC IN	IPUT DATA				NOISE	MODE	L INPUT	s	
Highway Data				S	Site Condition	s (Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt): 2	20,033 vehicles	s				Autos	15		
Peak Hour	Percentage:	8.38%			Medium	rucks (2	Axles)	15		
Peak H	lour Volume:	1,679 vehicles	s		Heavy Tr	ucks (3+	Axles)	15		
Ve	hicle Speed:	50 mph		v	/ehicle Mix					
Near/Far La	ne Distance:	58 feet		-	VehicleTy	ne l	Day	Evening	Night	Daily
Site Data					venielery	Autos:	75.5%	v	· ·	97.429
				-	Medium		48.99		48.9%	
	rrier Height:	0.0 feet				Trucks:			47.3%	
Barrier Type (0-W Centerline Di		0.0 55.0 feet								0.7 17
Centerline Dist.		55.0 feet		N	loise Source	Elevatio	ns (in i	eet)		
Barrier Distance		0.0 feet			Au	os: (	0.000			
Observer Height (		5.0 feet			Medium True	ks:	2.297			
	ad Flevation:	0.0 feet			Heavy True	ks: I	3.006	Grade Adj	ustment	0.0
	ad Elevation: ad Elevation:	0.0 feet		1	ane Equivale.	nt Dista	nce (in	feet)		
	Road Grade:	0.0%		-			7.000	1001)		
	Left View:	-90.0 degree			Medium True		5.811			
	Right View:	90.0 degree			Heavy True		5.830			
		s								
FHWA Noise Mod										
FHWA Noise Mod VehicleType	REMEL	Traffic Flow	Distan	се	Finite Road	Fre	snel	Barrier Att	en Ber	m Atten
	REMEL		Distan	ce 0.30			snel -4.67		en Ber 100	
VehicleType	REMEL 70.20	Traffic Flow	Distan		-1.2	)		0.0		0.00
VehicleType Autos:	REMEL 70.20 81.00	Traffic Flow -0.16	Distan	0.30	-1.2	)	-4.67	0.0	000	0.00
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	REMEL 70.20 81.00 85.38 e Levels (with	Traffic Flow -0.16 -17.40 -21.35 out Topo and		0.30 0.33 0.32	-1.2 -1.2 -1.2 uation)	) )	-4.67 -4.87	0.0 0.0 0.0	000	0.00
VehicleType Autos: Medium Trucks: Heavy Trucks: <b>Unmitigated Nois</b> VehicleType	REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou	Traffic Flow           -0.16           -17.40           -21.35           Out Topo and           rr         Leq Day	barrier a	0.30 0.33 0.32 ttenu	-1.2 -1.2 -1.2 uation) ening Le	) ) ) q Night	-4.67 -4.87 -5.38	0.0 0.0 0.0	000 000 000 C	0.000 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 69	Traffic Flow           -0.16           -17.40           -21.35           out Topo and           Ir         Leq Day           .1	barrier a / Le 67.9	0.30 0.33 0.32 ttenu	-1.2 -1.2 -1.2 -1.2 uation) vening Le 66.6	) ) q Night 60	-4.67 -4.87 -5.38	0.0 0.0 0.0 <i>Ldn</i> 69.0	000 000 000 C	0.000 0.000 0.000 VEL 69.6
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 69 62	Traffic Flow           -0.16           -17.40           -21.35           out Topo and           r           Leq Day           .1           .7	<i>barrier a</i> / <i>Le</i> 67.9 59.6	0.30 0.33 0.32 ttenu	-1.2 -1.2 -1.2 -1.2 -1.2 uation) vation) vation) 66.6 52.1	) ) ) <i>q Night</i> 60 60	-4.67 -4.87 -5.38 .6	0.0 0.0 0.0 <i>Ldn</i> 69.0 67.0	000 000 000 C	0.000 0.000 0.000 VEL 69.6 67.1
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 70.20 81.00 85.38 e Levels (with Leg Peak Hou 69 62 63	Traffic Flow           -0.16           -17.40           -21.35           out Topo and           r           Leq Day           .1           .7	barrier a / Le 67.9	0.30 0.33 0.32 ttenu	-1.2 -1.2 -1.2 -1.2 uation) vening Le 66.6	) ) q Night 60	-4.67 -4.87 -5.38 .6	0.0 0.0 0.0 <i>Ldn</i> 69.0	000 000 000 C	0.000 0.000 0.000 VEL 69.6 67.1
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL           70.20           81.00           85.38           e Levels (with           Leq Peak Hou           69           62           63           70	Traffic Flow         -0.16           -17.40         -21.35           Out Topo and         rr         Leq Day           .1         .7         .1           .8	barrier a / Le 67.9 59.6 59.9 69.1	0.30 0.33 0.32 ttenu	-1.2 -1.2 -1.2 -1.2 -1.2 uation) vation) vation) 66.6 52.1	) ) ) <i>q Night</i> 60 60	-4.67 -4.87 -5.38 .6 .8 .1	0.0 0.0 0.0 <i>Ldn</i> 69.0 67.0	000 000 000 C	0.00 0.00 0.00 VEL 69. 67. 67.
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL           70.20           81.00           85.38           e Levels (with           Leq Peak Hou           69           62           63           70	Traffic Flow         -0.16           -17.40         -21.35           Out Topo and         rr         Leq Day           .1         .7         .1           .8	barrier a / Le 67.9 59.6 59.9 69.1	0.30 0.33 0.32 ttenu	-1.2           -1.2           -1.2           uation)           ening         Le           66.6           52.1           56.5           67.1	) ) ( ) 60 61 65	-4.67 -4.87 -5.38 .06 .8 .1	0.0 0.0 0.0 0.0 0.0 69.0 67.0 67.0 67.3 72.6	000 000 000 000 Ci 0 0 3 5	0.000 0.000 0.000 VEL 69.1 67. 67. 67. 73.1
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL           70.20           81.00           85.38           e Levels (with           Leq Peak Hou           69           62           63           70	Traffic Flow           -0.16           -17.40           -21.35           Out Topo and           r           Leq Day           .1           .8           ontour (in feet)	barrier a / Le 67.9 59.6 59.9 69.1	0.30 0.33 0.32 ttenu cq Eve	-1.2           -1.2           uation)           ening         Le           66.6           52.1           56.5           67.1           BA         6	9 9 9 60 60 61 65 5 dBA	-4.67 -4.87 -5.38 .06 .8 .1	0.0 0.0 0.0 0.0 69.0 67.0 67.3 72.6 60 dBA	000 000 000 000 C, 0 0 3 3 55	0.000 0.000 NEL 69.6 67.4 73.0 dBA
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL           70.20           81.00           85.38           e Levels (with           Leq Peak Hou           69           62           63           70	Traffic Flow -0.16 -17.40 -21.35 out Topo and r Leq Day .1 .7 .1 .8 Bontour (in feet	barrier a / Le 67.9 59.6 59.9 69.1	0.30 0.33 0.32 ttenu	-1.2           -1.2           -1.2           -1.2           ening         Le           66.6           52.1           56.5           67.1           BA         6           3	) ) ( ) 60 61 65	-4.67 -4.87 -5.38 .06 .8 .1	0.0 0.0 0.0 0.0 0.0 69.0 67.0 67.0 67.3 72.6	000 000 000 000 000 000 000 000 000 00	0.000 0.000 0.000 VEL 69.6 67.4 67.4 73.0

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHV	/A-RD-77-108	HIGHV	VAY NC	DISE PR	EDICTI		DEL			
	io: EA le: Bob Hope E nt: n/o MacMill						Name: H umber: 1		en Betty Fo	ord Cent	
SITE	SPECIFIC IN	PUT DATA							L INPUTS	5	
Highway Data				S	ite Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt): 2	5,678 vehicle	S				A	Autos:	15		
Peak Hour	Percentage:	8.38%			Med	dium Tru	icks (2 A	xles):	15		
Peak H	our Volume:	2,152 vehicle	S		Hea	avy Truc	:ks (3+ A	xles):	15		
	hicle Speed:	45 mph		V	ehicle N	Nix					
Near/Far Lar	ne Distance:	58 feet				cleType		Dav	Evening	Night	Daily
Site Data							lutos:	75.5%	•	10.5%	
Bai	rrier Heiaht:	0.0 feet			Me	edium Tr	ucks:	48.9%	2.2%	48.9%	1.84%
Barrier Type (0-W		0.0			H	leavy Tr	ucks:	47.3%	5.4%	47.3%	0.74%
Centerline Dis	st. to Barrier:	55.0 feet		N	oise So	urce El	evations	: (in fe	et)		
Centerline Dist.	to Observer:	55.0 feet				Autos			.,		
Barrier Distance		0.0 feet			Mediur	n Trucks					
Observer Height (	,	5.0 feet				y Trucks			Grade Adj	ustment	0.0
	ad Elevation:	0.0 feet					Distant		41		
	ad Elevation:	0.0 feet		Li	ane Equ		Distanc		eet)		
	Road Grade:	0.0%				Autos					
	Left View: Right View:	-90.0 degree 90.0 degree				n Trucks y Trucks					
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el .	Barrier Atte	en Ber	m Atten
Autos:	68.46	1.38		0.30		-1.20		4.67	0.0	00	0.000
Medium Trucks:	79.45	-15.86		0.33		-1.20		4.87	0.0	00	0.000
Heavy Trucks:	84.25	-19.82		0.32		-1.20		-5.38	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	r attenu	ation)						
VehicleType	Leq Peak Hou			Leq Eve	~	Leq	Night		Ldn		VEL
Autos:	68	-	67.7		66.4		60.4		68.8		69.4
Medium Trucks:	62		59.6		52.1		60.8		67.0		67.0
Heavy Trucks:	63	•	60.3		56.9		61.5		67.7		67.8
Vehicle Noise:	70	-	69.0		67.0		65.7		72.7		73.0
Centerline Distant	ce to Noise Co	ontour (in feet	)								
				70 dE			dBA	6	0 dBA		dBA
			Ldn: VEL:	83			79		385		29
		CI	VEL:	87		18	37		403	8	69

FHWA-RD-77-108 HIG	HWAY N	DISE PREDICT	ION MODE	L		
Scenario: EA Road Name: Bob Hope Dr. Road Segment: s/o Street A			Name: Ha lumber: 12	zelden Betty F 720	ord Cent	
SITE SPECIFIC INPUT DATA		r	NOISE MC	DEL INPUT	s	
Highway Data	S	ite Conditions	(Hard = 10	), Soft = 15)		
Average Daily Traffic (Adt): 20,775 vehicles				tos: 15		
Peak Hour Percentage: 8.38%			ucks (2 Axl	,		
Peak Hour Volume: 1,741 vehicles		Heavy Tru	cks (3+ Axl	es): 15		
Vehicle Speed: 45 mph	V	ehicle Mix				
Near/Far Lane Distance: 58 feet		VehicleType	e Da	evening	Night	Daily
Site Data			Autos: 75	.5% 14.0%	10.5%	97.429
Barrier Height: 0.0 feet		Medium T	rucks: 48	.9% 2.2%	48.9%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy T	rucks: 47	.3% 5.4%	47.3%	0.74%
Centerline Dist. to Barrier: 55.0 feet	٨	loise Source E	levations (	in feet)		
Centerline Dist. to Observer: 55.0 feet		Auto		,		
Barrier Distance to Observer: 0.0 feet		Medium Truck				
Observer Height (Above Pad): 5.0 feet		Heavy Truck			ustment <sup>.</sup>	0.0
Pad Elevation: 0.0 feet		,			dounont.	0.0
Road Elevation: 0.0 feet	L	ane Equivalen.	t Distance	(in feet)		
Road Grade: 0.0%		Auto	s: 47.00	C		
Left View: -90.0 degrees		Medium Truck	10.01	1		
Right View: 90.0 degrees		Heavy Truck	s: 46.83	D		
FHWA Noise Model Calculations						
VehicleType REMEL Traffic Flow D	listance	Finite Road	Fresnel	Barrier Att	en Berr	n Atten
Autos: 68.46 0.46	0.30	-1.20	-4	.67 0.0	000	0.00
Medium Trucks: 79.45 -16.78	0.33	-1.20	-4	.87 0.0	000	0.00
Heavy Trucks: 84.25 -20.74	0.32	-1.20	-5	.38 0.0	000	0.00
Unmitigated Noise Levels (without Topo and bar	rier attenu	uation)				
VehicleType Leq Peak Hour Leq Day	Leq Ev	ening Leq	Night	Ldn	CN	IEL
Autos: 68.0 66.8		65.5	59.5	67.9	)	68.
Medium Trucks: 61.8 58.7		51.2	59.9	66.1		66.
Heavy Trucks: 62.6 59.4		56.0	60.6	66.8	3	66.
Vehicle Noise: 69.9 68.0	)	66.1	64.8	71.8	3	72.
Centerline Distance to Noise Contour (in feet)						
	70 d		dBA	60 dBA		dBA
Ldn.			55	334		20
CNFL	: 75		63	350		55

	FHW	A-RD-77-108	HIGHW	VAY N	OISE PR	EDICTIO	NMODE	Ľ			
Scenario Road Name Road Segmen	Bob Hope D					Project Na Job Nun	ame: Ha nber: 12		n Betty Fo	ord Cent	t
SITE S	PECIFIC IN	PUT DATA				NO	ISE MO	DEL	INPUTS	5	
Highway Data				5	Site Con	ditions (H	lard = 10	), Soft	= 15)		
Average Daily T	raffic (Adt): 2	1,394 vehicles	5				Au	tos:	15		
Peak Hour F	ercentage:	8.38%			Med	lium Truck	ks (2 Axl	es):	15		
Peak Ho	ur Volume:	1,793 vehicles	6		Hea	avy Trucks	6 (3+ Axl	es):	15		
Veh	icle Speed:	45 mph		1	ehicle l	Niv					
Near/Far Lan	e Distance:	58 feet				cleTvpe	Da	av F	vening	Night	Dailv
Site Data								.5%	14.0%	10.5%	
Par	ier Height:	0.0 feet			Me	dium Truc	ks: 48	.9%	2.2%	48.9%	1.84%
Barrier Type (0-Wa	•	0.0			ŀ	leavy Truc	cks: 47	.3%	5.4%	47.3%	0.74%
Centerline Dist	to Barrier:	55.0 feet			loise Sc	urce Elev	ations (	in fee	f)		
Centerline Dist. to	Observer:	55.0 feet		- F	0130 00	Autos:	0.000		9		
Barrier Distance to	Observer:	0.0 feet			Modiur	n Trucks:	2.29	-			
Observer Height (A	bove Pad):	5.0 feet				v Trucks:	8.00		rade Adji	istment	· 0.0
Pa	d Elevation:	0.0 feet						- -		Journorm	0.0
Road	d Elevation:	0.0 feet		L	ane Equ	ıivalent D			et)		
R	oad Grade:	0.0%				Autos:	47.00				
	Left View:	-90.0 degree				n Trucks:	46.81				
	Right View:	90.0 degree	es		Heav	y Trucks:	46.83	0			
FHWA Noise Mode	Calculations	;									
VehicleType	REMEL	Traffic Flow	Dista		Finite		Fresnel		arrier Atte		m Atten
Autos:	68.46	0.58		0.30		-1.20		.67	0.0		0.00
Medium Trucks:	79.45	-16.65		0.33		-1.20		.87	0.0		0.00
Heavy Trucks:	84.25	-20.61		0.32		-1.20	-5	.38	0.0	00	0.00
Unmitigated Noise											
	eq Peak Hou	. ,		Leq Ev	~	Leq Ni	-	L	dn		NEL
Autos:	68.	-	6.9 50.0		65.6		59.6		68.0		68.
Medium Trucks:	61. 62.		58.8 59.5		51.3 56.1		60.0 60.7		66.2 66.9		66. 67.
Heavy Trucks: Vehicle Noise:	62.	-	59.5 68.2		56.1 66.2		60.7		71.9		67. 72.
		-			00.2		64.9		71.9		12
Centerline Distance	e to Noise Co	ntour (in feet	)	70 d	DA	65 dF		60	dBA	FF	dBA
			I dn:	70 a		65 dE 158			ава 41		ава '34
			Lun.	13	,	108		3	<del>4</del> 1		04
		~	VFI :	77	,	166		2	57	7	70

FHWA-RD-77-108 HIGH					:L			
Scenario: EA Road Name: John L. Sinn Rd. Road Segment: s/o Street A			Project Na Job Nun			en Betty F	ord Cent	:
SITE SPECIFIC INPUT DATA			NO	ISE MO	DE	L INPUTS	S	
Highway Data		Site Con	ditions (H	ard = 10	), Sc	oft = 15)		
Average Daily Traffic (Adt):       4,065 vehicles         Peak Hour Percentage:       8.38%         Peak Hour Volume:       341 vehicles			dium Truck avy Trucks	is (2 Axl		15 15 15		
Vehicle Speed: 25 mph	Ī	Vehicle I	Mix					
Near/Far Lane Distance: 12 feet	Ī	Veh	icleType	Di	ay	Evening	Night	Daily
Site Data			Au	os: 75	5.5%	14.0%	10.5%	97.42%
Barrier Height: 0.0 feet		Me	edium Truc	ks: 48	8.9%	2.2%	48.9%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0		ŀ	leavy Truc	ks: 47	.3%	5.4%	47.3%	0.74%
Centerline Dist. to Barrier: 30.0 feet	-	Noise Sr	ource Elev	ations	in fa	of)		
Centerline Dist. to Observer: 30.0 feet	ŀ	110/30 00	Autos:	0.00				
Barrier Distance to Observer: 0.0 feet		Modiu	n Trucks:	2.29				
Observer Height (Above Pad): 5.0 feet			v Trucks:	8.00		Grade Adj	ustment	0.0
Pad Elevation: 0.0 feet		near	y mucho.	0.00	0	orado maj	aounom	0.0
Road Elevation: 0.0 feet		Lane Eq	uivalent D	istance	(in :	feet)		
Road Grade: 0.0%			Autos:	29.81	6			
Left View: -90.0 degrees		Mediur	n Trucks:	29.51	8			
Right View: 90.0 degrees		Heav	y Trucks:	29.54	7			
FHWA Noise Model Calculations								
	stance	Finite	Road	Fresnel	T	Barrier Atte	en Ber	m Atten
	stance 3.2		Road -1.20		.49	Barrier Atte 0.0		
VehicleType REMEL Traffic Flow Dis		26		-4			00	0.00
VehicleType REMEL Traffic Flow Dis Autos: 58.73 -4.08	3.2	26 33	-1.20	-4 -4	.49	0.0	100	0.000
VehicleType         REMEL         Traffic Flow         Dis           Autos:         58.73         -4.08           Medium Trucks:         70.80         -21.31           Heavy Trucks:         77.97         -25.27	3.2 3.3 3.3	26 33 32	-1.20 -1.20	-4 -4	.49 .86	0.0	100	0.000
VehicleType         REMEL         Traffic Flow         Dis           Autos:         58.73         -4.08           Medium Trucks:         70.80         -21.31           Heavy Trucks:         77.97         -25.27           Unmitigated Noise Levels (without Topo and barri         VehicleType         Leq Deay	3.2 3.3 3.3 er atter	26 33 32 nuation) Evening	-1.20 -1.20	-4 -4 -5 ght	.49 .86	0.0 0.0 0.0	00 00 00 C	0.000 0.000 0.000
VehicleType         REMEL         Traffic Flow         Dis           Autos:         58.73         -4.08           Medium Trucks:         70.80         -21.31           Heavy Trucks:         77.97         -25.27           Unmitigated Noise Levels (without Topo and barrin VehicleType         Leq Peak Hour         Leq Day           Autos:         56.7         55.5	3.2 3.3 3.3 er atter	26 33 32 <b>nuation)</b> Evening 54.2	-1.20 -1.20 -1.20	-4 -4 -5 ght 48.2	.49 .86	0.0 0.0 0.0 <i>Ldn</i> 56.6	00 00 00 C	0.000 0.000 0.000 VEL 57.2
VehicleType         REMEL         Traffic Flow         Dis           Autos:         58.73         -4.08           Medium Trucks:         70.80         -21.31           Heavy Trucks:         77.97         -25.27           Unmitigated Noise Levels (without Topo and barrie         VehicleType         Leg Peak Hour           VehicleType         Lag Peak Hour         Leg Day           Autos:         56.7         55.5           Medium Trucks:         51.6         48.5	3.2 3.3 3.3 er atter	26 33 32 <b>nuation)</b> Evening 54.2 41.0	-1.20 -1.20 -1.20	-4 -4 -5 ght 48.2 49.7	.49 .86	0.0 0.0 0.0 <i>Ldn</i> 56.6 55.9	00 00 00 C	0.000 0.000 0.000 VEL 57.2 55.9
VehicleType         REMEL         Traffic Flow         Dis           Autos:         58.73         -4.08           Medium Trucks:         70.80         -21.31           Heavy Trucks:         77.97         -25.27           Unmitigated Noise Levels (without Topo and barrin VehicleType         Leq Peak Hour         Leq Day           Autos:         56.7         55.5	3.2 3.3 3.3 er atter	26 33 32 <b>nuation)</b> Evening 54.2	-1.20 -1.20 -1.20	-4 -4 -5 ght 48.2	.49 .86	0.0 0.0 0.0 <i>Ldn</i> 56.6	00 00 00 C	0.000 0.000 0.000 VEL 57.2 55.9
VehicleType         REMEL         Traffic Flow         Dis           Autos:         58.73         -4.08           Medium Trucks:         70.80         -21.31           Heavy Trucks:         77.97         -25.27           Unmitigated Noise Levels (without Topo and barring VehicleType         Leg Peak Hour         Leg Day           Autos:         56.7         55.5           Medium Trucks:         51.6         48.5	3.2 3.3 3.3 er atter	26 33 32 <b>nuation)</b> Evening 54.2 41.0	-1.20 -1.20 -1.20	-4 -4 -5 ght 48.2 49.7	.49 .86	0.0 0.0 0.0 <i>Ldn</i> 56.6 55.9	00 00 00 C	0.000 0.000 0.000 VEL 57.2 55.9 59.7
VehicleType         REMEL         Traffic Flow         Dis           Autos:         58.73         -4.08           Medium Trucks:         70.80         -21.31           Heavy Trucks:         77.97         -25.27           Unmitigated Noise Levels (without Topo and barrie VehicleType         Leq Peak Hour         Leq Day           Autos:         56.7         55.5           Medium Trucks:         51.6         48.5           Heavy Trucks:         54.8         51.6           Vehicle Noise:         59.6         57.5	3.2 3.3 3.3 er atter Leq E	26 33 32 54.2 54.2 41.0 48.2 55.3	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4 -4 -5 48.2 49.7 52.8 55.4	.49 .86 .77	0.0 0.0 0.0 56.6 55.9 59.0 62.1	00 00 00 00 00 C	0.000 0.000 0.000 VEL 57.1 55.9 59. 62.4
Autos: 58.73 -4.08 Medium Trucks: 70.80 -21.31 Heavy Trucks: 77.97 -25.27 Umitigated Noise Levels (without Topo and barri VehicleType Leg Peak Hour Leg Day Autos: 56.7 55.5 Medium Trucks: 51.6 48.5 Heavy Trucks: 51.6 48.5 Heavy Trucks: 59.6 57.5 Centerline Distance to Noise Contour (in feet)	3.2 3.3 3.3 er atter Leq E 70	26 33 32 <b>nuation)</b> 54.2 41.0 48.2 55.3 dBA	-1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB	-4 -4 -5 48.2 49.7 52.8 55.4	.49 .86 .77	0.0 0.0 0.0 56.6 55.9 59.0 62.1	000 000 000 C, 3 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	0.000 0.000 0.000 VEL 57.2 55.5 59.7 62.4 dBA
VehicleType         REMEL         Traffic Flow         Dis           Autos:         58.73         -4.08           Medium Trucks:         70.80         -21.31           Heavy Trucks:         77.97         -25.27           Unmitigated Noise Levels (without Topo and barrie VehicleType         Leq Peak Hour         Leq Day           Autos:         56.7         55.5           Medium Trucks:         51.6         48.5           Heavy Trucks:         54.8         51.6           Vehicle Noise:         59.6         57.5	3.2 3.3 3.3 er atter Leq E 70	26 33 32 54.2 54.2 41.0 48.2 55.3	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4 -4 -5 48.2 49.7 52.8 55.4	.49 .86 .77	0.0 0.0 0.0 56.6 55.9 59.0 62.1	00 00 00 Ci 3 0 0 55	0.000 0.000 0.000 VEL 57.2 55.9 59.7 62.4

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHV	/A-RD-77-108	HIGH	WAY N	OISE PR	EDICTIC		EL			
	o: EA e: Joe Friend nt: s/o MacMill					Project N Job Nu	lame: H mber: 12		Betty Fo	rd Cent	
	SPECIFIC IN	PUT DATA							NPUTS		
Highway Data				1	Site Con	ditions (l	Hard = 1	0, Soft	= 15)		
Average Daily	Traffic (Adt):	2,219 vehicles	3				A	utos:	15		
Peak Hour I	Percentage:	8.38%			Med	dium Truc	:ks (2 Ax	les):	15		
Peak He	our Volume:	186 vehicles	6		Hea	avy Truck	:s (3+ Ax	les):	15		
	hicle Speed:	25 mph		1	Vehicle N	Nix					
Near/Far Lar	ne Distance:	12 feet				cleType	L	av E	vening	Night	Daily
Site Data								5.5%	14.0%	10.5%	
Bar	rier Heiaht:	0.0 feet			Me	edium Tru	icks: 4	8.9%	2.2%	48.9%	1.84%
Barrier Type (0-Wa		0.0			H	leavy Tru	icks: 4	7.3%	5.4%	47.3%	0.74%
Centerline Dis	t. to Barrier:	30.0 feet		1	Noise So	urce Ele	vations	(in feet	)		
Centerline Dist. t	o Observer:	30.0 feet		-		Autos:			, 		
Barrier Distance t	o Observer:	0.0 feet			Mediur	n Trucks:					
Observer Height (/		5.0 feet			Heav	v Trucks:	8.00	 16 <i>G</i> /	ade Adju	stment:	0.0
	d Elevation:	0.0 feet		-							
	d Elevation:	0.0 feet		1	Lane Equ	uivalent l			<i>t)</i>		
F	Road Grade:	0.0%				Autos:	20.0				
	Left View: Right View:	-90.0 degree 90.0 degree				n Trucks: y Trucks:					
	•		,3			,					
FHWA Noise Mode VehicleType	REMEL	s Traffic Flow	Dis	tance	Finite	Road	Fresne	I Ba	rrier Atte	n Ber	m Atten
Autos:	58.73	-6.70	013	3.26		-1.20		1.49	0.00		0.000
Medium Trucks:	70.80	-23.94		3.33	3	-1.20	-4	1.86	0.00		0.000
Heavy Trucks:	77.97	-27.90		3.32	2	-1.20	-{	5.77	0.00	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrie	er atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day		Leg Ev	/ening	Leq N	light	Lo	dn	CI	VEL
Autos:	54	.1 4	52.9		51.5		45.5		53.9		54.6
Medium Trucks:	49	.0 4	45.9		38.4		47.1		53.3		53.3
Heavy Trucks:	52	.2 4	48.9		45.5		50.2		56.4		56.5
Vehicle Noise:	57	.0	54.9		52.7		52.8		59.5		59.8
Centerline Distance	ce to Noise Co	ontour (in feet)	)				1		1		
			L	70 c		65 d		60 0			dBA
			Ldn:	6		13		2	-		50
		Cl	VEL:	6	6	13		2	9	6	62

	FHW	/A-RD-77-108 H	HIGHWA	AY NO	ISE PREDICT	ION MO	DEL			
	o: EA e: Vista Del So nt: n/o Betty Fo					t Name: lumber:		len Betty F	ord Cent	
SITE	SPECIFIC IN	PUT DATA				NOISE	MODE	L INPUT	s	
Highway Data				Sit	te Conditions	(Hard :	= 10, So	oft = 15)		
Peak H	Percentage: our Volume:	129 vehicles 8.38% 11 vehicles			Medium Tr Heavy Tru			15 15 15		
	nicle Speed:	25 mph		Ve	hicle Mix					
Near/Far Lar	e Distance:	12 feet			VehicleTyp	е	Day	Evening	Night	Daily
Site Data						Autos:	75.5%	14.0%	10.5%	97.42%
Bar	rier Height:	0.0 feet			Medium 1	rucks:	48.9%	2.2%	48.9%	1.849
Barrier Type (0-Wa		0.0			Heavy 1	rucks:	47.3%	5.4%	47.3%	0.749
Centerline Dis Centerline Dist. t	t. to Barrier:	30.0 feet 30.0 feet		No	oise Source E	levatio	ns (in fe	eet)		
Roa	Above Pad): d Elevation: d Elevation: Road Grade: Left View:	0.0 feet 5.0 feet 0.0 feet 0.0% -90.0 degree	s	La	Auto Medium Truch Heavy Truch <b>ne Equivaler</b> Auto Medium Truch	(s: 2 (s: 8 <b>nt Distar</b> (s: 29 (s: 29	.816 .518	Grade Adj feet)	ustment.	0.0
FHWA Noise Mode	Right View:	90.0 degree	s		Heavy Truck	(s: 29	.547			
VehicleType	REMEL	Traffic Flow	Distan		Finite Road	Fres	nol	Barrier Att	Don Don	m Atten
Autos:	58.73	-19.06	Distan	3.26	-1.20	1163	-4.49	0.0		0.00
Medium Trucks:	70.80	-36.30		3.33	-1.20		-4.86	0.0		0.00
Heavy Trucks:	77.97	-40.25		3.32	-1.20		-5.77	0.0		0.00
Unmitigated Noise	Levels (with	out Topo and b	oarrier a	ttenua	ation)					
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Eve	ning Leq	Night		Ldn	CI	VEL
Autos:	41.	.7 4	0.5		39.2	33	.2	41.6	5	42.
Medium Trucks:	36	.6 3	3.5		26.0	34	.7	40.9	)	41.
Heavy Trucks:	39.	.8 3	6.6		33.2	37	.8	44.0	)	44.
Vehicle Noise:	44.	.7 4	2.6		40.3	40	.5	47.2	2	47.
Centerline Distand	e to Noise Co	ntour (in feet)								
				70 dB	A 65	dBA	e	0 dBA	55	dBA
		L	dn:	1		2		4		9

	FHW	/A-RD-77-108 I	HIGHW	AY N		EDICTIO				_	
Scenario Road Name Road Segment	: Vista Del Se						lame: I mber:		en Betty F	ord Cen	it
	PECIFIC IN	PUT DATA							L INPUT	5	
Highway Data				5	Site Con	ditions (	Hard =	10, Sc	oft = 15)		
Average Daily Ti	. ,	1,355 vehicles						Autos:	15		
Peak Hour P		8.38%				dium Tru			15		
Peak Ho	ur Volume:	114 vehicles			Hea	avy Trucl	(3+ A	xles):	15		
	cle Speed:	25 mph		١	Vehicle I	Nix					
Near/Far Lane	e Distance:	12 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	75.5%	14.0%	10.5%	97.42%
Barr	ier Height:	0.0 feet			Me	dium Tru	icks:	48.9%	2.2%	48.9%	1.84%
Barrier Type (0-Wa	I, 1-Berm):	0.0			ŀ	leavy Tru	icks:	47.3%	5.4%	47.3%	0.74%
Centerline Dist.		30.0 feet		1	Noise So	urce Ele	vation	s (in fe	et)		
Centerline Dist. to		30.0 feet				Autos	: 0.0	000			
Barrier Distance to		0.0 feet			Mediur	n Trucks	2.2	297			
Observer Height (A	,	5.0 feet			Heav	y Trucks	8.0	006	Grade Ad	ustmen	t: 0.0
	l Elevation:	0.0 feet									
	Elevation:	0.0 feet		1	Lane Equ				'eet)		
Re	oad Grade:	0.0%				Autos					
,	Left View: Right View:	-90.0 degree 90.0 degree				n Trucks v Trucks					
FHWA Noise Model	•	0	-								
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Att	en Re	rm Atten
Autos:	58.73	-8.85		3.26		-1.20		-4.49		000	0.00
Medium Trucks:	70.80	-26.09		3.33	3	-1.20		-4.86	0.0	000	0.000
Heavy Trucks:	77.97	-30.04		3.32	2	-1.20		-5.77	0.0	000	0.000
Unmitigated Noise			barrier	atten	uation)						
VehicleType L	eq Peak Hou	r Leq Day	L	.eq Ev	/ening	Leq N	light		Ldn	C	NEL
Autos:	52	.0 5	60.7		49.4		43.4		51.8	3	52.4
Medium Trucks:	46	.8 4	3.7		36.2		45.0	1	51.1	I	51.2
Heavy Trucks:	50	.1 4	6.8		43.4		48.0	1	54.2	2	54.3
Vehicle Noise:	54	.9 5	52.8		50.5		50.7		57.4	ļ	57.6
	4- Nole - 0-	ntour (in feet)									
Centerline Distance	e to Noise Co	(									
Centerline Distance	e to Noise Co			70 a		65 a		6	0 dBA		5 dBA
Centerline Distance	to Noise Co		.dn: IFI :	70 a 4 4	I	65 d 9 1(		6	20 dBA 20 21		5 dBA 43 45

					OISE PR						
	rio: EA ne: MacMillan \ nt: e/o Bob Ho	,				Project N Job Nu			len Betty F	ord Cen	t
SITE	SPECIFIC IN	PUT DATA				NC	DISE N	IODE	L INPUT	s	
Highway Data				5	Site Con	ditions (l	Hard =	10, So	oft = 15)		
Peak H	Traffic (Adt): Percentage: lour Volume: hicle Speed:	3,652 vehicles 8.38% 306 vehicles 25 mph			Hea	dium Truc avy Truck	:ks (2 A		15 15 15		
	ne Distance:	12 feet		۱	Vehicle I						T
	ne Distance.	12 1000			Vehi	cleType		Day	Evening	Night	Daily
	rrier Height:	0.0 feet				edium Tru	cks:	75.5% 48.9%	2.2%	10.5% 48.9%	1.84%
Barrier Type (0-W		0.0			F	leavy Tru	CKS:	47.3%	5.4%	47.3%	0.74%
Centerline Dis		30.0 feet		1	Noise Sc	ource Ele	vations	s (in fe	eet)		
Roa	to Observer:	30.0 feet 0.0 feet 5.0 feet 0.0 feet 0.0 feet 0.0%		L	Heav	Autos: n Trucks: y Trucks: uivalent I Autos:	2.2 8.0 Distand	97 006 e (in	Grade Adj feet)	ustmen	t: 0.0
FHWA Noise Mod	Left View: Right View:	-90.0 degree				n Trucks: y Trucks:					
1		3	Dista								
VehicleType		Traffic Flow			Finite	Road	Fresh	el	Barrier Att	en Re	rm Atten
VehicleType Autos:	REMEL	Traffic Flow	Dista		Finite		Fresn		Barrier Att		rm Atten
VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 58.73 70.80	Traffic Flow -4.54 -21.78 -25.73	Dista	3.26 3.33 3.32	6 3	Road -1.20 -1.20 -1.20		el -4.49 -4.86 -5.77	0.0		0.00
Autos: Medium Trucks:	REMEL 58.73 70.80 77.97	-4.54 -21.78 -25.73		3.26 3.33 3.32	6 3 2	-1.20 -1.20		4.49 4.86	0.0	000	0.00
Autos: Medium Trucks: Heavy Trucks: <b>Unmitigated Nois</b> VehicleType	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou	-4.54 -21.78 -25.73 out Topo and Ir Leq Day	barrier	3.26 3.33 3.32 atten	3 2 <b>uation)</b> /ening	-1.20 -1.20	light	4.49 4.86	0.0 0.0 0.0	000 000 000	0.00 0.00 0.00
Autos: Medium Trucks: Heavy Trucks: <b>Unmitigated Nois</b>	REMEL 58.73 70.80 77.97 e Levels (without Leq Peak Hout 56	-4.54 -21.78 -25.73 <b>out Topo and</b> r Leq Day .3	barrier	3.26 3.33 3.32 atten	6 3 2 <i>uation)</i>	-1.20 -1.20 -1.20		-4.49 -4.86 -5.77	0.0 0.0 0.0	000 000 000 C	0.00 0.00 0.00
Autos: Medium Trucks: Heavy Trucks: <b>Unmitigated Noise</b> VehicleType Autos:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 56 51	-4.54 -21.78 -25.73 out Topo and ir Leq Day .3 .1	barrier / L	3.26 3.33 3.32 atten	5 3 2 <i>uation)</i> /ening 53.7	-1.20 -1.20 -1.20	light 47.7	-4.49 -4.86 -5.77	0.0 0.0 0.0 <i>Ldn</i> 56.1	000 000 100 1	0.000 0.000 0.000 NEL 56.7 55.8
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	REMEL 58.73 70.80 77.97 e Levels (with Leg Peak Hou 56 51 54	-4.54 -21.78 -25.73 <b>out Topo and</b> <i>r</i> Leq Day .3 .1 .4	barrier L 55.0 48.0	3.26 3.33 3.32 atten	6 3 2 <i>uation)</i> <i>/ening</i> 53.7 40.5	-1.20 -1.20 -1.20	<i>light</i> 47.7 49.3	-4.49 -4.86 -5.77	0.0 0.0 0.0 <i>Ldn</i> 56.1 55.4	000 000 000 1 1 5	0.00 0.00 0.00 NEL 56. 55.
Autos: Medium Trucks: Heavy Trucks: Unnitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 56 51 54 54	-4.54 -21.78 -25.73 <b>out Topo and</b> r Leq Day .3 .1 .4 .2	barrier 55.0 48.0 51.1 57.1	3.26 3.33 3.32 atten	6 3 2 <i>vening</i> 53.7 40.5 47.7	-1.20 -1.20 -1.20	<i>light</i> 47.7 49.3 52.3	-4.49 -4.86 -5.77	0.0 0.0 0.0 <i>Ldn</i> 56.1 55.2 58.5	000 000 000 1 1 5	0.000 0.000 0.000 NEL 56.7 55.8
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 56 51 54 54	-4.54 -21.78 -25.73 <b>out Topo and</b> r Leq Day .3 .1 .4 .2	barrier 55.0 48.0 51.1 57.1	3.26 3.33 3.32 atten	a 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-1.20 -1.20 -1.20	ight 47.7 49.3 52.3 55.0	-4.49 -4.86 -5.77	0.0 0.0 0.0 <i>Ldn</i> 56.1 55.2 58.5	000 000 000 100 1 1 4 5 7	0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 58.73 70.80 77.97 e Levels (with Leq Peak Hou 56 51 54 54	-4.54 -21.78 -25.73 out Topo and ir Leq Day .3 .1 .4 .2 ontour (in feet	barrier 55.0 48.0 51.1 57.1	3.26 3.33 3.32 atten .eq Ev	a a 2 vening 53.7 40.5 47.7 54.8	-1.20 -1.20 -1.20 <i>Leq N</i>	light 47.7 49.3 52.3 55.0 BA	-4.49 -4.86 -5.77	0.0 0.0 <i>Ldn</i> 56.1 55.2 58.5 61.7	000 000 000 000 1 4 5 7	0.000 0.000 0.000 NEL 56.1 55.2 58.6 61.3

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHW	A-RD-77-108 H	IGHWAY	NOISE PF	REDICTION	N MODEL		
	io: EA e: Street A nt: e/o Bob Hop	be Dr.				ame: Hazel hber: 12720	lden Betty Fo )	rd Cent
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOD	EL INPUTS	
Highway Data				Site Con	ditions (H	ard = 10, S	Goft = 15)	
	Traffic (Adt): Percentage: our Volume:	2,245 vehicles 8.38% 188 vehicles				Autos (2 Axles) (3+ Axles)	: 15	
Vei	hicle Speed:	25 mph		Vehicle	Mix			
Near/Far Lar	ne Distance:	12 feet			icleType	Dav	Evening	Night Daily
Site Data				1011	Aut		•	10.5% 97.42%
Ba	rier Heiaht:	0.0 feet		M	edium Truc	ks: 48.99	% 2.2%	48.9% 1.84%
Barrier Type (0-W		0.0		ŀ	leavy Truc	ks: 47.39	% 5.4%	47.3% 0.74%
Centerline Dis	t. to Barrier:	30.0 feet		Noise So	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): ad Elevation:	5.0 feet 0.0 feet			y Trucks:	8.006	Grade Adju	stment: 0.0
	d Elevation:	0.0 feet		Lane Eq	uivalent D	istance (in	feet)	
	Road Grade:	0.0%			Autos:	29.816		
	Left View:	-90.0 degrees		Mediu	m Trucks:	29.518		
	Right View:	90.0 degrees			y Trucks:	29.547		
FHWA Noise Mode	el Calculations	;						
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atter	Berm Atten
Autos:	58.73	-6.65	3.2	26	-1.20	-4.49	0.00	0 0.00
Medium Trucks:	70.80	-23.89	3.3	33	-1.20	-4.86	0.00	0 0.00
Heavy Trucks:	77.97	-27.85	3.3	32	-1.20	-5.77	0.00	0 0.00
Unmitigated Noise			arrier atte	nuation)				
VehicleType	Leq Peak Hour			evening	Leq Nig		Ldn	CNEL
Autos:	54.			51.6		45.6	54.0	54.6
Medium Trucks:	49.			38.4		47.2	53.3	53.4
Heavy Trucks:	52.			45.6		50.2	56.4	56.5
Vehicle Noise:	57.		5.0	52.7		52.9	59.6	59.
Centerline Distant	ce to Noise Co	ntour (in feet)	70	dBA	65 dB	4	60 dBA	55 dBA
		10	_	<i>ив</i> д 6	13	~	28	60
		CNE		6	13		20 29	63
		ONL		0	14		20	00

	FHW	/A-RD-77-108	HIGH	WAY NO	DISE PREDICT	ION MC	DEL			
	o: EA e: Betty Ford \ nt: e/o Joe Frie					t Name: lumber:		den Betty F	ord Cent	
SITE	SPECIFIC IN	PUT DATA			I	NOISE	MODE		s	
Highway Data				S	ite Conditions					
Average Daily	Traffic (Adt):	960 vehicle	s				Autos	15		
Peak Hour	Percentage:	8.38%			Medium Tr	ucks (2	Axles):	15		
Peak H	our Volume:	80 vehicle	s		Heavy Tru	cks (3+	Axles):	15		
Vel	hicle Speed:	25 mph		v	ehicle Mix					
Near/Far Lar	ne Distance:	12 feet		-	VehicleTvp	9	Dav	Evening	Night	Dailv
Site Data					,,	Autos:	75.5%	0	10.5%	
Pa	rier Height:	0.0 feet			Medium T	rucks:	48.9%	2.2%	48.9%	
Barrier Type (0-W		0.0			Heavy 7	rucks:	47.3%	5.4%	47.3%	0.749
Centerline Dis	. ,	30.0 feet								
Centerline Dist.		30.0 feet		N	oise Source E			eet)		
Barrier Distance		0.0 feet			Auto		.000			
Observer Height (		5.0 feet			Medium Truck		.297			
0 1	d Flevation:	0.0 feet			Heavy Truck	(s: 8	.006	Grade Ad	iustment.	0.0
	d Elevation:	0.0 feet		L	ane Equivalen	t Distar	nce (in	feet)		
	Road Grade:	0.0%			Auto	os: 29	.816	,		
	Left View:	-90.0 degree	es		Medium Truck	(s: 29	.518			
	Right View:	90.0 degree			Heavy Truck	is: 29	.547			
FHWA Noise Mode	el Calculation:	5								
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite Road	Fres	nel	Barrier Att	en Ber	m Atten
Autos:	58.73	-10.34		3.26	-1.20		-4.49	0.0	000	0.00
Medium Trucks:	70.80	-27.58		3.33	-1.20		-4.86	0.0	000	0.00
Heavy Trucks:	77.97	-31.54		3.32	-1.20		-5.77	0.0	000	0.00
Unmitigated Noise										
VehicleType	Leq Peak Hou	, ,		Leq Eve	0	Night		Ldn		NEL
Autos:	50.		49.2		47.9	41.		50.3		50.
Medium Trucks:	45.	-	42.2		34.7	43.		49.6		49.
Heavy Trucks:	48.	-	45.3		41.9	46.	-	52.1		52.
Vehicle Noise:	53.		51.3		49.0	49.	2	55.9	9	56.
Centerline Distance	ce to Noise Co	ontour (in feet	)	70 /		10.4	1			10.4
			I dn:	70 dł	3A 65	dBA		60 dBA		dBA
			Lan: NEL :	3 4		7		16		34
						8		17		36

-					_			_		
Scenari								en Betty F	ord Cent	
	e: Country Clu				Job Nur	nber: 1	2720			
Road Segmer	nt: w/o Bob Hop	be Dr.								
	SPECIFIC IN	PUT DATA						. INPUTS	5	
Highway Data				Site Con	ditions (H	lard = 1	10, So	ft = 15)		
Average Daily	Traffic (Adt): 1	0,478 vehicles				A	utos:	15		
Peak Hour	Percentage:	8.38%		Me	dium Truc	ks (2 A	kles):	15		
Peak H	our Volume:	878 vehicles		He	avy Trucks	s (3+ A	kles):	15		
Vei	hicle Speed:	45 mph	-	Vehicle	Mix					
Near/Far Lar	ne Distance:	52 feet	-		icleType	1	Day	Evening	Night	Daily
Site Data					Au	tos: 7	75.5%	14.0%	10.5%	97.429
Rai	rier Heiaht:	0.0 feet		Me	edium True	cks: 4	18.9%	2.2%	48.9%	1.849
Barrier Type (0-W		0.0		ŀ	leavy Tru	cks: 4	17.3%	5.4%	47.3%	0.74%
Centerline Dis	t. to Barrier:	55.0 feet	ŀ	Noise So	ource Elev	vations	(in fe	et)		
Centerline Dist.	to Observer:	55.0 feet	ŀ		Autos:	0.0		.,		
Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucks:	2.2				
Observer Height (J	Above Pad):	5.0 feet			v Trucks:	8.0	06	Grade Adj	ustment	0.0
Pa	ad Elevation:	0.0 feet								
	ad Elevation:	0.0 feet		Lane Eq	uivalent D			eet)		
I	Road Grade:	0.0%			Autos:	48.7				
	Left View:	-90.0 degrees			m Trucks:					
	Right View:	90.0 degrees		Heav	y Trucks:	48.5	60			
FHWA Noise Mode	el Calculations									
VehicleType	REMEL	Traffic Flow D	Distance	Finite	Road	Fresne	e/ I	Barrier Atte	en Ber	m Atten
Autos:	68.46	-2.52	0.0	)7	-1.20	-	4.67	0.0	00	0.00
Medium Trucks:	79.45	-19.75	0.0	9	-1.20	-	4.87	0.0	00	0.00
Heavy Trucks:	84.25	-23.71	0.0	9	-1.20	-	5.38	0.0	00	0.00
Unmitigated Noise										
51	Leq Peak Hour			vening	Leq Ni	•		Ldn		NEL
Autos:	64.			62.3		56.2		64.7		65.
Medium Trucks:	58.			48.0		56.7		62.9		62.
Heavy Trucks:	59.		-	52.8		57.4		63.6		63.
Vehicle Noise:	66.	7 64.8	3	62.9		61.6		68.5		68.
venicie ivoise:	ce to Noise Co	ntour (in feet)								
					65 dF	RA	6	0 dBA	55	dBA
			70			<i></i>	-		1	
Centerline Distant		Ldn CNEI	. 4	ава 14 16	95 99			204 214		40

Barrier Type         O.0 feet         Heavy Trucks:         47.3%         5.4%         47.3%         0.74%           Centerline Dist. to Diserver:         5.0 feet         Noise Source Elevations (in feet)         Noise Source Elevations (in feet)           Deserver Height (Above Pad):         5.0 feet         Autos:         0.006           Road Elevation:         0.0 feet         Autos:         0.006           Road Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Autos:         47.3%           Left View:         90.0 degrees         Medium Trucks:         48.80           FHWA Noise Model Calculations         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Heavy Trucks:         85.38         -22.33         0.32         -1.20         -5.38         0.000         0.000           Unitigated Noise Levels (without Topo and barrier attenuation)         Leq Vening         Leq Neing         Leq Neing         C/NEL           Autos:         68.2         66.9         66.0         68.0         68.7 <th></th> <th>FHWA</th> <th>A-RD-77-108 HIC</th> <th>GHWAY</th> <th>NOISE PI</th> <th>REDICTI</th> <th></th> <th>EL</th> <th></th> <th></th>		FHWA	A-RD-77-108 HIC	GHWAY	NOISE PI	REDICTI		EL		
Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt):         16,014 vehicles         Autos:         15           Peak Hour Porcentage:         8,38%         Medium Trucks (2 Avles):         15           Peak Hour Volume:         1,342 vehicles         Medium Trucks (2 Avles):         15           Vehicle Speed:         50 mph         Medium Trucks (2 Avles):         15           Site Data         Vehicle Type         Day         Evening         Night         Daily           Site Data         Vehicle Type         Day         Evening         Night         Daily           Site Data         Vehicle Type         Day         Evening         Night         Daily           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         1.8%           Barrier Distance to Observer:         5.0 feet         Autos:         10.00         Medium Trucks:         2.297           Observer Height View:         90.0 degrees         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Noise Bodel Calculations         Heavy Trucks:         46.811           Right View:         90.0 degrees         Finite Road	Road Name	e: Country Club							ord Cent	
Average Daily Traffic (Adt): 16,014 vehicles Peak Hour Percentage: 8,38%         Autos: 15           Peak Hour Percentage: 8,38%         Medium Trucks (2 Axles): 15           Peak Hour Volume: 1,342 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 58 feet         Medium Trucks (2 Axles): 15           Site Data         Vehicle Speed: 50 mph Near/Far Lane Distance: 58 feet         Vehicle Trucks (3+ Axles): 15           Barrier Height: 0.0 feet Centerline Dist. to Darrier: 55.0 feet Centerline Dist. to Darrier: 55.0 feet Road Elevation: 0.0 feet         Modelum Trucks: 49,9% 2.2% 48,9% 0.2% 184% Medium Trucks: 47.3% 5.4% 47.3% 0.74%           Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0%         Noise Source Elevations (in feet)           Left View: 90.0 degrees Right View: 90.0 degrees         Autos: 70.00           FHWA Noise Model Calculations         Distance         Friesnel           VehicleType         RELMEL         Traffic Flow         Distance           VehicleType         Relweit Notwort Top and Darrier attenuation)         Friesnel         Barrier Atten           VehicleType         Leg Day         Leg Evening         Leg View           VehicleType         RetMet Traffic Flow         Distance         Friesnel         Barrier Atten           Medium Trucks:         81.3         -1.20         -4.67         0.000         0.000           Medium Trucks:         61.3	SITE S	SPECIFIC INP	UT DATA			N	OISE M	ODEL INPUT	s	
Peak Hour Percentage:         8.38%         Medium Trucks (2 Axles):         15           Peak Hour Volume:         1,342 vehicles         Heavy Trucks (2 Axles):         15           Vehicle Speed:         50 mph         Vehicle Speed:         50 mph           Near/Far Lane Distance:         58 feet         Vehicle Speed:         0 mgh           Site Data         Autos:         75.5%         14.0%         0.5%         74.3%           Barrier Type (OWalt) - Berm):         0.0         test         Medium Trucks:         48.9%         1.84%           Barrier Type (OWalt) - Berm):         0.0 feet         Autos:         0.00         1.84%           Barrier Type (OWalt) - Berm):         0.0 feet         Autos:         0.00         1.84%           Barrier Type (Bravaion:         0.0 feet         Autos:         0.00         1.84%           Barrier Type (REMEL)         0.01 feet         Autos:         0.00         1.84%           Right View:         90.0 degrees         Heavy Trucks:         46.830         1.5           FHWA Noise Model Calculations         VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         70.20	Highway Data				Site Cor	nditions	(Hard = 1	0, Soft = 15)		
Peak Hour Volume:         1,342 vehicles           Vehicle Speed:         50 mph           Near/Far Lane Distance:         58 feet         Vehicle Type         Day         Evening         Night         Daily           Site Data         Vehicle Type         Day         Evening         Night         Daily           Site Data         Vehicle Type         Day         Evening         Night         Daily           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         1.34%           Barrier Type (0-Wail, 1-Berm):         0.0         Centerline Dist. to Barrier:         5.0 feet         Noise Source Elevations (in feet)           Centerline Dist. to Observer:         0.0 feet         Autos:         0.000         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Autos:         7.000         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Earlier Now         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Road Grade:         0.0%         Left View:         90.0 degrees         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         70.20	Average Daily 1	Traffic (Adt): 16	,014 vehicles				A	utos: 15		
Vehicle Speed:         50 mph S8 Par/Fer Lane Distance:         50 mph 58 feet           Site Data         Description         Description         Description           Site Data         Autos:         75.5%         14.0%         Description           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         0.2%         47.3%         0.74%           Barrier Type (0-Wall, 1-Berrn):         0.0         Feet         Medium Trucks:         47.3%         5.4%         47.3%         0.74%           Centerline Dist. to Desrver:         0.0 feet         Moles Source Elevations (in feet)         O.0           Barrier Distance to Observer:         0.0 feet         Autos:         0.00         Medium Trucks:         48.90         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Autos:         70.00         Autos:         70.00           Road Grade:         0.0%         Autos:         70.00         Autos:         70.00         Autos:         70.00           WehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berrn Atten           Autos:         70.20         -1.13         0.30         -1.20	Peak Hour I	Percentage:	8.38%		Me	dium Tru	icks (2 Ax	<i>les):</i> 15		
Near/Far Lane Distance:         58 feet         VehicleType         Day         Evening         Night         Daily           Site Data         VehicleType         Day         Evening         Night         Daily           Site Data         Autos:         75.5%         14.0%         10.5%         77.4%           Barrier Type (DWalt, 1-Berm):         0.0         0         Medium Trucks:         48.9%         2.2%         48.9%         0.74%           Centerline Dist. to Barrier:         55.0 feet         S5.0 feet         Autos:         0.000         Medium Trucks:         42.9%         48.9%         0.4%         0.74%           Deserver:         0.0 feet         Autos:         0.000         Medium Trucks:         2.297         Medium Trucks:         48.8%         0.00         0.0           Road Elevation:         0.0 feet         Autos:         47.000         Medium Trucks:         46.811         Heavy Trucks:         46.811           Right View:         90.0 degrees         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Heavy Trucks:         81.83         -22.33	Peak Ho	our Volume: 1	,342 vehicles		He	avy Truc	:ks (3+ Ax	<i>les):</i> 15		
Near/Far Lane Distance:         58 feet         VehicleType         Day         Evening         Night         Daily           Site Data         Autos:         75.5%         14.0%         10.5%         14.0%         10.5%         14.0%           Barrier Height:         0.0         feet         Medium Trucks:         49.9%         2.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.2%         48.9%         0.74%           Centerline Dist. to DBserver:         0.0 feet         Autos:         0.000         Medium Trucks:         8.006         Grade Adjustment:         0.0           Barrier Distance         Fore         Autos:         70.00         Autos:         70.00         0.000           Left View:         90.0         degrees         Frinte Road         Fresnel         Barrier Atten         Berm Atten           Autos: <t< td=""><td>Veh</td><td>nicle Speed:</td><td>50 mph</td><td></td><td>Vehicle</td><td>Mix</td><td></td><td></td><td></td><td></td></t<>	Veh	nicle Speed:	50 mph		Vehicle	Mix				
Site Data         Autos:         75.5%         14.0%         10.5%         97.42%           Barrier Type (Avalt, 1-Berm):         0.0         0         Medium Trucks:         48.9%         2.2%         48.9%         1.8%         1	Near/Far Lan	e Distance:	58 feet				1	av Evening	Niaht	Daily
Barrier Type (N=Wall, 1=Barrier)         0.0 feet         Heavy Trucks:         47.3%         5.4%         47.3%         0.74%           Centerline Dist. to Diserver:         55.0 feet         Noise Source Elevations (in feet)           Deserver Height (Above Pad):         5.0 feet         Autos:         0.000         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)         Medium Trucks:         47.3%         0.0           Road Grade:         0.0%         Autos:         70.00         Medium Trucks:         48.811           VehicleType         REIMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrie Atten         Berr Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.38         -22.33         0.32         -1.20         -5.38         0.000         0.000           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.1           Medium Trucks:         61.8         58.6         55.5         60	Site Data				101					
Barrier Type (0-Wall, 1-Bern):         0.0         Heavy Trucks:         47.3%         5.4%         47.3%         0.74%           Centerline Dist. to Darrier:         55.0 feet         Noise Source Elevations (in feet)         Autos:         0.00           Deserver Height (Above Pad):         5.0 feet         Autos:         0.00         Medium Trucks:         8.006         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Autos:         0.00         Medium Trucks:         4.8.00         Grade Adjustment:         0.0           EHWA Noise Model Calculations         0.0 degrees         Finite Road         Fresnel         Barrier Atten         Berr Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         8.38         -22.33         0.32         -1.20         -4.67         0.000         0.000           Medium Trucks:         8.38         -22.33         0.32         -1.20         -4.67         0.000         0.000           Medium Trucks:         8.38         -22.33         0.32         -1.20         -4.67         0.000         0.000           Medium Trucks:         61.8         58.6         51.1 <t< td=""><td>Bar</td><td>rier Height</td><td>0.0 feet</td><td></td><td>М</td><td>edium Tr</td><td>ucks: 4</td><td>8.9% 2.2%</td><td>48.9%</td><td>1.84%</td></t<>	Bar	rier Height	0.0 feet		М	edium Tr	ucks: 4	8.9% 2.2%	48.9%	1.84%
Centerline Dist. to Barrier:         55.0 feet           Centerline Dist. to Observer:         55.0 feet           Barrier Distance to Observer:         0.0 feet           Pad Elevation:         0.0 feet           Road Flevation:         90.0 degrees           WehicleType         REMEL           VehicleType         REMEL           Medium Trucks:         81.00           -18.37         0.33           -120         -4.67           0.000         0.000           Heavy Trucks:         85.38           -22.33         0.32           -120         -4.67           0.000         0.000           Heavy Trucks:         85.8           -22.33         0.32           -120         -5.38         0.000      <						Heavy Tr	ucks: 4	7.3% 5.4%	47.3%	0.74%
Centerline Dist. to Observer:         55.0 feet         Autos:         0.000           Barrier Distance to Observer:         0.0 feet         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Lane Equivalent Distance (In feet)         Autos:         7.00           Road Grade:         0.0%         Autos:         46.830         Medium Trucks:         46.811           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.67         0.000         0.000           Unnitigate Molse Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         55.5         60.1         66.3         66.4 <td></td> <td></td> <td>55.0 feet</td> <td></td> <td>Noiso S</td> <td>ourco El</td> <td>ovations</td> <td>(in foot)</td> <td></td> <td></td>			55.0 feet		Noiso S	ourco El	ovations	(in foot)		
Barrier Distance to Observer:         0.0 feet         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Lane Equivalent Distance (in feet)         Lane Equivalent Distance (in feet)           Heavy Trucks:         46.811         Heavy Trucks:         46.811           WeihleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         T0.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.67         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leq Vering         Leq Evening         Leq Night         Ldn         C/NEL           Autos:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         58.6         55.5         60.1         66.3	Centerline Dist. t	o Observer:	55.0 feet		Noise 3			. ,		
Observer Height (Above Pad):         5.0 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Autos:         47.000         Autos:         47.000           Left View:         90.0 degrees         Medium Trucks:         46.830         Heavy Trucks:         46.830           FHWA Noise Model Calculations         Printe Road         Freine Road         Freine Road         Freine Atten         Berm Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.32         -1.20         -5.38         0.000         0.000           Medium Trucks:         85.38         -22.33         0.32         -1.20         -5.38         0.000         0.000           Unmitigated Noise Levels (without Topo and barrier attenuation)         Leg Neining         Leg Neining         Leg Neining         68.0         68.7           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.1           Medium Trucks:         61.	Barrier Distance t	o Observer:	0.0 feet		Madiu					
Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Grade:         0.0 %         Autos:         47.00           Left View:         -90.0 degrees         Medium Trucks:         46.811           Right View:         90.0 degrees         Medium Trucks:         46.811           Vehicle Type         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.67         0.000         0.000           Medium Trucks:         85.3         -22.33         0.32         -1.20         -5.38         0.000         0.000           Unnitigate Mose Levels (without Topo and barrier attenuation)         -4.87         0.000         0.000           Unnitigate Mose Levels (without Topo and barrier attenuation)         -4.87         0.000         0.000           Unnitigate Mose Levels (without Topo and barrier attenuation)         -4.87         0.000         0.000           Vehicle Type         Leg Peak Hour         Leg Asy         E.68.0         68.0         68.1 <td>Observer Height (A</td> <td>Above Pad):</td> <td>5.0 feet</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>liustmont</td> <td>0.0</td>	Observer Height (A	Above Pad):	5.0 feet						liustmont	0.0
Road Grade:         0.0%         Autos:         47.000           Left View:         -90.0 degrees         Medium Trucks:         46.811           Heavy Trucks:         46.811         Heavy Trucks:         46.811           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -5.38         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         -4.67         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         -4.68         66.0         68.7           VehicleType         Leg Peak Hour         Leg Nay         Leg Night         Ldn         CNEL           Autos:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         55.5         60.1	Pa	d Elevation:	0.0 feet		i ica	y muck	s. 0.00	J6 Onade Adj	justinent.	0.0
Left View:         -90.0 degrees         Medium Trucks:         46.81           Right View:         90.0 degrees         Heavy Trucks:         46.81           FHWA Noise Model Calculations         Heavy Trucks:         46.81           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         T0.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.67         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Revening         Leq Evening         Leq Night         Ldn         CNEL           Autos:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.4           Medium Trucks:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)         Image: Contour (in feet)         Image: Contour (in feet)         Conterline Sistic Sister	Roa	d Elevation:	0.0 feet		Lane Eq	uivalent	Distance	e (in feet)		
Right View:         90.0 degrees         Heavy Trucks:         46.830           FHWA Noise Model Calculations         Entite Road         Fresnel         Barrier Atten         Berrn Atten           VehicleType         REMEL         Traffic Flow         Distance         Fnite Road         Fresnel         Barrier Atten         Berrn Atten           Medium Trucks:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.32         -1.20         -5.38         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leg Deak Hour         Leg Deay         Leg Root         68.0         68.7           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.1           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.4           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)	F	Road Grade:	0.0%					00		
FIWA Noise Model Calculations           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.67         0.000         0.000           Heavy Trucks:         85.38         -22.33         0.32         -1.20         -5.38         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         Use VehicleType         Leg Peak Hour         Leg Day         Leg Evening         Leg Night         Ldn         CNEL           Autos:         68.2         66.9         65.6         59.6         66.0         66.1           Heavy Trucks:         61.8         58.6         51.1         59.9         66.0         66.4           Heavy Trucks:         62.2         58.9         55.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)		Left View:	-90.0 degrees		Mediu	m Trucks	s: 46.81	11		
VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.67         0.000         0.000           Medium Trucks:         85.38         -22.33         0.32         -1.20         -5.38         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Vening         Leq Night         Ldn         CNEL           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         68.7           Heavy Trucks:         61.2         58.9         55.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)		Right View:	90.0 degrees		Hear	vy Trucks	s: 46.83	30		
Autos:         70.20         -1.13         0.30         -1.20         -4.67         0.000         0.000           Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.67         0.000         0.000           Heavy Trucks:         85.38         -22.33         0.32         -1.20         -5.38         0.000         0.000           Unnitigate Moise Levels (without Top and barrier attenuation)         VehicleType         Leg Peak Hour         Leg Day         Leg Right         Ldn         CNEL           Autos:         68.2         66.9         65.6         59.6         68.0         68.1           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.1           Heavy Trucks:         61.8         58.6         51.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)	FHWA Noise Mode	el Calculations								
Medium Trucks:         81.00         -18.37         0.33         -1.20         -4.87         0.000         0.000           Heavy Trucks:         85.38         -22.33         0.32         -1.20         -5.38         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         Use Expension         Leg Day         Leg Resk Hour         Leg Day         Leg Resk Hour         CNEL           Autos:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.1           Heavy Trucks:         62.2         58.9         55.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)         Image: Contour (in feet)         Image: Contour (in fest)         Contour (in fast)         55 dBA           Ldn:         71         153         330         711         71         71	VehicleType	REMEL 1	Traffic Flow	Distance	Finite	Road	Fresne	I Barrier Att	ten Berm	Atten
Heavy Trucks:         85.38         -22.33         0.32         -1.20         -5.38         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leg Naght         Leg Night         Ldn         CNEL           VehicleType         Leg Peak Hour         Leg Day         Leg Vening         Leg Night         Ldn         CNEL           Mation:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         58.6         51.1         59.9         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)	Autos:	70.20	-1.13	0.3	30	-1.20	-4	4.67 0.0	000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)           VehicleType         Leq Peak Hour         Leq Day         Leq Vehicle         Leq Night         Ldn         CNEL           Autos:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.4           Heavy Trucks:         62.2         58.9         55.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)         To dBA         65 dBA         60 dBA         55 dBA           Ldn:         71         153         330         711	Medium Trucks:	81.00	-18.37	0.3	33	-1.20	-4	4.87 0.0	000	0.000
VehicleType         Leq Peak Hour         Leq Day         Leq Vehicle         Leq Night         Ldn         CNEL           Autos:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.1           Heavy Trucks:         62.2         58.9         55.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)	Heavy Trucks:	85.38	-22.33	0.3	32	-1.20	-{	5.38 0.0	000	0.000
Autos:         68.2         66.9         65.6         59.6         68.0         68.7           Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.1           Heavy Trucks:         62.2         58.9         55.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)         20	Unmitigated Noise	Levels (withou	it Topo and bai	rrier atte	nuation)					
Medium Trucks:         61.8         58.6         51.1         59.9         66.0         66.1           Heavy Trucks:         62.2         58.9         55.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         71.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         71         153         330         711		1				,	•			
Heavy Trucks:         62.2         58.9         55.5         60.1         66.3         66.4           Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         555 dBA           Ldn:         71         153         330         711										68.7
Vehicle Noise:         69.9         68.1         66.2         64.7         71.7         72.0           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         71         153         330         711										66.1
To dBA         65 dBA         60 dBA         55 dBA           Ldn:         71         153         330         711		62.2	58.	9	55.5					
TO dBA         65 dBA         60 dBA         55 dBA           Ldn:         71         153         330         711	Vehicle Noise:	69.9	68.	1	66.2		64.7	71.	7	72.0
Ldn: 71 153 330 711	Centerline Distance	e to Noise Con	tour (in feet)						I -	
CNEL: 75 161 346 746										
			CNEL		75	16	51	346	74	6

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHW	A-RD-77-108	HIGHW	VAY NO	DISE PF	REDICTI		EL			
Scenario Road Name Road Segmen	e: Country Clu						Name: H umber: 1		n Betty Fo	ord Cent	
SITE S	PECIFIC IN	PUT DATA				N	IOISE N	IODEL	INPUTS	;	
Highway Data				S	ite Con	ditions	(Hard =	10, Sof	t = 15)		
Average Daily T Peak Hour F Peak Ho	Percentage:	0,491 vehicle: 8.38% 1,717 vehicle:					/ Jcks (2 A cks (3+ A	,	15 15 15		
Veh	icle Speed:	50 mph		14	ehicle l	Mise					
Near/Far Lan	e Distance:	58 feet				viix icleType		Dav I	Evening	Night	Dailv
Site Data				_	ven			75.5%	14.0%	10.5%	
	r <b>ier Height:</b> all, 1-Berm):	0.0 feet 0.0				edium T	rucks:	48.9% 47.3%	2.2% 5.4%	48.9% 47.3%	1.84%
Centerline Dis	t. to Barrier:	55.0 feet		Λ	loise So	ource E	levations	(in fee	et)		
	o Observer: lbove Pad): d Elevation:	55.0 feet 0.0 feet 5.0 feet 0.0 feet			Mediui Heav	Auto m Truck ry Truck	s: 0.0 s: 2.2 s: 8.0	00 97 06 G	, Grade Adji	istment.	0.0
	d Elevation:	0.0 feet		L	ane Eq		t Distanc		et)		
	Road Grade: Left View: Right View:	0.0% -90.0 degree 90.0 degree				Auto m Truck ry Truck	s: 46.8	11			
FHWA Noise Mode	l Calculations										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el B	arrier Atte	n Ber	m Atten
Autos:	70.20	-0.06		0.30		-1.20		4.67	0.00	00	0.000
Medium Trucks:	81.00	-17.30		0.33		-1.20		4.87	0.00	00	0.000
Heavy Trucks:	85.38	-21.25		0.32		-1.20		5.38	0.00	00	0.000
Unmitigated Noise	Levels (witho	ut Topo and	barrier	attenu	lation)						
VehicleType	Leq Peak Hour	Leq Day	' L	Leq Ev	ening	Leq	Night	L	dn	C	VEL
Autos:	69.3	2	68.0		66.7		60.7		69.1		69.7
Medium Trucks:	62.	В	59.7		52.2		60.9		67.1		67.2
Heavy Trucks:	63.3	2	60.0		56.6		61.2		67.4		67.5
Vehicle Noise:	70.9	9	69.2		67.2		65.7		72.7		73.1
Centerline Distanc	e to Noise Co	ntour (in feet	)								
				70 di	BA	65	dBA	60	dBA	55	dBA
			Ldn:	84		1	80	3	389	8	38
		CI	VEL:	88		1	89	4	108	8	79

	FHW	/A-RD-77-108 H	IGHW/	AY NO	ISE PRE	DICTI	ON MOI	DEL			
Scenario Road Name Road Segment	Country Clu				F		Name: I Imber: 1		en Betty F	ord Cent	
SITE S	PECIFIC IN	PUT DATA				N	OISE N	IODE		s	
Highway Data	Lonio			Si	te Cond					-	
Average Daily Tr Peak Hour P Peak Ho	ercentage:	1,382 vehicles 8.38% 1,792 vehicles			Medi	um Tru		Autos: xles):	15 15 15		
Vehi	cle Speed:	50 mph		14							
Near/Far Lane		58 feet		Ve	hicle M			D	<b>F</b> orm in m	Manhat	D-#-
Site Data					venic	leType		Day 75.5%	Evening 14.0%	Night 10.5%	Daily 97.429
				_	Mar	A dium Tri		75.5% 48.9%		48.9%	1.849
	ier Height:	0.0 feet				avy Tr		48.9% 47.3%		48.9%	0.749
Barrier Type (0-Wa	. ,	0.0			He	avy m	ICKS:	47.3%	5.4%	47.3%	0.745
Centerline Dist.		55.0 feet		No	oise Sou	irce Ele	evations	s (in fe	eet)		
Centerline Dist. to		55.0 feet				Autos	: 0.0	000			
Barrier Distance to		0.0 feet			Medium	Trucks	: 2.2	97			
Observer Height (A	,	5.0 feet			Heavv	Trucks	: 8.0	006	Grade Adj	ustment:	0.0
	Elevation:	0.0 feet			,						
	l Elevation:	0.0 feet		Lá	ne Equ				feet)		
R	oad Grade:	0.0%				Autos					
	Left View:	-90.0 degrees			Medium						
	Right View:	90.0 degrees			Heavy	Trucks	: 46.8	330			
FHWA Noise Model	Calculation	5									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite R	load	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	70.20	0.12		0.30		-1.20		-4.67	0.0	00	0.00
Medium Trucks:	81.00	-17.11		0.33		-1.20		-4.87	0.0	00	0.00
Heavy Trucks:	85.38	-21.07		0.32		-1.20		-5.38	0.0	00	0.00
Unmitigated Noise											
,	.eq Peak Hou			eq Eve	•	Leq I			Ldn	-	VEL
Autos:	69.		3.2		66.9		60.9		69.3		69.
Medium Trucks:	63.		9.9		52.4		61.1		67.3		67.
Heavy Trucks:	63.		0.2		56.8		61.4		67.6	5	67.
Vehicle Noise:	71.	1 6	9.3		67.4		65.9		72.9	)	73
Centerline Distance	e to Noise Co	ntour (in feet)									
				70 dE	BA	65 c		6	0 dBA		dBA
		L	dn:	86		18	6		400	8	62
		CNI									

	FHW	/A-RD-77-108 I	HIGHV	VAY N	OISE PR	EDICTIO	N MODEL			
Scenar	io: EA+P					Project N	ame: Haze	elden Betty F	ord Cent	
Road Nam	e: Bob Hope D	Dr.				Job Nur	nber: 1272	20		
Road Segme	nt: n/o MacMill	an Wy.								
	SPECIFIC IN	PUT DATA				NO	ISE MOD	EL INPUT	S	
Highway Data				3	Site Con	ditions (H	lard = 10,	Soft = 15)		
Average Daily	Traffic (Adt): 2	5,734 vehicles					Auto	s: 15		
Peak Hour	Percentage:	8.38%			Med	dium Truc	ks (2 Axles	;): 15		
Peak H	lour Volume:	2,157 vehicles			Hea	avy Trucks	s (3+ Axles	;): 15		
Ve	hicle Speed:	45 mph			Vehicle I	Nix				
Near/Far La	ne Distance:	58 feet		H		cleType	Dav	Evening	Night	Dailv
Site Data							tos: 75.5	-	10.5%	97.42%
Ba	rrier Height:	0.0 feet			Me	edium True	cks: 48.9	% 2.2%	48.9%	1.84%
Barrier Type (0-W	•	0.0			F	leavy Tru	cks: 47.3	% 5.4%	47.3%	0.74%
Centerline Dis		55.0 feet		-	Naina Ca	uree Eler	ations (in	fa a 4)		
Centerline Dist.	to Observer:	55.0 feet		-	voise su	Autos:	0.000	leel)		
Barrier Distance	to Observer:	0.0 feet			1 4 m al 10 m	n Trucks:	2.297			
Observer Height (	Above Pad):	5.0 feet				y Trucks:	8.006	Grade Adj	ustmont.	0.0
Pa	ad Elevation:	0.0 feet			neav	y mucho.	0.000	Grado riaj	dournornt.	0.0
Roa	ad Elevation:	0.0 feet		1	Lane Equ	uivalent D	istance (i	n feet)		
1	Road Grade:	0.0%				Autos:	47.000			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	46.811			
	Right View:	90.0 degree	s		Heav	y Trucks:	46.830			
FHWA Noise Mod	el Calculations	-								
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite		Fresnel	Barrier Att		n Atten
Autos:	68.46	1.39		0.30	-	-1.20	-4.6			0.000
Medium Trucks:	79.45	-15.85		0.33	-	-1.20	-4.8		000	0.000
Heavy Trucks:	84.25	-19.81		0.32	2	-1.20	-5.3	8 0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and l	oarrier	' atten	uation)					
VehicleType	Leq Peak Hou			Leq Ev	v	Leq Ni	•	Ldn		IEL
Autos:	68.		7.7		66.4		60.4	68.8		69.4
Medium Trucks:	62.		9.6		52.1		60.8	67.0		67.1
Heavy Trucks:	63.		0.3		56.9		61.5	67.7		67.8
Vehicle Noise:	70.	.8 6	9.0		67.0		65.7	72.7	7	73.0
Centerline Distant	ce to Noise Co	ontour (in feet)								
				70 c	1BA	65 dE	BA	60 dBA	55 0	dBA
		L	.dn:	83	3	179		386	83	31
		CN	EL:	8	7	188		404	87	71

	FHV	VA-RD-77-108	HIGHW	AY NO	DISE PR	REDICT	ION MODE	L		
Scenar	io: EA+P					Project	Name: Ha	zelden Betty F	ord Cent	t
	e: Bob Hope I					Job N	umber: 12	720		
Road Segme	nt: s/o Street A	1								
	SPECIFIC IN	IPUT DATA						DEL INPUT	s	
Highway Data				S	ite Con	ditions	(Hard = 10	), Soft = 15)		
Average Daily	Traffic (Adt): 2	20,831 vehicle	s				Au	tos: 15		
Peak Hour	Percentage:	8.38%			Mee	dium Tru	ucks (2 Axl	es <i>):</i> 15		
Peak H	lour Volume:	1,746 vehicle	s		Hea	avy Truc	cks (3+ Axl	es): 15		
	hicle Speed:	45 mph		v	ehicle l	Mix				
Near/Far La	ne Distance:	58 feet			Vehi	icleType	e Da	ay Evening	Night	Daily
Site Data							Autos: 75	.5% 14.0%	10.5%	97.429
Ba	rrier Height:	0.0 feet			Me	edium T	rucks: 48	.9% 2.2%	48.9%	1.849
Barrier Type (0-W		0.0			F	leavy T	rucks: 47	.3% 5.4%	47.3%	0.74%
Centerline Di		55.0 feet					levations (	(m. fr 1)		
Centerline Dist.	to Observer:	55.0 feet		N	ioise su			,		
Barrier Distance	to Observer:	0.0 feet			1 4 m all 1 m	Auto n Truck				
Observer Height (	Above Pad):	5.0 feet				n Truck v Truck			iustmont	. 0.0
P	ad Elevation:	0.0 feet			neav	y muck	3. 0.00	5 Onade Adj	usunone	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalen	t Distance	, ,		
	Road Grade:	0.0%				Auto	s: 47.00	0		
	Left View:	-90.0 degree	es			n Truck				
	Right View:	90.0 degre	es		Heav	y Truck	s: 46.83	0		
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresnel	Barrier Att	en Ber	m Atten
Autos:	68.46	0.47		0.30		-1.20	-4	.67 0.0	000	0.00
Medium Trucks:	79.45	-16.77		0.33		-1.20	-4	.87 0.0	000	0.00
Heavy Trucks:	84.25	-20.73		0.32		-1.20	-5	.38 0.0	000	0.00
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenu	uation)					
VehicleType	Leq Peak Hou	ir Leq Day	' L	eq Eve	ening	Leq	Night	Ldn	C	NEL
Autos:	68		66.8		65.5		59.5	67.9		68.
Medium Trucks:	61		58.7		51.2		59.9	66.1		66.
Heavy Trucks:	62	.7	59.4		56.0		60.6	66.8	3	66.
Vehicle Noise:	69	.9	68.0		66.1		64.8	71.8	3	72.
		ontour (in feet	)							
Centerline Distan	ce to Noise Co							60 dBA		
Centerline Distan	ce to Noise Co			70 di			dBA			dBA
Centerline Distan	ce to Noise Co		Ldn: VEL:	70 di 72 76	2	1	ава 55 63	335 351	7	<i>dBA</i> '21 '56

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHV	VA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTI	ON MOI	DEL			
Scenari	io: EA+P					Project	Name: I	lazeld	len Betty F	ord Cen	t
	e: Bob Hope D					Job N	umber: '	2720			
Road Segmer	nt: s/o Country	Club Dr.									
	SPECIFIC IN	IPUT DATA							L INPUT	S	-
Highway Data				S	ite Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt): 2	21,450 vehicle	s					Autos:	15		
Peak Hour	Percentage:	8.38%					icks (2 A	/	15		
Peak H	our Volume:	1,798 vehicle	s		He	avy Truc	:ks (3+ A	xles):	15		
	hicle Speed:	45 mph		v	ehicle l	Mix					
Near/Far Lar	ne Distance:	58 feet		-		icleType		Day	Evening	Night	Daily
Site Data							lutos:	75.5%	14.0%	10.5%	97.42%
Bar	rier Height:	0.0 feet			Me	edium Tr	ucks:	48.9%	2.2%	48.9%	1.84%
Barrier Type (0-W		0.0			ŀ	leavy Tr	ucks:	47.3%	5.4%	47.3%	0.74%
Centerline Dis		55.0 feet		٨	loise Sc	ource El	evations	s (in fe	eet)		-
Centerline Dist. t		55.0 feet				Autos	s: 0.0	00	,		
Barrier Distance t	to Observer:	0.0 feet			Mediur	n Trucks	: 2.2	97			
Observer Height (/	,	5.0 feet			Heav	y Trucks	s: 8.0	06	Grade Adj	ustment	: 0.0
	ad Elevation:	0.0 feet									
	ad Elevation:	0.0 feet		L	ane Eq		Distanc		reet)		
ŀ	Road Grade:	0.0%				Autos	. 47.0				
	Left View:	-90.0 degre				n Trucks					
	Right View:	90.0 degre	es		Heav	y Trucks	s: 46.8	30			
FHWA Noise Mode	el Calculation	-									
VehicleType	REMEL	Traffic Flow	Distar		Finite		Fresn		Barrier Att		rm Atten
Autos:	68.46	0.60		0.30		-1.20		4.67	0.0		0.000
Medium Trucks:	79.45	-16.64		0.33		-1.20		4.87	0.0		0.000
Heavy Trucks:	84.25	-20.60		0.32		-1.20		-5.38	0.0	000	0.000
Unmitigated Noise										-	
	Leq Peak Hou			eq Ev	ening	Leq	Night		Ldn		NEL 68.6
Autos: Medium Trucks:	68 61		66.9 58.8		65.6 51.3		59.6 60.1		68.0 66.2		68.6
	• · ·									-	
Heavy Trucks: Vehicle Noise:	62		59.5 68.2		56.1 66.2		60.8 64.9		67.0	·	67.0
					06.2		64.9		71.9	1	72.2
Centerline Distanc	ce to Noise Co	ontour (in feet	)	70 d	RA	65 (	1RA	A	0 dBA	55	i dBA
			Ldn:	70 0			58		341		736
			VFL:	77			56 56		358		771
		0.							000		

	FHW	A-RD-77-108 H	IIGHWA	Y NOISE PI	REDICT	ON MODEL		
Road Nam	o: EA+P e: John L. Sinr nt: s/o Street A	Rd.				Name: Haze umber: 1272		ord Cent
SITE	SPECIFIC IN	PUT DATA			N	IOISE MOD	EL INPUTS	5
Highway Data				Site Cor	ditions	(Hard = 10, 3	Soft = 15)	
	Traffic (Adt): Percentage: our Volume:	4,233 vehicles 8.38% 355 vehicles				Auto Icks (2 Axles Icks (3+ Axles	): 15	
Vel	hicle Speed:	25 mph		Vehicle				
Near/Far Lar	ne Distance:	12 feet			icleType	Dav	Evening	Night Daily
Site Data				ven		Autos: 75.5		10.5% 97.42%
					, edium T			48.9% 1.84%
	rier Height:	0.0 feet			Heavy T			47.3% 0.74%
Barrier Type (0-W	. ,	0.0			leavy I	uchs. 41.5	/0 3.4/0	47.370 0.747
Centerline Dis		30.0 feet		Noise S	ource E	evations (in	feet)	
Centerline Dist.		30.0 feet			Auto	s: 0.000		
Barrier Distance		0.0 feet		Mediu	m Truck	s: 2.297		
Observer Height ()	,	5.0 feet		Hear	y Truck	s: 8.006	Grade Adj	ustment: 0.0
	d Elevation:	0.0 feet						
	d Elevation:	0.0 feet		Lane Eq		Distance (ii	i teet)	
ŀ	Road Grade:	0.0%			Auto			
	Left View:	-90.0 degrees			m Truck			
	Right View:	90.0 degrees	3	Hea	y Truck	s: 29.547		
FHWA Noise Mode	el Calculations							
VehicleType	REMEL	Traffic Flow	Distan	ce Finite	Road	Fresnel	Barrier Atte	en Berm Atten
Autos:	58.73	-3.90		3.26	-1.20	-4.4	9 0.0	00 0.00
Medium Trucks:	70.80	-21.14		3.33	-1.20	-4.80	6 0.0	00 0.00
Heavy Trucks:	77.97	-25.09		3.32	-1.20	-5.7	7 0.0	00 0.00
Unmitigated Noise	Evels (witho	ut Topo and b	arrier a	ttenuation)				
VehicleType	Leq Peak Hour	Leq Day	Le	q Evening	Leq	Night	Ldn	CNEL
Autos:	56.	9 5	5.7	54.3		48.3	56.8	57.
Medium Trucks:	51.	з 4	8.7	41.2		49.9	56.1	56.
Heavy Trucks:	55.	) 5	1.7	48.3		53.0	59.2	59.
Vehicle Noise:	59.	3 5	7.7	55.5		55.6	62.3	62.
Centerline Distanc	e to Noise Co.	ntour (in feet)						
		-		70 dBA	65	dBA	60 dBA	55 dBA
		L	dn:	9	2	20	43	92

		VA-RD-77-108								
	o: EA+P							zelden Betty F	ord Cen	t
	e: Joe Friend					Job Nur	nber: 127	/20		
Road Segmer	it: s/o MacMill	an Wy.								
SITE	SPECIFIC IN	IPUT DATA				NC	ISE MO	DEL INPUT	s	
Highway Data				S	ite Con	ditions (H	lard = 10	, Soft = 15)		
Average Daily	Traffic (Adt):	2,275 vehicle	s				Aut	tos: 15		
Peak Hour	Percentage:	8.38%			Med	lium Truc	ks (2 Axle	es): 15		
Peak H	our Volume:	191 vehicle	s		Hea	vy Truck	s (3+ Axle	es): 15		
Vel	nicle Speed:	25 mph		V	ehicle I	Aiy.				
Near/Far Lar	e Distance:	12 feet				cleType	Da	y Evening	Night	Daily
Site Data					1011			.5% 14.0%	10.5%	
	vier Height:	0.0 feet			Me	dium Tru		.9% 2.2%	48.9%	
	rier Height:	0.0 teet				leavv Tru		.3% 5.4%		
Barrier Type (0-Wa Centerline Dis		0.0 30.0 feet								
Centerline Dist.		30.0 feet		N	loise So	urce Ele	vations (i	in feet)		
Barrier Distance		0.0 feet				Autos:				
Observer Height ()		5.0 feet			Mediur	n Trucks:	2.297			
0 1	d Elevation:	0.0 feet			Heav	y Trucks:	8.006	Grade Ad	justment	t: 0.0
	d Elevation: d Elevation:	0.0 feet		L	ane Eq	ivalent L	Distance	(in feet)		
	Road Grade:	0.0%		-		Autos:	29.816	, ,		
1	Left View:	-90.0 deare	20		Mediur	n Trucks:	29.518			
	Right View:	90.0 degre				y Trucks:	29.547			
FHWA Noise Mode	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distai	nce	Finite	Road	Fresnel	Barrier Att	en Be	rm Atter
Autos:	58.73	-6.60		3.26		-1.20	-4.	49 0.0	000	0.00
Medium Trucks:	70.80	-23.83		3.33		-1.20	-4.	86 0.0	000	0.00
Heavy Trucks:	77.97	-27.79		3.32		-1.20	-5.	77 0.0	000	0.00
Unmitigated Noise									1	
	Leq Peak Hou			eq Eve	~	Leq N	•	Ldn		NEL
Autos:	54		53.0		51.6		45.6	54.		54.
Medium Trucks:	49		46.0		38.5		47.2	53.4		53.
Heavy Trucks:	52	-	49.0		45.6		50.3	56.	-	56.
Vehicle Noise:	57	.1	55.0		52.8		52.9	59.	6	59.
	e to Noise Co	ontour (in feet	)							
Centerline Distance				70 dl	RA	65 dE	BA	60 dBA	55	5 dBA
Centerline Distand										
Centerline Distand			Ldn: NFL :	6		13		28 29		61 63

	FHV	VA-RD-77-108	HIGHW	AY NOISE F	REDICT	ION MODEL			_
Road Nam	io: EA+P ne: Vista Del S nt: n/o Betty Fe					Name: Hazi lumber: 1272		ord Cent	t
SITE	SPECIFIC IN	IPUT DATA			r	IOISE MOD	EL INPUT	s	
Highway Data				Site Co	onditions	(Hard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	185 vehicle	s			Auto	s: 15		
Peak Hour	Percentage:	8.38%		M	ledium Tr	ucks (2 Axles	s): 15		
Peak H	lour Volume:	16 vehicle	s	H	leavy Tru	cks (3+ Axles	s): 15		
Ve	hicle Speed:	25 mph		Vehicle	Mix				
Near/Far Lai	ne Distance:	12 feet			hicleType	e Day	Evening	Night	Daily
Site Data				10		Autos: 75.5	•	10.5%	,
		0.0 feet			Aedium T			48.9%	
	rrier Height:	0.0 teet			Heavy T			47.3%	
Barrier Type (0-W Centerline Dis		0.0 30.0 feet							
Centerline Dist.		30.0 feet		Noise S	Source E	levations (in	feet)		
Barrier Distance		0.0 feet			Auto				
Observer Height (		5.0 feet			um Truck				
0,1	ad Flevation:	0.0 feet		Hea	avy Truck	s: 8.006	Grade Ad	ustment	: 0.0
	ad Elevation:	0.0 feet		Lane E	auivalen	t Distance (i	n feet)		
	Road Grade:	0.0%			Auto		,		
	Left View:	-90.0 degree	s	Medi	um Truck	s: 29.518			
	Right View:	90.0 degree		Hea	avy Truck	s: 29.547			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distan	ce Finit	e Road	Fresnel	Barrier Att	en Ber	m Atten
Autos:	58.73	-17.49		3.26	-1.20	-4.4	9 0.0	000	0.000
Medium Trucks:	70.80	-34.73		3.33	-1.20	-4.8	6 0.0	000	0.000
Heavy Trucks:	77.97	-38.69		3.32	-1.20	-5.7	7 0.0	000	0.00
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenuation	)				
VehicleType	Leq Peak Hou	, ,		eq Evening	,	Night	Ldn		NEL
Autos:	43		42.1	40.	-	34.7	43.2		43.8
Medium Trucks:	38		35.1	27.		36.3	42.5		42.
Heavy Trucks:	41		38.1	34.		39.4	45.6		45.
Vehicle Noise:	46		44.1	41.	9	42.0	48.	7	49.0
Centerline Distant	ce to Noise Co	ontour (in feet	)	70 -10 4		-(D.4	00 -10 4		-10.4
				70 dBA	65	dBA	60 dBA	55	dBA
			L alas i	4		0	6		4.4
			Ldn: VEL:	1		2 3	5 6		11 12

Tuesday, February 4, 2020

Tuesday, February 4, 2020

FH\	NA-RD-77-108	HIGHW	AY NO	DISE PR	EDICTI	ON MOE	DEL			
Scenario: EA+P Road Name: Vista Del S Road Segment: n/o Countr						Name: H Imber: 1		en Betty F	ord Cen	t
SITE SPECIFIC IN	IPUT DATA				N	OISE N	IODEI	L INPUT	S	
Highway Data			S	ite Con	ditions (	'Hard =	10, So	ft = 15)		
Average Daily Traffic (Adt): Peak Hour Percentage: Peak Hour Volume:	1,579 vehicle 8.38% 132 vehicle				dium Tru avy Truc	cks (2 A	/	15 15 15		
Vehicle Speed:	25 mph		V	ehicle I	Nix					
Near/Far Lane Distance:	12 feet		F		cleType		Dav	Evening	Night	Daily
Site Data							75.5%	14.0%	10.5%	
Barrier Height:	0.0 feet			Me	edium Tr	ucks:	48.9%	2.2%	48.9%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			ŀ	leavy Tr	ucks:	47.3%	5.4%	47.3%	0.74%
Centerline Dist. to Barrier:	30.0 feet		N	oise So	urce Ele	evations	s (in fe	et)		
Centerline Dist. to Observer:	30.0 feet				Autos	: 0.0	100			
Barrier Distance to Observer:	0.0 feet			Mediur	n Trucks	: 2.2	97			
Observer Height (Above Pad): Pad Elevation:	5.0 feet 0.0 feet			Heav	y Trucks	: 8.0	06	Grade Adj	ustment	: 0.0
Road Elevation:	0.0 feet		L	ane Ea	uivalent	Distand	e (in f	eet)		
Road Grade:	0.0%		F		Autos		· ·	,		
Left View:	-90.0 deares			Mediur	n Trucks					
Right View:	90.0 degree			Heav	y Trucks					
FHWA Noise Model Calculation	IS									
VehicleType REMEL	Traffic Flow	Distar	ice	Finite	Road	Fresn	el i	Barrier Att	en Be	rm Atten
Autos: 58.73	-8.18		3.26		-1.20		4.49	0.0	000	0.000
Medium Trucks: 70.80	-25.42		3.33		-1.20		-4.86	0.0	000	0.000
Heavy Trucks: 77.97			3.32		-1.20		-5.77	0.0	000	0.000
Unmitigated Noise Levels (with										
VehicleType Leq Peak Hou			eq Eve	~	Leq I			Ldn	-	NEL
		51.4		50.1		44.0		52.5		53.1
		44.4		36.9		45.6		51.8		51.8
		47.4		44.0		48.7		54.9	·	55.0
		53.4		51.2		51.3		58.0	)	58.3
Centerline Distance to Noise C	ontour (in feet	)	70 dE	BA	65 0	IBA	6	0 dBA	55	dBA
		Ldn:	5		1			22		48
		VFI :	5		1	-		23		40 50

	FHW	/A-RD-77-108 I	HIGHW	AY NO			EL		
	o: EA+P						azelden Betty	Ford Ce	nt
	e: MacMillan V				Job N	lumber: 12	2720		
Road Segmer	nt: e/o Bob Ho	pe Dr.							
	SPECIFIC IN	PUT DATA					DDEL INPUT	٢S	
Highway Data				Si	te Conditions	(Hard = 1	0, Soft = 15)		
Average Daily	Traffic (Adt):	3,708 vehicles				A	utos: 15		
Peak Hour	Percentage:	8.38%			Medium Tr	ucks (2 Ax	<i>les):</i> 15		
Peak H	our Volume:	311 vehicles			Heavy Tru	cks (3+ Ax	<i>les):</i> 15		
Vel	hicle Speed:	25 mph		14	ehicle Mix				
Near/Far Lar	ne Distance:	12 feet		Ve	VehicleType		ay Evening	Night	Daily
Site Data							5.5% 14.0%	· ·	
					Medium T		B.9% 2.2%		
	rier Height:	0.0 feet			Heavy 1		7.3% 5.4%		
Barrier Type (0-W	. ,	0.0			,			47.07	0 0.747
Centerline Dis		30.0 feet		N	oise Source E	levations	(in feet)		
Centerline Dist.		30.0 feet			Auto	s: 0.00	0		
Barrier Distance		0.0 feet			Medium Truck	s: 2.29	7		
Observer Height ()	,	5.0 feet			Heavy Truck	s: 8.00	6 Grade A	djustmer	t: 0.0
	d Elevation: d Elevation:	0.0 feet		1.	ane Equivalen	t Distance	(in foot)		
	a Elevation: Road Grade:	0.0 feet			Auto		. ,		
,	Road Grade:	0.0%			Medium Truck		-		
		-90.0 degree					-		
	Right View:	90.0 degree	s		Heavy Truck	s: 29.54	+7		
FHWA Noise Mode	el Calculations	5							
VehicleType	REMEL	Traffic Flow	Dista		Finite Road	Fresne			erm Atten
Autos:	58.73	-4.47		3.26	-1.20	-4	1.49 0	.000	0.00
Medium Trucks:	70.80	-21.71		3.33	-1.20			.000	0.00
Heavy Trucks:	77.97	-25.67		3.32	-1.20	-5	5.77 0	.000	0.00
Unmitigated Noise	e Levels (with	out Topo and I	barrier	attenu	ation)				
VehicleType	Leq Peak Hou	r Leq Day	L	.eq Eve	ning Leq	Night	Ldn		ONEL
Autos:	56		5.1		53.8	47.8	56		56.
Medium Trucks:	51.	.2 4	8.1		40.6	49.3	55	.5	55.
Heavy Trucks:	54.	.4 5	51.2		47.8	52.4	58	.6	58.
Vehicle Noise:	59.	2 5	57.1		54.9	55.0	61	.7	62.
Centerline Distand	ce to Noise Co	ntour (in feet)							
				70 dE	BA 65	dBA	60 dBA	5	5 dBA
			dn:	8		18	39		84
			IFI :	9		19	35		88

	FHW	/A-RD-77-108 I	HIGHWA	TNOISEP	REDICTIO	TWODEL				
Scenario							den Betty Fo	ord Cent		
Road Name					Job Nun	nber: 12720				
Road Segmen	t: e/o Bob Hoj	pe Dr.								
	PECIFIC IN	PUT DATA		0/4- 0-				6		
Highway Data				Site Co	naitions (H	ard = 10, S	,			
Average Daily T	. ,	2,301 vehicles				Autos.				
Peak Hour F		8.38%				is (2 Axles):				
	our Volume:	193 vehicles		H	eavy Trucks	(3+ Axles).	15			
	icle Speed:	25 mph		Vehicle	Mix					
Near/Far Lan	e Distance:	12 feet		VehicleType Day Evening Night Da						
Site Data					Au	os: 75.5%	6 14.0%	10.5% 97.42		
Bar	ier Height:	0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1						
Barrier Type (0-Wa	•	0.0			Heavy Truc	ks: 47.3%	5.4%	47.3% 0.74		
Centerline Dis	to Barrier:	30.0 feet		Noise S	ource Elev	ations (in f	eet)			
Centerline Dist. te	o Observer:	30.0 feet			Autos:	0.000	000			
Barrier Distance to	o Observer:	0.0 feet		Medii	im Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet					vv Trucks:	8.006	Grade Adi	ustment: 0.0		
Pa	Pad Elevation: 0.0 feet									
	d Elevation:	0.0 feet		Lane E		istance (in	feet)			
F	oad Grade:	0.0%			Autos:	29.816				
	Left View:	-90.0 degree			ım Trucks:	29.518				
	Right View:	90.0 degree	s	Hea	vy Trucks:	29.547				
FHWA Noise Mode	I Calculations									
VehicleType	REMEL	Traffic Flow	Distan		e Road	Fresnel	Barrier Atte			
Autos:	58.73	-6.55		3.26	-1.20	-4.49	0.0			
Medium Trucks:	70.80	-23.78		3.33	-1.20	-4.86	0.0			
Heavy Trucks:	77.97	-27.74		3.32	-1.20	-5.77	0.0	00 0.00		
	Levels (with					1		1		
		r Leg Day	Le	q Evening	Leq Ni	,	Ldn	CNEL		
VehicleType	Leq Peak Hou			51.3		45.7	54.1			
Autos:	. 54.	3 5	53.0							
VehicleType Autos: Medium Trucks:	54. 49.	3 5 1 4	6.0	38.5	5	47.3	53.4			
VehicleType Autos: Medium Trucks: Heavy Trucks:	54. 49. 52.	3 5 1 4 4 4	6.0 9.1	38.5 45.1	5	47.3 50.3	56.5	56		
VehicleType Autos: Medium Trucks:	54. 49.	3 5 1 4 4 4	6.0	38.5	5	47.3		56		
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	54. 49. 52. 57.	3 5 1 4 4 4 2 5	16.0 19.1 55.1	38.5 45.7 52.8	5 7 3	47.3 50.3 53.0	56.5 59.7	56		
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	54. 49. 52. 57.	3 5 1 4 4 4 2 5 ntour (in feet)	6.0 9.1 55.1	38.5 45.7 52.8 70 dBA	5 7 3 65 dB	47.3 50.3 53.0	56.5 59.7 60 dBA	55 dBA		
VehicleType Autos: Medium Trucks: Heavy Trucks:	54. 49. 52. 57.	3 5 1 4 4 4 2 5 ntour (in feet)	16.0 19.1 55.1	38.5 45.7 52.8	5 7 3	47.3 50.3 53.0	56.5 59.7	56		

	FHW	A-RD-77-108 HIG	HWAY I	NOISE PI	REDICTI	ON MOE	EL				
Road Nam Road Segmer	io: EA+P e: Betty Ford V nt: e/o Joe Frie	nd Ln.		Project Name: Hazelden Betty Ford Cent Job Number: 12720							
	SPECIFIC IN	PUT DATA						L INPUTS	5		
Highway Data				Site Conditions (Hard = 10, Soft = 15)							
Average Daily	Traffic (Adt):	1,240 vehicles				A	Autos:	15			
Peak Hour	Percentage:	8.38%		Me	dium Tru	icks (2 A	xles):	15			
Peak H	our Volume:	104 vehicles		He	avy Truc	ks (3+ A	xles):	15			
Vel	hicle Speed:	25 mph		Vehicle	Mix						
Near/Far Lar	ne Distance:	12 feet			icleType		Day	Evening	Night	Daily	
Site Data				Ven			75.5%	•	10.5%	,	
				14	-ر edium Tr		18.9%		48.9%	1.84%	
	rier Height:	0.0 feet			Heavy Tr		47.3%		47.3%	0.74%	
Barrier Type (0-W		0.0			icavy ii	uono	11.070	0.470	47.070	0.7470	
Centerline Dis		30.0 feet	[	Noise Se	ource El	evations	; (in fe	eet)			
Centerline Dist.		30.0 feet	[		Autos	s: 0.0	00				
Barrier Distance		0.0 feet		Mediu	m Trucks	: 2.2	97				
Observer Height (	Above Pad): ad Elevation:	5.0 feet 0.0 feet		Heav	y Trucks	8: 8.0	06	Grade Adj	ustment.	0.0	
				Lane Eq	uivalont	Distanc	o (in	foot)			
	ad Elevation: Road Grade:	0.0 feet 0.0%		Lane Ly	Autos			eel)			
,	Road Grade:			Madiu	m Trucks						
		-90.0 degrees			v Trucks						
	Right View:	90.0 degrees		i ieat	y mucks	. 20.u	-+ /				
FHWA Noise Mode	el Calculations										
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road	Fresn		Barrier Atte	en Ber	m Atten	
Autos:	58.73	-9.23	3.2		-1.20		4.49	0.0		0.000	
Medium Trucks:	70.80	-26.47	3.3		-1.20		4.86		00	0.000	
Heavy Trucks:	77.97	-30.43	3.3	32	-1.20		-5.77	0.0	00	0.000	
Unmitigated Noise											
	Leq Peak Hour			vening	Leq I	Night		Ldn		NEL	
Autos:	51.			49.0		43.0		51.4		52.0	
Medium Trucks:	46.			35.8		44.6		50.7		50.8	
Heavy Trucks:	49.			43.0		47.6		53.8		53.9	
Vehicle Noise:	54.	5 52.4		50.1		50.3		57.0	)	57.2	
Centerline Distance	ce to Noise Co.	ntour (in feet)									
				dBA		dBA	6	60 dBA		dBA	
		Ldn.		4	ç			19		41	
		CNEL	:	4	ç	9		20	4	42	

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	FHV	VA-RD-77-108	HIGHW	AY NC	ISE PF	REDICTIO	N MODI	L				
Scenario Road Name Road Segment	: Country Clu				Project Name: Hazelden Betty Ford Cent Job Number: 12720							
SITE S	PECIFIC IN	IPUT DATA			NOISE MODEL INPUTS							
Highway Data				S	Site Conditions (Hard = 10, Soft = 15)							
Average Daily T Peak Hour P Peak Ho	. ,	10,590 vehicle: 8.38% 887 vehicle:				dium Truck avy Trucks	ks (2 Ax	,				
Vehi	icle Speed:	45 mph		V	hiclo	Mix						
Near/Far Lane	e Distance:	52 feet			Vehicle Mix Vehicle Type Day Evening Night Day							
Site Data					Autos: 75.5% 14.0% 10.5% 97							
	ier Heiaht:	0.0 feet			М	edium Truc	ks: 4	3.9% 2	2% 4	3.9%	1.84%	
Barrier Type (0-Wa		0.0 feet			I	Heavy Truc	:ks: 4	7.3% 5			0.74%	
Centerline Dist.		55.0 feet		N	oise So	ource Elev	ations	(in feet)				
Centerline Dist. to		55.0 feet				Autos:	0.00	0				
Barrier Distance to	Observer:	0.0 feet			Mediu	m Trucks:	2.29	7				
Observer Height (A	,	5.0 feet			Heav	vy Trucks:	8.00	6 Grad	e Adjusti	ment: (	0.0	
	l Elevation:	0.0 feet							,			
	Elevation:	0.0 feet		La	ane Eq	uivalent D		. ,				
R	oad Grade:	0.0%				Autos:	48.72					
	Left View: Right View:	-90.0 degree 90.0 degree				m Trucks: /y Trucks:	48.54 48.56	-				
FHWA Noise Model	Calculation	s										
VehicleType	REMEL	Traffic Flow	Distai	nce	Finite	Road	Fresne	Barrie	er Atten	Berm	Atten	
Autos:	68.46	-2.47		0.07		-1.20	-4	.67	0.000		0.00	
Medium Trucks:	79.45	-19.71		0.09		-1.20	-4	1.87	0.000		0.000	
Heavy Trucks:	84.25	-23.66		0.09		-1.20	-5	5.38	0.000		0.000	
Unmitigated Noise												
	.eq Peak Hou			eq Eve		Leq Ni	/	Ldn		CNE		
Autos:	64		63.6		62.3		56.3		64.7		65.3	
Medium Trucks:	58		55.5		48.0		56.8		62.9		63.0	
Heavy Trucks:	59	-	56.2		52.8		57.4		63.6		63.7	
Vehicle Noise:	66		64.9		62.9		61.6		68.6		68.9	
Centerline Distance	e to Noise Co	ontour (in feet	)	70 dE	24	65 dB		60 dB/	1	55 dl	24	
			Ldn:	70 dE 44	274	65 dB 95	71	206	·	55 di 443		
			VEL:	44		95		206		443		
		CI	¥66.	40		100		210		404	•	

	FHWA-	RD-77-108 HIC	GHWAY	NOISE PR	EDICT	ION MODE	-					
Scenario: E							elden Betty Fo	ord Cent				
Road Name: C Road Segment: e					Job N	lumber: 127	20					
SITE SPE	CIFIC INPU	T DATA			P	IOISE MO	DEL INPUTS	5				
Highway Data				Site Conditions (Hard = 10, Soft = 15)								
Average Daily Traffi	ic (Adt): 16,1	26 vehicles		Autos: 15								
Peak Hour Perc	entage: 8.	38%		Medium Trucks (2 Axles): 15								
Peak Hour \	/olume: 1,3	51 vehicles		Heavy Trucks (3+ Axles): 15								
Vehicle	Speed:	50 mph		Vehicle Mix								
Near/Far Lane Di	stance:	58 feet				00	v Evoning	Night Daily				
Site Data												
				Autos: 75.5% 14.0% 10.5% 97.4 Medium Trucks: 48.9% 2.2% 48.9% 1.8								
Barrier		0.0 feet					3% 2.2%	47.3% 0.74				
Barrier Type (0-Wall, 1	,	0.0			,			47.570 0.74				
	Centerline Dist. to Barrier: 55.0 feet					levations (i	n feet)					
	Centerline Dist. to Observer: 55.0 feet Barrier Distance to Observer: 0.0 feet					Autos: 0.000						
Barrier Distance to Ol		Medium Trucks: 2.297										
Observer Height (Abov	,	5.0 feet		Heav	y Truck	s: 8.006	Grade Adj	ustment: 0.0				
	evation:	0.0 feet										
Road El		0.0 feet		Lane Eq		t Distance (	,					
	Grade:	0.0%		Autos: 47.000 Medium Trucks: 46.811								
		0.0 degrees										
Rigi	ht View: 9	0.0 degrees		Heavy Trucks: 46.830								
FHWA Noise Model Ca							1					
			Distance	Finite		Fresnel	Barrier Atte					
Autos:	70.20	-1.10		30	-1.20	-4.						
Medium Trucks:	81.00	-18.34		33	-1.20	-4.						
Heavy Trucks:	85.38	-22.30		32	-1.20	-5.	38 0.0	00 0.00				
Unmitigated Noise Lev				,								
,	Peak Hour	Leq Day		evening	Leq	Night	Ldn	CNEL				
Autos:	68.2	67.	-	65.6		59.6	68.1					
Medium Trucks:	61.8	58.		51.2		59.9	66.1					
Heavy Trucks:	62.2	58.	-	55.5		60.2	66.4					
Vehicle Noise:	69.9	68.	1	66.2		64.7	71.7	72				
Centerline Distance to	Noise Conto	our (in feet)										
				dBA		dBA	60 dBA	55 dBA				
		Ldr CNEL		71 75		54 62	331 348	714 750				

	FHV	VA-RD-77-108	HIGHW/	AY NC	JISE PR	EDICTIO	NMODE				
	o: EA+P							zelden Betty	Ford	Cent	
	e: Country Clu					Job Nur	nber: 127	720			
Road Segmer	nt: e/o John L.	Sinn Rd.									
	SPECIFIC IN	IPUT DATA						DEL INPU	TS		
Highway Data				S	ite Con	ditions (H	lard = 10	, Soft = 15)			
Average Daily	Traffic (Adt): 2	20,603 vehicles	3					tos: 15			
Peak Hour	Percentage:	8.38%				lium Truc					
Peak H	our Volume:	1,727 vehicles	6		Hea	avy Trucks	s (3+ Axle	es): 15			
	nicle Speed:	50 mph		V	ehicle N	<i>lix</i>					
Near/Far Lar	ne Distance:	58 feet			Vehi	cleType	Da	y Evening	Ni	ight	Daily
Site Data						Au	tos: 75	.5% 14.0%	5 10	0.5%	97.42%
Bar	rier Height:	0.0 feet			Me	dium True	cks: 48	.9% 2.2%	6 41	8.9%	1.84%
Barrier Type (0-Wa	•	0.0			H	leavy Tru	cks: 47	.3% 5.4%	6 4	7.3%	0.74%
Centerline Dis		55.0 feet		N	oise So	urce Elev	ations (i	in feet)			
Centerline Dist. t		55.0 feet				Autos:	0.000	)			
Barrier Distance t		0.0 feet			Mediur	n Trucks:	2.297	,			
Observer Height ()	,	5.0 feet			Heav	v Trucks:	8.006	Grade A	djusti	ment:	0.0
	d Elevation:	0.0 feet							-		
	d Elevation:	0.0 feet		La	ane Equ	ivalent D		, ,			
F	Road Grade:	0.0%				Autos:	47.000				
	Left View:	-90.0 degree				n Trucks:	46.811				
	Right View:	90.0 degree	es		Heav	y Trucks:	46.830	)			
FHWA Noise Mode	el Calculation	-								-	-
VehicleType	REMEL	Traffic Flow	Distar		Finite		Fresnel	Barrier A		Bern	n Atten
Autos:	70.20	-0.04		0.30		-1.20	-4.	•••	0.000		0.00
Medium Trucks:	81.00	-17.28		0.33		-1.20	-4.	•••	0.000		0.00
Heavy Trucks:	85.38	-21.23		0.32		-1.20	-5.	38 C	0.000		0.00
Unmitigated Noise											-
	Leq Peak Hou			eq Eve	~	Leq Ni	~	Ldn		CN	
Autos:	69		68.0		66.7		60.7	69			69.7
Medium Trucks:	62		59.7		52.2		61.0	67			67.3
Heavy Trucks:	63		60.0		56.6		61.2		'.4		67.
Vehicle Noise:	71	.0	69.2		67.3		65.7	72	2.8		73.
Centerline Distance	e to Noise Co	ontour (in feet	)							-	
				70 dE	BA	65 dE	BA	60 dBA		55 c	
			Ldn: VFL:	84 88		181 190		390 410		84 88	

FHW	/A-RD-77-108	HIGHWA	Y NOISE	PREDICTI	ON MODEL					
, .							ord Cent			
SPECIFIC IN	PUT DATA						5			
			Site Conditions (Hard = 10, Soft = 15)							
Traffic (Adt): 2	1,662 vehicles				Auto	s: 15				
Percentage:	8.38%		/	Aedium Tru	icks (2 Axles	;): 15				
our Volume:	1,815 vehicles		1	leavy Truc	ks (3+ Axles	;): 15				
hicle Speed:	50 mph		Vohic	o Mix						
ne Distance:	58 feet				Day	Evoning	Night	Daily		
			_					1.84%		
•								0.74%		
							47.070	0.7470		
			Noise	Source El	evations (in	feet)				
				Autos	s: 0.000					
			Med	ium Trucks	2.297					
,			He	avy Trucks	8: 8.006	Grade Adj	ustment:	0.0		
			Lano	auivalont	Distanco (i	n foot)				
			Lane	<u> </u>		in reel)				
			Maa							
Right view.	90.0 degree	5	110	avy muchs	40.000					
el Calculations	5									
REMEL	Tracking Flower	Distanc								
·/LL	Traffic Flow	Distant	e Fini	te Road	Fresnel	Barrier Atte	en Ber	m Atten		
70.20	0.18		e Fini 0.30	te Road -1.20	Fresnel -4.6					
				-1.20 -1.20		7 0.0	00	0.000		
70.20	0.18		0.30	-1.20	-4.6	7 0.0 7 0.0	00 00	0.000		
70.20 81.00 85.38 e Levels (witho	0.18 -17.06 -21.01 Dut Topo and I	parrier at	0.30 0.33 0.32 <b>tenuatior</b>	-1.20 -1.20 -1.20	-4.6 -4.8 -5.3	7 0.0 7 0.0 8 0.0	00 00 00	0.000		
70.20 81.00 85.38 <b>2 Levels (witho</b> Leg Peak Hou	0.18 -17.06 -21.01 Dut Topo and I r Leq Day	barrier at	0.30 0.33 0.32 <b>tenuatior</b> g Evening	-1.20 -1.20 -1.20 -1.20	-4.6 -4.8 -5.3 Vight	7 0.0 7 0.0 8 0.0 Ldn	00 00 00 <i>CI</i>	0.000 0.000 0.000		
70.20 81.00 85.38 <b>e Levels (witho</b> Leq Peak Hou 69.	0.18 -17.06 -21.01 <b>Dut Topo and R</b> r Leq Day 5 6	barrier at	0.30 0.33 0.32 tenuation g Evening 66	-1.20 -1.20 -1.20 -1.20 ) Leq 1 .9	-4.6 -4.8 -5.3 <u>Vight</u> 60.9	7 0.0 7 0.0 8 0.0 <u>Ldn</u> 69.3	00 00 00 <i>CI</i>	0.000 0.000 0.000 VEL 70.0		
70.20 81.00 85.38 2 Levels (without Leg Peak Hout 69. 63.	0.18 -17.06 -21.01 <b>Dut Topo and I</b> r Leq Day 5 6 1 5	barrier at Lec 18.2 19.9	0.30 0.33 0.32 <b>tenuatior</b> 7 Evening 66 52	-1.20 -1.20 -1.20 -1.20 ) Leq I .9 .4	-4.6 -4.8 -5.3 <u>Vight</u> 60.9 61.2	7 0.0 7 0.0 8 0.0 <u>Ldn</u> 69.3 67.4	00 00 00 <i>CI</i>	0.000 0.000 0.000 <u>VEL</u> 70.0 67.4		
70.20 81.00 85.38 2 Levels (without Leg Peak Hout 69. 63. 63.	0.18 -17.06 -21.01 <b>Dut Topo and I</b> r Leq Day 5 6 1 5 6	barrier at Lec 18.2 19.9 10.2	0.30 0.33 0.32 <b>tenuation</b> g Evening 66 52 56	-1.20 -1.20 -1.20 ) Leq I .9 .4 .8	-4.6 -4.8 -5.3 Vight 60.9 61.2 61.5	7 0.0 7 0.0 8 0.0 <u>Ldn</u> 69.3 67.4 67.7	00 00 00 <i>CI</i>	0.000 0.000 0.000 <u>VEL</u> 70.0 67.4 67.8		
70.20 81.00 85.38 2 Levels (without Leg Peak Hout 69. 63. 63. 63. 71.	0.18 -17.06 -21.01 <b>Dut Topo and I</b> r Leq Day 5 6 1 5 6 5 6 2 6	barrier at Lec 18.2 19.9	0.30 0.33 0.32 <b>tenuatior</b> 7 Evening 66 52	-1.20 -1.20 -1.20 ) Leq I .9 .4 .8	-4.6 -4.8 -5.3 <u>Vight</u> 60.9 61.2	7 0.0 7 0.0 8 0.0 <u>Ldn</u> 69.3 67.4	00 00 00 <i>CI</i>	0.000 0.000 0.000 <u>VEL</u> 70.0 67.4 67.8		
70.20 81.00 85.38 2 Levels (without Leg Peak Hout 69. 63. 63. 63. 71.	0.18 -17.06 -21.01 <b>Dut Topo and I</b> r Leq Day 5 6 1 5 6	Dearrier at 2007 2017	0.30 0.33 0.32 <b>tenuation</b> g Evening 66 52 56 67	-1.20 -1.20 -1.20 <b>)</b> Leq I .9 .4 .8 .5	-4.6 -4.8 -5.3 Vight 60.9 61.2 61.5 66.0	7 0.0 7 0.0 8 0.0 <u>Ldn</u> 69.3 67.4 67.7 73.0	00 00 00 <i>CI</i>	0.000 0.000 0.000 VEL 70.0 67.4 67.8 73.3		
70.20 81.00 85.38 2 Levels (without Leg Peak Hout 69. 63. 63. 63. 71.	0.18 -17.06 -21.01 <i>but Topo and I</i> <i>r</i> Leq Day 5 6 5 6 2 6 <i>i</i> to <i>f</i> 2 6 <i>i f</i> <i>i f</i> <i>j f</i> <i>f</i> <i>f</i> <i>f</i> <i>f</i> <i>f</i> <i>f</i> <i>f</i>	barrier at Lec 8.2. 9.9 0.2 9.4	0.30 0.33 0.32 <b>tenuation</b> 7 Evening 66 52 56 67 70 dBA	-1.20 -1.50 -1.50	-4.6 -4.8 -5.3 Night 60.9 61.2 61.5 66.0	7 0.0 7 0.0 8 0.0 <u>Ldn</u> 69.3 67.4 67.7 73.0	00 00 00 <i>CI</i> 55	0.000 0.000 0.000 VEL 70.0 67.4 67.8 73.3 dBA		
70.20 81.00 85.38 2 Levels (without Leg Peak Hout 69. 63. 63. 63. 71.	0.18 -17.06 -21.01 <i>but Topo and I</i> <i>r</i> Leq Day 5 6 1 5 6 2 6 <i>but tour (in feet)</i>	Dearrier at 2007 2017	0.30 0.33 0.32 <b>tenuation</b> g Evening 66 52 56 67	-1.20 -1.20 -1.20 <b>)</b> Leq I .9 .4 .8 .5	-4.6 -4.8 -5.3 -5.3 -5.3 -60.9 61.2 61.5 66.0 	7 0.0 7 0.0 8 0.0 <u>Ldn</u> 69.3 67.4 67.7 73.0	00 00 00 <i>CI</i> 55 8	0.000 0.000 0.000 VEL 70.0 67.4 67.8 73.3		
	:: EA+P     :: Country Cituation	c: EA+P           e: Country Club Dr.           tt: elo Vista Del Sol           SPECIFIC INPUT DATA           Traffic (Adt): 21,662 vehicles           Percentage:         8.38%           our Volume:         1,815 vehicles           nei Distance:         58 feet           rier Height:         0.0 feet           all, 1-Berm):         0.0           t. to Barrier:         55.0 feet           to Observer:         0.0 feet           dobserver:         0.0 feet           dobserver:         0.0 feet           dol Elevation:         0.0 feet           dol Elevation:         0.0 feet           dol Elevation:         0.0 feet           dol Elevation:         0.0 geet           Rad Grade:         0.0%           Left View:         90.0 degree           ald Calculations         0.0	o: EA+P e: Country Club Dr. ht: elo Vista Del Sol SPECIFIC INPUT DATA Traffic (Ad): 21,662 vehicles Percentage: 8.38% Percentage: 8.38% nicle Speed: 50 mph he Distance: 58 feet Trier Height: 0.0 feet all, 1-Berm): 0.0 t. to Barrier: 55.0 feet to Observer: 0.0 feet Above Pad): 5.0 feet to Observer: 0.0 feet Above Pad): 5.0 feet do Elevation: 0.0 feet dd Elevation: 0.0 feet dd Elevation: 0.0 feet Left View: -90.0 degrees Right View: 90.0 degrees al Calculations	c: EA+P         e: Country Club Dr.         t: elo Vista Del Sol         SPECIFIC INPUT DATA         SPECIFIC INPUT DATA         Sepecific (Adf): 21,662 vehicles         Percentage: 8.38%         Aur Volume: 1,815 vehicles         per bestance: 58 feet         Vitic         rier Height: 0.0 feet         all, 1-Berm): 0.0         t. to Barrier: 55.0 feet         boobserver: 0.0 feet         Med Above Pad): 5.0 feet         Hed Elevation: 0.0 feet         d Elevation: 0.0 feet         Jaad Grade: 0.0%         Left View: -90.0 degrees         Right View: 90.0 degrees	c:     EA+P     Project       e:     Country Club Dr.     Job Ni       st:     elo Vista Del Sol     Site Conditions       SPECIFIC INPUT DATA     Site Conditions       Traffic (Adt):     21,662 vehicles       Percentage:     8.38%       Medium Tru.     Heavy Truck       nicle Speed:     50 mph       Vehicle Mix     Vehicle Mix       rier Height:     0.0 feet       all, 1-Berm):     0.0       to Observer:     50.0 feet       Mobise Source El     Notise Source El       to Observer:     0.0 feet       d Elevation:     0.0 feet       d Elevation:     0.0 feet       Left View:     90.0 degrees       Heavy Trucks       Right View:     90.0 degrees	b::     EA+P     Project Name: Hazz       b::     Louttry Club Dr.     Job Number: 1272       it:     Io Vista Del Sol     Site Conditions (Hard = 10,       SPECIFIC INPUT DATA     NOISE MODE       Percentage:     8.38%     Medium Trucks (2 Axles       vicio Volume:     1.815 vehicles     Heavy Trucks (3+ Axles       hicle Speed:     50 mph     Vehicle Mix       vehicle Speed:     50 mph     Vehicle Mix       rier Height:     0.0 feet     Medium Trucks:     47.3       all, 1-Berm):     0.0     Heavy Trucks:     47.3       to Observer:     50.0 feet     Molium Trucks:     42.9       Above Pad):     5.0 feet     Autos:     5.0.00       to Observer:     0.0 feet     Heavy Trucks:     8.006       d Elevation:     0.0 feet     Autos:     1.000       Medium Tucks:     4.000     Medium Tucks:     4.800       d Elevation:     0.0 feet     Autos:     1.000       Medium Tucks:     4.800     Medium Tucks:     4.800       to Observer:     0.0 feet     Autos:     1.000       Medium Tucks:     4.800     Medium Tucks:     4.800       d Elevation:     0.0 feet     Autos:     4.7000       Left View:     90.0 degrees	e: Country Club Dr. t: elo Vista Del Sol SPECIFIC INPUT DATA Site Conditions (Hard = 10, Soft = 15) Traffic (Adt): 21,662 vehicles Percentage: 8.38% our Volume: 1,815 vehicles ticle Speed: 50 mph te Distance: 58 feet Vehicle Mix Traffic (Adt): 21,662 vehicles ticle Speed: 50 mph te Distance: 58 feet Vehicle Mix Vehicle Mix Noise Source Elevations (in feet) Autos: 0.00 Medium Trucks: 2.297 Heavy Trucks: 8.006 Grade Adj Heavy Trucks: 46.811 Heavy Trucks: 46.830	Description         Project Name: Hazelden Betty Ford Cent Job Number: 12720           street         Job Number: 12720           street         Job Number: 12720           SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Site Conditions (Hard = 10, Soft = 15)         Autos: 15           Traffic (Adt): 21,662 vehicles         Medium Trucks (2 Artes): 15           Dervolume: 1,815 vehicles         Medium Trucks (2 Artes): 15           Der Volume: 1,815 vehicles         Vehicle Mix           neo Distance: 58 feet         Vehicle Mix           Autos: 75.5% 14.0% 10.5%         Medium Trucks: 48.9% 2.2% 48.9%           All, 1-Berm): 0.0         Heavy Trucks: 47.3% 5.4% 47.3%           t. to Barrier: 55.0 feet         Autos: 0.000           Moster Celevation: 0.0 feet         Medium Trucks: 2.297           Above Pad): 5.0 feet         Heavy Trucks: 8.066           d Elevation: 0.0 feet         Heavy Trucks: 46.811           d Elevation: 0.0 feet         Autos: 47.000           Alder are are are are are are are are are a		

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHV	VA-RD-77-108	HIGHW	AY NO	ISE PF	REDICTIO	N MODI	EL				
Road Nam	io: EAC e: Bob Hope [ nt: n/o MacMill					Project N Job Nur			Betty For	d Cent		
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODEL I	NPUTS			
Highway Data				Site Conditions (Hard = 10, Soft = 15)								
	Traffic (Adt): 2 Percentage: our Volume:	27,108 vehicles 8.38% 2,272 vehicles				dium Truci avy Trucks	ks (2 Ax		15 15 15			
Vei	hicle Speed:	45 mph		V	ehicle l	Mix						
Near/Far Lar	ne Distance:	58 feet									Dailv	
Site Data					Autos: 75.5% 14.0% 10.5% 97.4							
Bai	rier Heiaht:	0.0 feet			Me	edium Truc	cks: 4	8.9%	2.2%	48.9%	1.84%	
Barrier Type (0-W		0.0			ŀ	leavy Tru	cks: 4	7.3%	5.4%	47.3%	0.74%	
Centerline Dis		55.0 feet		N	oise Sc	ource Elev	ations	(in feet	1			
Centerline Dist.		55.0 feet				Autos:	0.00	0				
Barrier Distance		0.0 feet			Mediur	m Trucks:	2.29	97				
	Observer Height (Above Pad): 5.0 feet				Heav	y Trucks:	8.00	)6 Gr	ade Adjus	tment:	0.0	
	ad Elevation: ad Elevation:	0.0 feet		1	no Ea	uivalent D	Vietanor	(in foo	<del>(</del> )			
	ad Elevation: Road Grade:	0.0 feet		L	ane Eq	Autos:	47.00		9			
,	Road Grade:	0.0%			Madiu	m Trucks:	47.00					
	Right View:	-90.0 degree 90.0 degree				y Trucks:	46.83					
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distar	ice	Finite	Road	Fresne	I Ba	rrier Atten	Bern	n Atten	
Autos:	68.46	1.61		0.30		-1.20	-4	4.67	0.000	)	0.000	
Medium Trucks:	79.45	-15.63		0.33		-1.20	-4	1.87	0.000	)	0.000	
Heavy Trucks:	84.25	-19.58		0.32		-1.20	-{	5.38	0.000	)	0.000	
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenu	ation)							
VehicleType	Leq Peak Hou	ir Leq Day	Le	eq Eve	ening	Leq Ni	ght	Lo	In	CN	IEL	
Autos:	69	.2 6	57.9		66.6		60.6		69.0		69.7	
Medium Trucks:	62		59.8		52.3		61.1		67.2		67.3	
Heavy Trucks:	63	-	60.5		57.1		61.8		68.0		68.1	
Vehicle Noise:	71	.0 1	69.2		67.2		65.9		72.9		73.2	
Centerline Distant	ce to Noise Co	ontour (in feet)	1									
			ட	70 dE	ЗA	65 dE		60 0		55 0		
			Ldn:	86		185		39	-	86		
		Ch	IEL:	90		194		41	8	90	11	

FHW	A-RD-77-108 HIG	HWAY N	IOISE PRE	DICTI	ON MODE	ïL				
Scenario: EAC Road Name: Bob Hope D Road Segment: s/o Street A	r.		Project Name: Hazelden Betty Ford Cent Job Number: 12720							
SITE SPECIFIC IN	PUT DATA			N	OISE MO	DEL INP	UTS			
Highway Data			Site Conditions (Hard = 10, Soft = 15)							
Average Daily Traffic (Adt): 2	2,205 vehicles		Autos: 15							
Peak Hour Percentage:	8.38%		Medi	um Tru	icks (2 Axi	es): 15				
Peak Hour Volume:	1,861 vehicles		Heavy Trucks (3+ Axles): 15							
Vehicle Speed:	45 mph	-	Vehicle Mi	v						
Near/Far Lane Distance:	58 feet	-		^ eTvpe	D	ay Even	ina N	ight	Dailv	
Site Data			1011101					0.5%		
	0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.							
Barrier Height: Barrier Type (0-Wall, 1-Berm):	0.0 reet							7.3%	0.749	
Centerline Dist, to Barrier:	55.0 feet									
Centerline Dist. to Observer:	-	Noise Source Elevations (in feet)								
Barrier Distance to Observer:		Autos: 0.000								
Observer Height (Above Pad):		Medium Trucks: 2.297 Heavy Trucks: 8,006 Grade Adjustment: 0.0								
Pad Elevation:	5.0 feet 0.0 feet		Heavy	Trucks	8: 8.00	6 Grade	e Adjust	ment:	0.0	
Road Elevation:	0.0 feet	-	Lane Equi	valent	Distance	(in feet)				
Road Grade:	0.0%			Autos	s: 47.00	0				
Left View:	-90.0 degrees		Medium Trucks: 46.811							
Right View:	90.0 degrees		Heavy Trucks: 46.830							
FHWA Noise Model Calculations										
VehicleType REMEL		istance	Finite R		Fresnel		r Atten		n Atten	
Autos: 68.46	0.75	0.3		-1.20		.67	0.000		0.00	
Medium Trucks: 79.45	-16.49	0.3		-1.20		.87	0.000		0.00	
Heavy Trucks: 84.25	-20.45	0.3	2	-1.20	-5	.38	0.000		0.00	
Unmitigated Noise Levels (witho	ut Topo and barr	rier atter	uation)							
VehicleType Leq Peak Hour			vening	Leq I	Night	Ldn		CN	IEL	
Autos: 68.			65.8		59.7		68.2		68.	
Medium Trucks: 62.			51.5		60.2		66.4		66.	
Heavy Trucks: 62.			56.3		60.9		67.1		67.	
Vehicle Noise: 70.			66.4		65.1		72.0		72.	
Centerline Distance to Noise Co.	ntour (in feet)									
			dBA		'BA	60 dBA			dBA	
	Ldn:		5		32	349			53	
	CNFL:	. 7	9	17	0	366		71	39	

		/A-RD-77-108	monw								
Scenario:								zelden Betty	Ford	Cent	
Road Name:						Job Nu	mber: 12	720			
Road Segment:	s/o Country	Club Dr.									
	ECIFIC IN	PUT DATA						DEL INPU	TS		
Highway Data				5	Site Con	ditions (H	lard = 10	, Soft = 15)			
Average Daily Tra	ffic (Adt): 2	2,564 vehicle	S				Au	tos: 15			
Peak Hour Pe	rcentage:	8.38%			Med	dium Truc	ks (2 Axle	es): 15			
Peak Hou	Volume:	1,891 vehicle	s		Hea	avy Truck	s (3+ Axle	es): 15			
Vehic	le Speed:	45 mph			/ehicle I	Niv					
Near/Far Lane	Distance:	58 feet		-	VehicleType Day Evening Night Da						
Site Data								.5% 14.0%		~	97.429
Barrie	r Height:	0.0 feet			Me	dium Tru	cks: 48	.9% 2.2%	6 48	8.9%	1.849
Barrier Type (0-Wall,	•	0.0			F	leavy Tru	cks: 47	.3% 5.4%	6 47	7.3%	0.749
Centerline Dist. t		55.0 feet			loise Sc	urce Ele	vations (	in feet)			
Centerline Dist. to	Observer:	55.0 feet		- F		Autos:		,			
Barrier Distance to	Observer:	0.0 feet			Modiur	n Trucks:					
Observer Height (Ab	ove Pad):	5.0 feet			Heavy Trucks: 8.006 Grade Adjustment: 0.0						0.0
Pad	Elevation:	0.0 feet			neav	y mucho.	0.000	, 0,000,	ajaoa	monn.	0.0
Road	Elevation:	0.0 feet		L	ane Equ	uivalent L		, ,			
Roa	ad Grade:	0.0%				Autos:		-			
	Left View:	-90.0 degree	es			n Trucks:	46.81				
R	ight View:	90.0 degree	es		Heav	y Trucks:	46.830	)			
FHWA Noise Model (	Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresnel	Barrier A	tten	Bern	n Atten
Autos:	68.46	0.82		0.30		-1.20			0.000		0.00
Medium Trucks:	79.45	-16.42		0.33		-1.20	-4.	87 0	0.000		0.00
Heavy Trucks:	84.25	-20.38		0.32		-1.20	-5.	38 (	0.000		0.00
Unmitigated Noise L	evels (with	out Topo and	barrier	atten	uation)						
VehicleType Le	q Peak Hou	r Leq Day	L	eq Ev	ening	Leq N	ight	Ldn		CN	EL
Autos:	68		67.1		65.8		59.8		3.2		68.
Medium Trucks:	62	-	59.0		51.5		60.3		6.4		66.
Heavy Trucks:	63	.0	59.7		56.3		61.0	67	7.2		67.
Vehicle Noise:	70	.2	68.4		66.4		65.1	72	2.1		72
Centerline Distance	to Noise Co	ontour (in feet	)								
				70 d	BA	65 dl		60 dBA		55 c	
			Ldn: VFI :	76		164 172		353 370		76 79	

FHWA	RD-77-108 HIGH	WAY N	IOISE PRE	DICTIO	MODEL					
Scenario: EAC Road Name: John L. Sinn R Road Segment: s/o Street A	td.		F		ame: Haze aber: 1272	lden Betty Fo 0	ord Cent			
SITE SPECIFIC INPL	JT DATA					EL INPUTS	5			
Highway Data			Site Conditions (Hard = 10, Soft = 15)							
Peak Hour Percentage: 8	065 vehicles .38% 341 vehicles 25 mph		Heav	/y Trucks	Auto s (2 Axles (3+ Axles	): 15				
Near/Far Lane Distance:	12 feet	1	Vehicle M							
	12 1001		VehicleType Day Evening Night Da							
Site Data			Autos: 75.5% 14.0% 10.5% 97.							
Barrier Height:	0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84							
Barrier Type (0-Wall, 1-Berm):	0.0		He	eavy Truc	ks: 47.3	% 5.4%	47.3% 0.74			
Centerline Dist. to Barrier:	30.0 feet	7	Noise Sou	ırce Elev	ations (in	feet)				
Centerline Dist. to Observer:	30.0 feet			Autos:	0.000	,				
Barrier Distance to Observer:	0.0 feet		Medium		2.297					
Observer Height (Above Pad):		Heavy Trucks: 8.006 Grade Adjustment: 0.0								
Pad Elevation:	0.0 feet									
Road Elevation:	0.0 feet	1	Lane Equi			1 feet)				
Road Grade:	0.0%			Autos:	29.816					
	90.0 degrees		Medium		29.518					
Right View:	90.0 degrees		Heavy	Trucks:	29.547					
FHWA Noise Model Calculations										
VehicleType REMEL Ti	raffic Flow Dist	tance	Finite R	load	Fresnel	Barrier Atte	en Berm Atter			
Autos: 58.73	-4.08	3.26	6	-1.20	-4.4	9 0.0	0.0			
Medium Trucks: 70.80	-21.31	3.33	3	-1.20	-4.80	6 0.0	0.0			
Heavy Trucks: 77.97	-25.27	3.32	2	-1.20	-5.7	7 0.0	0.0			
Unmitigated Noise Levels (without	Topo and barrie	er atten	uation)							
VehicleType Leq Peak Hour	Leq Day	er atten Leq Ev	vening	Leq Ni	,	Ldn	CNEL			
VehicleType Leq Peak Hour Autos: 56.7	Leq Day 55.5		vening 54.2	Leq Ni	48.2	56.6	57			
VehicleType Leq Peak Hour	Leq Day		vening	Leq Ni	,		57			
VehicleType Leq Peak Hour Autos: 56.7	Leq Day 55.5		vening 54.2	Leq Ni	48.2	56.6	57			
VehicleType Leq Peak Hour Autos: 56.7 Medium Trucks: 51.6	Leq Day 55.5 48.5		vening 54.2 41.0	Leq Ni	48.2 49.7	56.6 55.9	57 55 59			
VehicleType         Leq Peak Hour           Autos:         56.7           Medium Trucks:         51.6           Heavy Trucks:         54.8	Leq Day 55.5 48.5 51.6 57.5	Leg Ev	vening 54.2 41.0 48.2 55.3		48.2 49.7 52.8 55.4	56.6 55.9 59.0 62.1	57 55 59 62			
VehicleType         Leq Peak Hour           Autos:         56.7           Medium Trucks:         51.6           Heavy Trucks:         54.8           Vehicle Noise:         59.6	Leq Day 55.5 48.5 51.6 57.5 our (in feet)	Leq Ev	vening 54.2 41.0 48.2 55.3 dBA	65 dB	48.2 49.7 52.8 55.4	56.6 55.9 59.0 62.1 60 dBA	57 55 59 62 55 dBA			
VehicleType         Leq Peak Hour           Autos:         56.7           Medium Trucks:         51.6           Heavy Trucks:         54.8           Vehicle Noise:         59.6	Leq Day 55.5 48.5 51.6 57.5	Leg Ev	vening 54.2 41.0 48.2 55.3 dBA		48.2 49.7 52.8 55.4	56.6 55.9 59.0 62.1	57 55 59 62			

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	FHV	VA-RD-77-108	HIGH	WAY N	OISE PF	REDICTI		EL				
	io: EAC								Betty For	d Cent		
	e: Joe Friend					Job Ni	umber: 1	2720				
Road Segmer	nt: s/o MacMill	an Wy.										
	SPECIFIC IN	IPUT DATA			NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15)							
Highway Data				1	Site Con	ditions	(Hard = 1	10, Soft	= 15)			
Average Daily	Traffic (Adt):	2,219 vehicle	s				A	utos:	15			
Peak Hour	Percentage:	8.38%			Me	dium Tru	icks (2 A	xles):	15			
Peak H	our Volume:	186 vehicle	s		He	avy Truc	ks (3+ A	xles):	15			
Vei	hicle Speed:	25 mph		1	/ehicle	Mix						
Near/Far Lai	ne Distance:	12 feet			Veh	icleType	1	Dav E	vening I	Night	Dailv	
Site Data							utos: 7	5.5%	•	10.5%	97.42%	
Bai	rrier Heiaht:	0.0 feet			Me	edium Tr	ucks: 4	48.9%	2.2%	48.9%	1.84%	
Barrier Type (0-W		0.0			ŀ	leavy Tr	ucks: 4	17.3%	5.4%	47.3%	0.74%	
Centerline Dis	st. to Barrier:	30.0 feet		1	Voise So	ource El	evations	(in feet	)			
Centerline Dist.	to Observer:	30.0 feet		_		Autos			,			
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks	: 2.2	97				
Observer Height (		5.0 feet			Heav	v Trucks	: 8.0	06 Gr	ade Adjus	stment:	0.0	
	ad Elevation:	0.0 feet		_								
	ad Elevation:	0.0 feet		1	ane Eq		Distanc		t)			
1	Road Grade:	0.0%				Autos	20.0					
	Left View:	-90.0 degre				n Trucks	20.0					
	Right View:	90.0 degre	es		Heav	y Trucks	: 29.5	47				
FHWA Noise Mod		-										
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite		Fresne		rrier Atter		n Atten	
Autos:	58.73	-6.70		3.26		-1.20		4.49	0.00	-	0.000	
Medium Trucks:	70.80	-23.94		3.33		-1.20		4.86	0.00	-	0.000	
Heavy Trucks:	77.97	-27.90		3.32		-1.20	-	5.77	0.00	0	0.000	
Unmitigated Noise												
VehicleType	Leq Peak Hou			Leq Ev	v	Leq I	•	Lo	dn	C٨		
Autos:	54 49		52.9 45.9		51.5 38.4		45.5 47.1		53.9 53.3		54.6 53.3	
Medium Trucks: Heavy Trucks:			45.9 48.9		38.4 45.5		47.1 50.2		53.3 56.4			
Vehicle Noise:	52 57		48.9 54.9		45.5		50.2		56.4		56.5 59.8	
Centerline Distand	÷.											
Distant				70 c	IBA	65 0	/BA	60 0	1BA	55 0	dBA	
			Ldn:	6	i	1	3	2	8	6	0	
		C	NEL:	6		1	3	2	9	6	2	

	FHW	A-RD-77-108	HIGH	WAY NC	DISE PR	EDICT	ION MC	DEL			
	io: EAC								len Betty F	ord Cent	
	e: Vista Del So					Job N	umber:	12720			
Road Segmer	nt: n/o Betty Fo	ord Wy.									
SITE	SPECIFIC IN	PUT DATA							L INPUT	s	
Highway Data				S	ite Con	ditions	(Hard =	: 10, Se	oft = 15)		
Average Daily	Traffic (Adt):	213 vehicles	5					Autos:	15		
Peak Hour	Percentage:	8.38%			Med	lium Tru	ucks (2	Axles):	15		
Peak H	our Volume:	18 vehicles	\$		Hea	avy Truo	cks (3+	Axles):	15		
Ve	hicle Speed:	25 mph		V	ehicle N	lix					
Near/Far Lai	ne Distance:	12 feet		-		cleType		Day	Evening	Night	Daily
Site Data					Autos: 75.5% 14.0% 10.5% 97						
Pa	rier Height:	0.0 feet			Medium Trucks: 48.9% 2.2% 48.9% 1.8						1.849
Barrier Type (0-W		0.0			H	leavy T	rucks:	47.3%	5.4%	47.3%	0.749
Centerline Dis	. ,	30.0 feet		-							
Centerline Dist.		30.0 feet		N	oise So				eet)		
Barrier Distance		0.0 feet				Auto		000			
Observer Height (	Above Pad);	5.0 feet			Mediun			297	Our de Ad		
	d Elevation:	0.0 feet			Heav	/ Truck	s: 8	006	Grade Ad	ustment.	0.0
Roa	ad Elevation:	0.0 feet		Li	ane Equ	iivalen	t Distar	ce (in	feet)		
1	Road Grade:	0.0%				Auto	s: 29	.816			
	Left View:	-90.0 degree	s		Mediun	n Truck	s: 29	.518			
	Right View:	90.0 degree	s		Heav	/ Truck	s: 29	.547			
FHWA Noise Mod	el Calculation	;									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite I	Road	Fres	nel	Barrier Att	en Ber	m Atten
Autos:	58.73	-16.88		3.26		-1.20		-4.49	0.0	000	0.00
Medium Trucks:	70.80	-34.12		3.33		-1.20		-4.86	0.0	000	0.00
Heavy Trucks:	77.97	-38.08		3.32		-1.20		-5.77	0.0	000	0.00
Unmitigated Noise	e Levels (with	out Topo and	barrie	er attenu	ation)						
VehicleType	Leq Peak Hou			Leq Eve	ening	Leq	Night		Ldn		VEL
Autos:	43.		42.7		41.4		35.		43.8		44.
Medium Trucks:	38.		35.7		28.2		36.		43.1		43.
Heavy Trucks:	42		38.7		35.3		40.		46.2		46.
Vehicle Noise:	46	-	44.7		42.5		42.	6	49.3	3	49
Centerline Distant	ce to Noise Co	ntour (in feet,	)	70 /				1			10.4
			L	70 dE	ЗĂ		dBA		60 dBA		dBA
			Ldn: JEL:	1			3		6		13
		Cr	VEL:	1			3		6		13

	FHW	A-RD-77-108	HIGHW	AY N	OISE PR	EDICTIO		EL			
Scenario: EAC Road Name: Vista D Road Segment: n/o Co						Project Na Job Nun			en Betty F	ord Cen	t
SITE SPECIFIC	C INF	PUT DATA							L INPUTS	S	
Highway Data				5	Site Con	ditions (H	ard = 1	0, So	ft = 15)		
Average Daily Traffic (Ad	<i>t):</i> 1	1,439 vehicles	5				Au	itos:	15		
Peak Hour Percentag	e:	8.38%			Mec	lium Truck	(2 Ax	les):	15		
Peak Hour Volum	ie:	121 vehicles	5		Hea	vy Trucks	; (3+ Ax	les):	15		
Vehicle Spee	d:	25 mph		1	/ehicle N	lix					
Near/Far Lane Distanc	e:	12 feet		-	Vehi	cleType	D	ay	Evening	Night	Daily
Site Data						Au	tos: 7	5.5%	14.0%	10.5%	97.429
Barrier Heigi	ht.	0.0 feet			Me	dium Truc	ks: 4	3.9%	2.2%	48.9%	1.849
Barrier Type (0-Wall, 1-Bern	n):	0.0			н	leavy Truc	:ks: 4	7.3%	5.4%	47.3%	0.74%
Centerline Dist. to Barrie		30.0 feet		٨	loise So	urce Elev	ations	(in fe	et)		
Centerline Dist. to Observe		30.0 feet				Autos:	0.00	0			
Barrier Distance to Observe		0.0 feet			Mediun	n Trucks:	2.29	7			
Observer Height (Above Pac	·	5.0 feet			Heav	Trucks:	8.00	6	Grade Adj	ustment	: 0.0
Pad Elevatio		0.0 feet				de cala ant D		11-1	41		
Road Elevatio		0.0 feet		1	ane Equ	ivalent D		· ·	eet)		
Road Grad		0.0%			1 4 m all 1 m	Autos: n Trucks:	29.81 29.51	-			
Left Vie Right Vie		-90.0 degree 90.0 degree				/ Trucks: / Trucks:	29.51				
FHWA Noise Model Calcula	tions										
VehicleType REMEL	_	Traffic Flow	Distar	nce	Finite I	Road	Fresne		Barrier Atte	en Be	rm Atten
				3.26		-1.20		1.49	0.0	000	0.00
Autos: 58	3.73	-8.59		0.20	5	-1.20	-4				
	3.73 ).80	-8.59 -25.82		3.33		-1.20		.86	0.0		0.00
Medium Trucks: 70					3		-4	.86 5.77	0.0		
Medium Trucks: 70 Heavy Trucks: 77 Unmitigated Noise Levels (1	0.80 7.97 witho	-25.82 -29.78 ut Topo and		3.33 3.32 atteni	uation)	-1.20 -1.20	-4		0.0	000	0.00
Medium Trucks: 70 Heavy Trucks: 77 Unmitigated Noise Levels ( VehicleType Leq Peak	).80 7.97 <b>witho</b> Hour	-25.82 -29.78 ut Topo and Leq Day	Le	3.33 3.32 atteni	uation)	-1.20	-4 -5 ght		0.0 0.0 Ldn	000 000 C	0.00
Medium Trucks: 70 Heavy Trucks: 77 Unmitigated Noise Levels (i VehicleType Leq Peak Autos:	0.80 7.97 witho Hour 52.2	-25.82 -29.78 ut Topo and Leq Day	51.0	3.33 3.32 atteni	uation) rening 49.7	-1.20 -1.20	-4 -5 ght 43.6		0.0 0.0 <i>Ldn</i> 52.1	000 000 C	0.00 NEL 52.
Medium Trucks: 77 Heavy Trucks: 77 Unmitigated Noise Levels (t VehicleType Leq Peak Autos: Medium Trucks:	0.80 7.97 witho Hour 52.2 47.1	-25.82 -29.78 ut Topo and Leq Day	Le 51.0 14.0	3.33 3.32 atteni	uation) rening 49.7 36.5	-1.20 -1.20	-4 -5 ght 43.6 45.2		0.0 0.0 <i>Ldn</i> 52.1 51.4	000 000 C	0.00 NEL 52. 51.
Medium Trucks: 7( Heavy Trucks: 7( Unmitigated Noise Levels (i VehicleType Leq Peak Autos: Medium Trucks: Heavy Trucks:	0.80 7.97 <i>Witho</i> <i>Hour</i> 52.2 47.1 50.3	-25.82 -29.78 ut Topo and Leq Day	Le 51.0 14.0 17.0	3.33 3.32 atteni	vening 49.7 36.5 43.6	-1.20 -1.20	-4 -5 -4 -5 -4 -5 -2 -4 -5 -2 -4 8.3		0.0 0.0 <i>Ldn</i> 52.1 51.4 54.5	000 000 1 1 5	0.00 NEL 52. 51. 54.
Medium Trucks: 7( Heavy Trucks: 7) Unmitigated Noise Levels (i VehicleType Leg Peak Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	0.80 7.97 <i>Witho</i> <i>Hour</i> 52.2 47.1 50.3 55.1	-25.82 -29.78 ut Topo and Leq Day	Le 51.0 44.0 47.0 53.0	3.33 3.32 atteni	uation) rening 49.7 36.5	-1.20 -1.20	-4 -5 ght 43.6 45.2		0.0 0.0 <i>Ldn</i> 52.1 51.4	000 000 1 1 5	0.00 NEL 52. 51. 54.
Medium Trucks: 7( Heavy Trucks: 7) Unmitigated Noise Levels (i VehicleType Leg Peak Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	0.80 7.97 <i>Witho</i> <i>Hour</i> 52.2 47.1 50.3 55.1	-25.82 -29.78 ut Topo and Leq Day	Le 51.0 44.0 47.0 53.0	3.33 3.32 atteni eq Ev	uation) rening 49.7 36.5 43.6 50.8	-1.20 -1.20 Leq Nig	-4 -5 43.6 45.2 48.3 50.9	5.77	0.0 0.0 <u>Ldn</u> 52.1 51.4 54.5 57.6	000 000 C	0.00 NEL 52. 51. 54. 57.
Medium Trucks: 7( Heavy Trucks: 7( Unmitigated Noise Levels (i VehicleType Leq Peak Autos: Medium Trucks: Heavy Trucks:	0.80 7.97 <i>Witho</i> <i>Hour</i> 52.2 47.1 50.3 55.1	-25.82 -29.78 <i>Leq Day</i> 2 httour (in feet)	Le 51.0 44.0 47.0 53.0	3.33 3.32 atteni	uation) eening 49.7 36.5 43.6 50.8	-1.20 -1.20	-4 -5 43.6 45.2 48.3 50.9	5.77	0.0 0.0 <i>Ldn</i> 52.1 51.4 54.5	000 000 C L S S S S	0.00 0.00 NEL 52. 51. 54. 57. 54. 57.

Scenario: EAC Road Name: MacMillan Wy. Road Segment: elo Bob Hope Dr. SITE SPECIFIC INPUT DATA Highway Data Site Cor	Project Name: Hazelden Betty Ford Cent Job Number: 12720							
Highway Data Site Cor	NOISE MODEL INPUTS							
	nditions (Hard = 10, Soft = 15)							
Average Daily Traffic (Adt): 3,652 vehicles	Autos: 15							
<b>9</b>	edium Trucks (2 Axles): 15							
Peak Hour Volume: 306 vehicles He	eavy Trucks (3+ Axles): 15							
Vehicle Speed: 25 mph Vehicle	Mix							
Near/Far Lane Distance: 12 feet	hicleType Day Evening Night Daily							
Site Data	Autos: 75.5% 14.0% 10.5% 97.42							
Barrier Height: 0.0 feet M	ledium Trucks: 48.9% 2.2% 48.9% 1.84							
	Heavy Trucks: 47.3% 5.4% 47.3% 0.74							
Centerline Dist. to Barrier: 30.0 feet Noise S	Source Elevations (in feet)							
Centerline Dist. to Observer: 30.0 feet	Autos: 0.000							
Barrier Distance to Observer: 0.0 feet Mediu	im Trucks: 2.297							
Observer Height (Above Pad): 5.0 feet Head	wy Trucks: 8,006 Grade Adjustment: 0.0							
Pad Elevation: 0.0 feet								
	quivalent Distance (in feet)							
Road Grade: 0.0%	Autos: 29.816							
Zon How. Solo degrees	um Trucks: 29.518							
Right View: 90.0 degrees Hear	wy Trucks: 29.547							
FHWA Noise Model Calculations								
	e Road Fresnel Barrier Atten Berm Atter							
Autos: 58.73 -4.54 3.26	-1.20 -4.49 0.000 0.00							
Medium Trucks: 70.80 -21.78 3.33	-1.20 -4.86 0.000 0.00							
Heavy Trucks: 77.97 -25.73 3.32	-1.20 -5.77 0.000 0.00							
Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leg Peak Hour Leg Day Leg Evening	Leg Night Ldn CNEL							
Autos: 56.3 55.0 53.7								
Medium Trucks: 51.1 48.0 40.5								
Heavy Trucks: 54.4 51.1 47.7								
Vehicle Noise: 59.2 57.1 54.8								
Centerline Distance to Noise Contour (in feet)								
Centerline Distance to Noise Contour (in feet) 70 dBA	65 dBA 60 dBA 55 dBA							
	65 dBA 60 dBA 55 dBA 18 39 84							

Tuesday, February 4, 2020

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	FHW	/A-RD-77-108 HI	IGHWAY I	NOISE PF	REDICTIO	N MODEL					
	io: EAC e: Street A nt: e/o Bob Hop	be Dr.				ame: Haze nber: 1272	Iden Betty Fo 0	rd Cent			
SITE	SPECIFIC IN	PUT DATA		NOISE MODEL INPUTS							
Highway Data				Site Con	ditions (H	ard = 10, S	Soft = 15)				
	Traffic (Adt): Percentage: our Volume:	2,245 vehicles 8.38% 188 vehicles			dium Truck avy Trucks		): 15				
Vel	hicle Speed:	25 mph		Vehicle	Mix						
Near/Far Lar	ne Distance:	12 feet			icleType	Dav	Evening	Night Daily			
Site Data				1011	Au		•	10.5% 97.42%			
Ba	rier Heiaht:	0.0 feet		Me	edium Truc	ks: 48.9	% 2.2%	48.9% 1.84%			
Barrier Type (0-Wa		0.0		ŀ	Heavy Truc	ks: 47.3	% 5.4%	47.3% 0.74%			
Centerline Dis	t. to Barrier:	30.0 feet		Noise So	ource Elev	ations (in	feet)				
Centerline Dist. t	to Observer:	30.0 feet			Autos:	0.000					
Barrier Distance t	to Observer:	0.0 feet		Mediu	m Trucks:	2.297					
Observer Height (/	Above Pad): ad Elevation:	5.0 feet 0.0 feet		Heav	y Trucks:	8.006	Grade Adju	stment: 0.0			
	d Elevation:	0.0 feet		Lane Ea	uivalent D	istance (ir	1 feet)				
	Road Grade:	0.0%			Autos:	29.816					
	Left View:	-90.0 degrees		Mediu	m Trucks:	29.518					
	Right View:	90.0 degrees		Heav	y Trucks:	29.547					
FHWA Noise Mode	el Calculations	;									
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atter	n Berm Atten			
Autos:	58.73	-6.65	3.2	26	-1.20	-4.49	9 0.00	0.00			
Medium Trucks:	70.80	-23.89	3.3	33	-1.20	-4.86	6 0.00	0.00			
Heavy Trucks:	77.97	-27.85	3.3	32	-1.20	-5.77	° 0.00	0.00			
Unmitigated Noise			arrier atte	nuation)	_						
	Leq Peak Hour			vening	Leq Ni		Ldn	CNEL			
Autos:	54.			51.6		45.6	54.0	54.0			
Medium Trucks:	49.			38.4		47.2	53.3	53.4			
Heavy Trucks:	52.			45.6		50.2	56.4	56.			
Vehicle Noise:	57.		.0	52.7		52.9	59.6	59.			
Centerline Distance	ce to Noise Co	ntour (in feet)	70	dBA	65 dB	4	60 dBA	55 dBA			
		10		<i>ава</i> 6	65 dB 13	м	28	55 dBA 60			
		CNE		6	13		28 29	63			
		CNE		0	14		29	03			

	FHV	VA-RD-77-108	HIGHV	VAY N	OISE PR	EDICTI	ON MOD	EL			
Road Nan	rio: EAC ne: Betty Ford						Name: H umber: 1		en Betty Fo	ord Cent	
Road Segme	nt: e/o Joe Frie	end Ln.									
	SPECIFIC IN	IPUT DATA							INPUTS	;	
Highway Data				S	Site Cond	ditions	(Hard = 1	10, Sol	ft = 15)		
Average Daily	Traffic (Adt):	960 vehicles	6				A	utos:	15		
Peak Hour	Percentage:	8.38%			Mea	lium Tru	icks (2 A	des):	15		
Peak F	lour Volume:	80 vehicles	6		Hea	avy Truc	:ks (3+ A)	kles):	15		
Ve	hicle Speed:	25 mph		L.	/ehicle N	liv					
Near/Far La	ne Distance:	12 feet		-		cleType		Dav	Evening	Night	Daily
Site Data					10/11			5.5%	14.0%	10.5%	
		0.0 feet			Me	dium Ti	ucks: 4	8.9%	2.2%	48.9%	1.849
ва Barrier Type (0-W	rrier Height:	0.0 teet			Heavy Trucks: 47.3% 5.4% 47.3% 0.74						
Centerline Di	. ,	30.0 feet						-			
Centerline Dist.		30.0 feet		٨	Voise So		evations		et)		
Barrier Distance		0.0 feet				Auto					
Observer Height		5.0 feet			Mediun						
	ad Elevation:	0.0 feet			Heavy	/ Truck	s: 8.0	06 (	Grade Adji	ustment.	0.0
	ad Elevation: ad Elevation:	0.0 feet		L	ane Equ	ivalen	Distanc	e (in fe	et)		
	Road Grade:	0.0%		-	uno Equ	Auto			,01)		
	Left View:	-90.0 degree			Mediun		20.0				
	Right View:	90.0 degree				V Truck	20.0				
	rught tion.	50.0 degree	.5		,	,					
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite I	Road	Fresne	el E	Barrier Atte	en Ber	m Atten
Autos:	58.73	-10.34		3.26	6	-1.20	-	4.49	0.0	00	0.00
Medium Trucks:		-27.58		3.33		-1.20		4.86	0.0		0.00
Heavy Trucks:	77.97	-31.54		3.32	2	-1.20	-	5.77	0.0	00	0.00
Unmitigated Nois	e Levels (with	out Topo and	barrie	r attenu	uation)						
VehicleType	Leq Peak Hou	r Leq Day		Leq Ev	rening	Leq	Night		Ldn	CI	VEL
Autos:	50		49.2		47.9		41.9		50.3		50.
Medium Trucks:		.3 •	42.2		34.7		43.5		49.6		49.
Heavy Trucks:	48	.6 .	45.3		41.9		46.5		52.7		52.
Vehicle Noise:	53	.4	51.3		49.0		49.2		55.9		56
	ce to Noise Co	ontour (in feet,	)								
Centerline Distan				70 d	IBA	65	dBA	60	) dBA	55	dBA
Centerline Distan											
Centerline Distan			Ldn:	3			7 B		16 17		34 36

	FHV	/A-RD-77-108 H	HIGHV	NAY N	NOISE PR	EDICTIO		EL			
Scenar	io: EAC					Project I	Vame: H	lazeld	en Betty Fo	ord Cen	i
Road Nam	e: Country Clu	ıb Dr.					mber: 1		,		
Road Segme	nt: w/o Bob Ho	pe Dr.									
	SPECIFIC IN	PUT DATA							L INPUTS	5	
Highway Data					Site Con	ditions (	Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt): 1	0,648 vehicles						Autos:	15		
	Percentage:	8.38%				lium Tru			15		
Peak H	lour Volume:	892 vehicles			Hea	avy Truci	ks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph		F	Vehicle I	<i>lix</i>					
Near/Far La	ne Distance:	52 feet		-		cleType		Day	Evening	Night	Daily
Site Data								75.5%	v	10.5%	
Rai	rrier Height:	0.0 feet			Me	dium Tri	icks: 4	48.9%	2.2%	48.9%	1.84%
Barrier Type (0-W	•	0.0			F	leavy Tri	icks: 4	47.3%	5.4%	47.3%	0.74%
Centerline Dis	st. to Barrier:	55.0 feet			Noise So	urce Ele	vations	íin fe	et)		
Centerline Dist.	to Observer:	55.0 feet		F		Autos					
Barrier Distance	to Observer:	0.0 feet			Modiur	n Trucks					
Observer Height (	Above Pad):	5.0 feet				v Trucks			Grade Adj	ustment	0.0
Pa	ad Elevation:	0.0 feet									
Roa	ad Elevation:	0.0 feet			Lane Equ				'eet)		
1	Road Grade:	0.0%				Autos					
	Left View:	-90.0 degree				n Trucks					
	Right View:	90.0 degree	s		Heav	y Trucks	: 48.5	60			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	e/	Barrier Atte	en Bei	m Atten
Autos:	68.46	-2.45		0.0		-1.20		4.67	0.0		0.000
Medium Trucks:	79.45	-19.68		0.0	9	-1.20	-	4.87	0.0	00	0.000
Heavy Trucks:	84.25	-23.64		0.0	9	-1.20	-	5.38	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and b	oarriei	r atter	nuation)						
VehicleType	Leq Peak Hou			Leq E	vening	Leq I	·		Ldn		NEL
Autos:	64		3.6		62.3		56.3		64.7		65.4
Medium Trucks:	58	.7 5	5.5		48.0		56.8		62.9		63.0
Heavy Trucks:	59	.5 5	6.2		52.8		57.5		63.7		63.8
Vehicle Noise:	66	.7 6	4.9		62.9		61.7		68.6		68.9
Centerline Distan	ce to Noise Co	ontour (in feet)									
					dBA	65 c		6	0 dBA		dBA
			.dn:		14	96	-		206		45
		CN	EL:	4	17	10	0		216	4	166

	FHW	A-RD-77-108 HIG	HWAY I	NOISE PF	REDICTI	ON MOD	EL			
Road Nam	io: EAC e: Country Clut nt: e/o Bob Hop					Name: H umber: 1		den Betty Fo	ord Cent	
SITE	SPECIFIC IN	PUT DATA						L INPUTS	5	
Highway Data				Site Con	ditions	(Hard = '	10, Se	oft = 15)		
Average Daily	Traffic (Adt): 1	6,706 vehicles				A	utos:	15		
Peak Hour	Percentage:	8.38%		Me	dium Tru	icks (2 A	xles):	15		
Peak H	our Volume:	1,400 vehicles		He	avy Truc	ks (3+ A	xles):	15		
Vel	hicle Speed:	50 mph		Vehicle I	Wix					
Near/Far Lar	ne Distance:	58 feet			icleType		Day	Evening	Night	Daily
Site Data				Ven			75.5%	Ů	•	97.42%
				14	, edium Ti		18.9%		48.9%	1.84%
	rier Height:	0.0 feet			leavy Ti		17.3%		47.3%	
Barrier Type (0-W		0.0		'	icavy ii	uono	1.07	0.470	47.070	0.7470
Centerline Dis		55.0 feet		Noise So	ource El	evations	(in f	eet)		
Centerline Dist.		55.0 feet			Auto	s: 0.0	00			
Barrier Distance		0.0 feet		Mediur	n Truck	s: 2.2	97			
Observer Height (	,	5.0 feet		Heav	y Truck	s: 8.0	06	Grade Adj	ustment:	0.0
	ad Elevation:	0.0 feet		Lane Eq	uivelen	Diotono	e (in	fact		
	ad Elevation:	0.0 feet		Lane Eq			· ·	ieel)		
,	Road Grade:	0.0%		Madiu	Auto: n Truck:					
	Left View:	-90.0 degrees								
	Right View:	90.0 degrees		neav	y Truck	5. 40.0	30			
FHWA Noise Mode	el Calculations									
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresne	e/	Barrier Atte	en Ber	m Atten
Autos:	70.20	-0.95	0.3	30	-1.20	-	4.67	0.0	00	0.000
Medium Trucks:	81.00	-18.19	0.3	33	-1.20	-	4.87	0.0	00	0.000
Heavy Trucks:	85.38	-22.14	0.3	32	-1.20	-	5.38	0.0	00	0.000
Unmitigated Noise	e Levels (witho	ut Topo and barr	ier attei	nuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq	Night		Ldn	CI	NEL
Autos:	68.4	4 67.1		65.8		59.8		68.2		68.8
Medium Trucks:	61.9	9 58.8		51.3		60.1		66.2		66.3
Heavy Trucks:	62.4	4 59.1		55.7		60.3		66.5		66.6
Vehicle Noise:	70.1	1 68.3		66.3		64.8		71.9		72.2
Centerline Distant	ce to Noise Co	ntour (in feet)								
			70	dBA	65	dBA		60 dBA	55	dBA
		Ldn:		73		57		339		31
		CNEL:	1	77	1	65		356	7	68

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHW	A-RD-77-108 HIG	HWAY N	OISE PF	REDICTION	N MODEL					
	o: EAC e: Country Clul nt: e/o John L. \$			Project Name: Hazelden Betty Ford Cent Job Number: 12720							
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOD	EL INPUT	S			
Highway Data			;	Site Con	ditions (H	ard = 10, 3	Soft = 15)				
Peak H	Percentage: our Volume:	8.38% 1,760 vehicles			dium Truck avy Trucks		): 15				
	hicle Speed:	50 mph		Vehicle I	Mix						
Near/Far Lar	ne Distance:	58 feet		Veh	icleType	Day	Evening	Night Daily			
Site Data					Aut	os: 75.5	% 14.0%	10.5% 97.42%			
Bar	rier Height:	0.0 feet		Me	edium Truc	ks: 48.9	% 2.2%	48.9% 1.84%			
Barrier Type (0-W		0.0		ŀ	Heavy Truc	ks: 47.3	% 5.4%	47.3% 0.74%			
Centerline Dis		55.0 feet	1	Noise So	ource Elev	ations (in	feet)				
Centerline Dist. t		55.0 feet			Autos:	0.000	,				
Barrier Distance t		0.0 feet		Mediu	m Trucks:	2.297					
Observer Height (/	,	5.0 feet			y Trucks:	8.006	Grade Adj	ustment: 0.0			
	d Elevation:	0.0 feet	H		·		. (				
	d Elevation:	0.0 feet	1	Lane Eq	uivalent D		1 teet)				
ŀ	Road Grade:	0.0%			Autos:	47.000					
	Left View: Right View:	-90.0 degrees 90.0 degrees			m Trucks: /y Trucks:	46.811 46.830					
FHWA Noise Mode	el Calculations										
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road	Fresnel	Barrier Att	en Berm Atten			
Autos:	70.20	0.05	0.30	)	-1.20	-4.6	7 0.0	0.00			
Medium Trucks:	81.00	-17.19	0.3	3	-1.20	-4.8	7 0.0	000.00			
Heavy Trucks:	85.38	-21.15	0.32	2	-1.20	-5.3	3 0.0	0.00			
Unmitigated Noise	e Levels (witho	ut Topo and barı	rier atten	uation)							
VehicleType	Leq Peak Hour		Leg Ev	/ening	Leq Nig	ght	Ldn	CNEL			
Autos:	69.4			66.8		60.8	69.2				
Medium Trucks:	62.9			52.3		61.1	67.2				
Heavy Trucks:	63.4			56.7		61.3	67.5				
Vehicle Noise:	71.		1	67.3		65.8	72.8	3 73.2			
Centerline Distance	e to Noise Co	ntour (in feet)	70 0	ND A	65 dB	4	60 dBA	55 dBA			
		l dn			05 dB. 183	~	395	35 dBA 852			
		CNFL:		-	183		395 415	852 894			
		UNEL.	. 8	5	193		410	094			

FHWA-RD-77-108 HIGH	AY NOISE PREDICTION MODEL							
Scenario: EAC Road Name: Country Club Dr. Road Segment: e/o Vista Del Sol	Project Name: Hazelden Betty Ford Cent Job Number: 12720							
SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS							
Highway Data	Site Conditions (Hard = 10, Soft = 15)							
Average Daily Traffic (Adt): 21,838 vehicles Peak Hour Percentage: 8.38% Peak Hour Volume: 1,830 vehicles	Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15							
Vehicle Speed: 50 mph								
Near/Far Lane Distance: 58 feet	Vehicle Mix							
	VehicleType Day Evening Night Dail							
Site Data	Autos: 75.5% 14.0% 10.5% 97.42							
Barrier Height: 0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84							
Barrier Type (0-Wall, 1-Berm): 0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74							
Centerline Dist. to Barrier: 55.0 feet	Noise Source Elevations (in feet)							
Centerline Dist. to Observer: 55.0 feet	Autos: 0.000							
Barrier Distance to Observer: 0.0 feet	Medium Trucks: 2.297							
Observer Height (Above Pad): 5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0							
Pad Elevation: 0.0 feet	Theavy Tracks. 8.000 Grade Adjustment. 0.0							
Road Elevation: 0.0 feet	Lane Equivalent Distance (in feet)							
Road Grade: 0.0%	Autos: 47.000							
Left View: -90.0 degrees	Medium Trucks: 46.811							
Right View: 90.0 degrees	Heavy Trucks: 46.830							
FHWA Noise Model Calculations								
VehicleType REMEL Traffic Flow Dist								
Autos: 70.20 0.22	0.30 -1.20 -4.67 0.000 0.0							
Medium Trucks: 81.00 -17.02	0.33 -1.20 -4.87 0.000 0.0							
Heavy Trucks: 85.38 -20.98	0.32 -1.20 -5.38 0.000 0.0							
Unmitigated Noise Levels (without Topo and barried	,							
	eq Evening Leq Night Ldn CNEL							
Autos: 69.5 68.3	67.0 61.0 69.4 7							
Medium Trucks: 63.1 60.0	52.5 61.2 67.4 6							
Heavy Trucks: 63.5 60.2	56.9 61.5 67.7 6							
Vehicle Noise: 71.2 69.4	67.5 66.0 73.0 7							
Centerline Distance to Noise Contour (in feet)								
	70 dBA 65 dBA 60 dBA 55 dBA							
Ldn:	87 188 406 874							

Scenario: EAC+P				Project Na	ame <sup>.</sup> H	azelde	n Betty Fo	ard Cent	
Road Name: Bob Hope Dr				Job Nur			In Douy I c	nu ocini	
Road Segment: n/o MacMilla				000 1101					
SITE SPECIFIC INP				NO	ISE M	ODEI			
Highway Data	OTDATA		Site Con	ditions (H					
Average Daily Traffic (Adt): 27	.164 vehicles				Α	utos:	15		
Peak Hour Percentage:	8.38%		Med	lium Truck	s (2 Ax	les):	15		
Peak Hour Volume: 2	2,276 vehicles		Hea	avy Trucks	(3+ Ax	les):	15		
Vehicle Speed:	45 mph	-	Vehicle N	Also		-			
Near/Far Lane Distance:	58 feet	-		cleType	Г	av	Evening	Night	Daily
Site Data			VCIII	Aut		5.5%	14.0%	10.5%	
Barrier Height:	0.0 feet		Me	dium Truc		8.9%	2.2%	48.9%	1.849
Barrier Height: Barrier Type (0-Wall, 1-Berm):	0.0 Teet		H	leavy Truc	ks: 4	7.3%	5.4%	47.3%	0.749
Centerline Dist. to Barrier:	55.0 feet	L							
Centerline Dist. to Observer:	55.0 feet	-	Noise So	urce Elev			et)		
Barrier Distance to Observer:	0.0 feet			Autos:	0.00				
Observer Height (Above Pad):	5.0 feet			n Trucks:	2.29				
Pad Elevation:	0.0 feet		Heav	y Trucks:	8.00	)6 (	Grade Adjı	istment:	0.0
Road Elevation:	0.0 feet		Lane Equ	ıivalent D	istance	e (in fe	eet)		
Road Grade:	0.0%			Autos:	47.00	00			
Left View:	-90.0 degrees		Medium	n Trucks:	46.8	11			
Right View:	90.0 degrees		Heav	y Trucks:	46.83	30			
FHWA Noise Model Calculations									
	Traffic Flow Dist	tance	Finite	Road	Fresne	I E	Barrier Atte	n Ber	m Atten
Autos: 68.46	1.62	0.3	0	-1.20		1.67	0.0	00	0.00
Medium Trucks: 79.45	-15.62	0.3	3	-1.20	-4	1.87	0.0	00	0.00
	-19.57	0.3	2	-1.20	-4	5.38	0.0	00	0.00
Heavy Trucks: 84.25									
Heavy Trucks: 84.25	ut Topo and barrie	r atter	nuation)				Ldn	CI	VEL
Heavy Trucks: 84.25			vening	Leq Nig	ght				69
Heavy Trucks: 84.25	Leq Day		é ,	Leq Nig	ght 60.6		69.0		09.
Heavy Trucks: 84.25 Unmitigated Noise Levels (without VehicleType Leq Peak Hour	Leq Day 67.9		vening	Leq Nig	/				
Heavy Trucks: 84.25 Unmitigated Noise Levels (withou VehicleType Leg Peak Hour Autos: 69.2 Medium Trucks: 63.0 Heavy Trucks: 63.8	Leq Day 67.9 59.8		vening 66.6	Leq Nig	60.6		69.0		67. 68.
Heavy Trucks: 84.25 Unmitigated Noise Levels (withou VehicleType Leq Peak Hour Autos: 69.2 Medium Trucks: 63.0	Leq Day 67.9 59.8 60.5		vening 66.6 52.3	Leq Nig	60.6 61.1		69.0 67.2		67.
Heavy Trucks: 84.25 Unmitigated Noise Levels (withou VehicleType Leg Peak Hour Autos: 69.2 Medium Trucks: 63.0 Heavy Trucks: 63.8 Vehicle Noise: 71.0	Leq Day 67.9 59.8 60.5 69.2		vening 66.6 52.3 57.1	Leq Nig	60.6 61.1 61.8		69.0 67.2 68.0		67 68
Heavy Trucks: 84.25 Unmitigated Noise Levels (withou VehicleType Leg Peak Hour Autos: 69.2 Medium Trucks: 63.0 Heavy Trucks: 63.8	Leq Day 67.9 59.8 60.5 69.2	Leq E	vening 66.6 52.3 57.1	Leq Nig 65 dB	60.6 61.1 61.8 66.0		69.0 67.2 68.0		67 68
Heavy Trucks: 84.25 Unmitigated Noise Levels (withou VehicleType Leg Peak Hour Autos: 69.2 Medium Trucks: 63.0 Heavy Trucks: 63.8 Vehicle Noise: 71.0	Leq Day 67.9 59.8 60.5 69.2	Leq E	vening 66.6 52.3 57.1 67.2		60.6 61.1 61.8 66.0	60	69.0 67.2 68.0 72.9	55	67 68 73

	FHWA	A-RD-77-108 HIG	HWAY I	NOISE PF	REDICTI	ON MODEL			
	o: EAC+P e: Bob Hope Dr it: s/o Street A					Name: Hazı umber: 1272	elden Betty F 20	ord Cent	
SITE S	SPECIFIC INP	UT DATA			N	OISE MOD	DEL INPUT	s	
Highway Data				Site Con	ditions	(Hard = 10,	Soft = 15)		
Average Daily 1	raffic (Adt): 22	2,261 vehicles				Auto	s: 15		
Peak Hour I	Percentage:	8.38%		Me	dium Tru	icks (2 Axles	s): 15		
Peak Ho	our Volume: 1	,865 vehicles		He	avy Truc	ks (3+ Axles	s): 15		
Veh	icle Speed:	45 mph		Vehicle I	Wix				
Near/Far Lan	e Distance:	58 feet			icleType	Day	Evening	Night	Daily
Site Data				ven		utos: 75.5	Ů	10.5%	
				Me	, edium Ti			48.9%	1.84%
	rier Height:	0.0 feet			leavy Ti				0.74%
Barrier Type (0-Wa		0.0			,				0.7 170
Centerline Dis Centerline Dist. t		55.0 feet		Noise So	ource El	evations (in	feet)		
Barrier Distance t		55.0 feet			Auto	s: 0.000			
Observer Height (A		0.0 feet 5.0 feet		Mediur	n Truck	s: 2.297			
0 1	d Elevation:	0.0 feet		Heav	y Truck	8: 8.006	Grade Ad	justment:	0.0
	d Elevation: d Elevation:	0.0 feet		l ano Fra	uivalon	Distance (i	n foot)		
	o Elevalion. Road Grade:	0.0%		Lune Ly	Auto		meety		
		-90.0 degrees		Modiu	n Truck				
	Right View:	90.0 degrees			y Truck				
FHWA Noise Mode	el Calculations								
VehicleType	REMEL	Traffic Flow D	Distance	Finite		Fresnel	Barrier Att	en Berr	n Atten
Autos:	68.46	0.76	0.3	30	-1.20	-4.6	7 0.0	000	0.000
Medium Trucks:	79.45	-16.48	0.3		-1.20	-4.8		000	0.000
Heavy Trucks:	84.25	-20.44	0.3	32	-1.20	-5.3	8 0.0	000	0.000
Unmitigated Noise									
	Leq Peak Hour			vening	Leq	Night	Ldn		IEL
Autos:	68.3			65.8		59.8	68.3	-	68.8
Medium Trucks:	62.1			51.5		60.2	66.4		66.4
Heavy Trucks:	62.9			56.3		60.9	67.		67.2
Vehicle Noise:	70.2	68.3	3	66.4		65.1	72.	1	72.4
Centerline Distanc	e to Noise Con	tour (in feet)		-					
				dBA		dBA	60 dBA		dBA
		Ldn CNFI	: 1	dBA 75 79	1	dBA 62 70	60 dBA 350 367	7	<i>dBA</i> 54 90

Tuesday, February 4, 2020

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	FHWA	-RD-77-108 I	HIGHWA	VY NO	DISE PR	REDICTI		DEL			
Scenario: E Road Name: B Road Segment: si	ob Hope Dr.			Project Name: Hazelden Betty Ford Cent Job Number: 12720							
SITE SPE	CIFIC INPL	UT DATA				Ν	IOISE N	IODE	L INPUT	S	
Highway Data				S	ite Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily Traffi Peak Hour Perc Peak Hour \	entage: 8	620 vehicles 3.38% 896 vehicles					) ucks (2 A cks (3+ A	/	15 15 15		
Vehicle	Speed:	45 mph		V	ehicle I	Mix					
Near/Far Lane Di	istance:	58 feet				icleType		Dav	Evening	Night	Daily
Site Data					von			75.5%	•	10.5%	
Barrier	Hoight	0.0 feet			Me	edium Ti	rucks:	48.9%	2.2%	48.9%	
Barrier Type (0-Wall, 1	-Berm):	0.0			F	leavy T	rucks:	47.3%	5.4%	47.3%	0.74%
Centerline Dist. to		55.0 feet		N	loise So	ource El	levations	s (in fe	et)		
Centerline Dist. to Ot		55.0 feet				Auto	s: 0.0	00			
Barrier Distance to Ot		0.0 feet			Mediur	n Truck	s: 2.2	97			
Observer Height (Abov	,	5.0 feet			Heav	y Truck	s: 8.0	06	Grade Adj	ustmen	t: 0.0
	evation:	0.0 feet			5		Distant		(		
Road El		0.0 feet		L	ane Equ	Auto	t Distand		reet)		
	I Grade:	0.0%			Madium	Auto n Truck					
		-90.0 degree 90.0 degree				y Truck					
FHWA Noise Model Ca	lculations										
VehicleType R	EMEL T	raffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Att	en Be	rm Atten
Autos:	68.46	0.83		0.30		-1.20		-4.67	0.0	000	0.000
Medium Trucks:	79.45	-16.41		0.33		-1.20		4.87	0.0	000	0.000
Heavy Trucks:	84.25	-20.37		0.32		-1.20		-5.38	0.0	000	0.000
Unmitigated Noise Lev											
,	Peak Hour	Leq Day		g Ev	ening	Leq	Night		Ldn		NEL
Autos:	68.4	-	67.1		65.8		59.8		68.2	-	68.9
Medium Trucks:	62.2	-	59.0		51.5		60.3		66.5 67.2		66.5
Heavy Trucks:	63.0 70.2		59.7 58.4		56.3 66.4		61.0		67.2	-	67.3 72.4
Centerline Distance to					00.4		03.2		12.		12.4
Centernine Distance to	Noise Com	iour (n'i leel)		70 d	BA	65	dBA	6	0 dBA	55	ō dBA
		L	dn:	76	i i	1	64	•	354		762
		CN	IEL:	80		1	72		371		799

	FHW	A-RD-77-108 H	HIGHW	AY NO		ION MODE	L						
Road Nam	o: EAC+P e: John L. Sinn nt: s/o Street A	Rd.			Project Name: Hazelden Betty Ford Cent Job Number: 12720								
SITE	SPECIFIC IN	PUT DATA			P	IOISE MO	DEL INPUT	S					
Highway Data				Si	te Conditions	(Hard = 10	, Soft = 15)						
	Traffic (Adt): Percentage: our Volume:	4,233 vehicles 8.38% 355 vehicles				Au ucks (2 Axle cks (3+ Axle	., .						
Vel	hicle Speed:	25 mph		1/4	ehicle Mix								
Near/Far Lar	ne Distance:	12 feet		Ve	VehicleType	e Da	y Evening	Night	Dailv				
Site Data							.5% 14.0%	•	07.429				
					Medium T		9% 2.2%		1.849				
Barrier Type (0-W	rier Height:	0.0 feet			Heavy T		.3% 5.4%		0.749				
Centerline Dis	. ,	0.0 30.0 feet					· · ·		0.1 17				
Centerline Dist.		30.0 feet		No	oise Source E	levations (	n feet)						
Barrier Distance		0.0 feet			Auto		1						
Observer Height (		5.0 feet			Medium Truck	s: 2.29							
0 1	,				Heavy Truck	s: 8.006	Grade Ac	<i>ljustment:</i> C	0.0				
	Pad Elevation: 0.0 feet					t Distance	(in feet)						
	Road Grade:	0.0 feet 0.0%			Auto		, ,						
1	Left View:	-90.0 degree			Medium Truck		-						
	Right View:	90.0 degree			Heavy Truck		-						
FHWA Noise Mode	el Calculations												
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite Road	Fresnel	Barrier At	ten Berm	Atten				
Autos:	58.73	-3.90		3.26	-1.20	-4.	49 0.	000	0.00				
Medium Trucks:	70.80	-21.14		3.33	-1.20	-4.	86 0.	000	0.00				
Heavy Trucks:	77.97	-25.09		3.32	-1.20	-5.	77 0.	000	0.00				
Unmitigated Noise	e Levels (witho	ut Topo and b	arrier	attenua	ation)								
VehicleType	Leq Peak Hour	Leq Day	L	eq Eve	ning Leq	Night	Ldn	CNE	L				
Autos:	56.9	9 5	5.7		54.3	48.3	56.	8	57.				
Medium Trucks:	51.8	3 4	8.7		41.2	49.9	56.	1	56.				
Heavy Trucks:	55.0	) 5	1.7		48.3	53.0	59.	2	59.				
Vehicle Noise:	59.8	3 5	7.7		55.5	55.6	62.	3	62.				
Centerline Distand	e to Noise Co	ntour (in feet)											
				70 dB	BA 65	dBA	60 dBA	55 dE	ЗA				
		L	dn:	9	2	20	43	92					

			Drojoot No	mai Hazal	den Betty For	d Cont
Scenario: EAC+P Road Name: Joe Friend I n.				me: Hazei ber: 12720		u Cent
Road Segment: s/o MacMillan Wy.			JOD MUITI	Jer. 12720		
, ,		1				
SITE SPECIFIC INPUT DA	ГА	011 0			L INPUTS	
Highway Data		Site Con	ditions (Ha		,	
Average Daily Traffic (Adt): 2,275 vet	nicles			Autos		
Peak Hour Percentage: 8.38%			dium Trucks			
Peak Hour Volume: 191 veh	nicles	He	avy Trucks	(3+ Axles)	15	
Vehicle Speed: 25 mp	h	Vehicle	Mix			
Near/Far Lane Distance: 12 fee	t	Veh	icleType	Dav	Evening 1	Vight Daily
Site Data			Auto		•	10.5% 97.42
	-4	M	edium Truck			48.9% 1.849
	et		leavy Truck			47.3% 0.749
Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 30.0 fe	ot				-	
Centerline Dist. to Observer: 30.0 fe		Noise Se	ource Eleva	tions (in f	eet)	
Barrier Distance to Observer: 0.0 fe			Autos:	0.000		
Observer Height (Above Pad): 5.0 fe		Mediu	m Trucks:	2.297		
Pad Elevation: 0.0 fe		Heav	y Trucks:	8.006	Grade Adjus	stment: 0.0
Road Elevation: 0.0 fe		Lano Fo	uivalent Di	stanco (in	foot)	
Road Grade: 0.0%	el	Lane Ly	Autos:	29.816	1001)	
Left View: -90.0 de	arooo	Modiu	m Trucks:	29.518		
Right View: 90.0 de	•		v Trucks:	29.510		
Night view. 30.0 de	giees	near	y muons.	20.041		
FHWA Noise Model Calculations		1				
VehicleType REMEL Traffic Fl	ow Distance	e Finite	Road F	resnel	Barrier Atten	Berm Atter
Autos: 58.73 -6	3.60 3	3.26	-1.20	-4.49	0.00	0.00
	3.83 3	3.33	-1.20	-4.86	0.00	0.00
Medium Trucks: 70.80 -23		3.32	-1.20	-5.77	0.00	0.00
Medium Trucks: 70.80 -23 Heavy Trucks: 77.97 -27	7.79 3					
Heavy Trucks: 77.97 -27						
Heavy Trucks: 77.97 -27 Unmitigated Noise Levels (without Topo	and barrier att		Leq Nig	ht	Ldn	CNEL
Heavy Trucks: 77.97 -27 Unmitigated Noise Levels (without Topo	and barrier att	tenuation)	Leq Nig	ht 45.6	Ldn 54.1	CNEL 54
Heavy Trucks: 77.97 -27 Unmitigated Noise Levels (without Topo VehicleType Leq Peak Hour Leq	and barrier att Day Leq	tenuation) Evening	, ,			-
Heavy Trucks: 77.97 -27 Unmitigated Noise Levels (without Topo VehicleType Leg Peak Hour Leg Autos: 54.2	and barrier att Day Leq 53.0	tenuation) Evening 51.6	, ,	45.6	54.1	54
Heavy Trucks: 77.97 -27 Unmitigated Noise Levels (without Topo VehicleType Leg Peak Hour Leg Autos: 54.2 Medium Trucks: 49.1	and barrier att Day Leq 53.0 46.0	tenuation) Evening 51.6 38.5	, ,	45.6 47.2	54.1 53.4	54 53 56
Heavy Trucks:         77.97         -27           Unmitigated Noise Levels (without Topo VehicleType         Leg Peak Hour         Leg           Autos:         54.2           Medium Trucks:         49.1           Heavy Trucks:         52.3	and barrier att           Day         Leq           53.0         46.0           49.0         55.0	<b>Evening</b> 51.6 38.5 45.6	, ,	45.6 47.2 50.3	54.1 53.4 56.5	54 53 56
Heavy Trucks:     77.97     -27       Unmitigated Noise Levels (without Topo VehicleType     Leq Peak Hour     Leq       Autos:     54.2       Medium Trucks:     49.1       Heavy Trucks:     52.3       Vehicle Noise:     57.1	and barrier att Day Leq 53.0 46.0 49.0 55.0 feet)	<b>Evening</b> 51.6 38.5 45.6	, ,	45.6 47.2 50.3 52.9	54.1 53.4 56.5	54 53
Heavy Trucks:     77.97     -27       Unmitigated Noise Levels (without Topo VehicleType     Leq Peak Hour     Leq       Autos:     54.2       Medium Trucks:     49.1       Heavy Trucks:     52.3       Vehicle Noise:     57.1	and barrier att Day Leq 53.0 46.0 49.0 55.0 feet)	tenuation) Evening 51.6 38.5 45.6 52.8		45.6 47.2 50.3 52.9	54.1 53.4 56.5 59.6	54 53 56 59

	FHV	VA-RD-77-108	HIGHWA	Y NOISE P	REDICT		_	_	_			
Road Nam	io: EAC+P ne: Vista Del S nt: n/o Betty F			Project Name: Hazelden Betty Ford Cent Job Number: 12720								
SITE	SPECIFIC IN	IPUT DATA			N	IOISE MOD	EL INPUT	s				
Highway Data				Site Col	nditions	(Hard = 10,	Soft = 15)					
Average Daily	Traffic (Adt):	269 vehicle	s			Auto	s: 15					
Peak Hour	Percentage:	8.38%		Me	edium Tru	ucks (2 Axles	): 15					
Peak H	lour Volume:	23 vehicle	s	He	eavy Truc	cks (3+ Axles	): 15					
Ve	hicle Speed:	25 mph		Vehicle	Mix							
Near/Far La	ne Distance:	12 feet			nicleType	Day	Evening	Night	Daily			
Site Data				101		Autos: 75.5	v	10.5%	,			
		0.0 feet		N	, Iedium Ti			48.9%				
	rrier Height:	0.0 feet			Heavy T			47.3%				
Barrier Type (0-W Centerline Dis		0.0 30.0 feet			,		-					
Centerline Dist.		30.0 feet		Noise S	ource E	levations (in	feet)					
Barrier Distance		0.0 feet			Auto							
Observer Height (		5.0 feet			ım Truck							
	ad Flevation:	0.0 feet		Hea	vy Truck	s: 8.006	Grade Ad	iustment	: 0.0			
	ad Elevation:	0.0 feet		Lane Ec	uivalen	t Distance (i	n feet)					
	Road Grade:	0.0%			Auto							
	Left View:	-90.0 degree	es	Mediu	Im Truck	s: 29.518						
	Right View:	90.0 degree		Hea	vy Truck	s: 29.547						
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	ce Finite	Road	Fresnel	Barrier Att	en Ber	m Atten			
Autos:	58.73	-15.87		3.26	-1.20	-4.4	9 0.0	000	0.000			
Medium Trucks:	70.80	-33.11		3.33	-1.20	-4.8	6 0.0	000	0.000			
Heavy Trucks:	77.97	-37.06		3.32	-1.20	-5.7	7 0.0	000	0.00			
Unmitigated Nois				ttenuation)								
VehicleType	Leq Peak Hou			eq Evening	,	Night	Ldn		NEL			
Autos:	44		43.7	42.4		36.4	44.8		45.4			
Medium Trucks:	39		36.7	29.2		37.9	44.1		44.1			
Heavy Trucks:	43	-	39.8	36.4		41.0	47.2		47.3			
Vehicle Noise:	47	-	45.7	43.5	ō	43.6	50.4	4	50.6			
Oracle dias Distan	ce to Noise Co	ontour (in feet	)	70 dBA	07	dBA	60 dBA		dBA			
Centerline Distan												
Centerline Distan			1			-						
Centerine Distan			Ldn: VEL:	1 2		ава 3 3	7 7 7		15 15			

Tuesday, February 4, 2020

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FH	WA-RD-77-108	HIGHW	AY NO	DISE PR	EDICTIC	ON MODI	ΞL				
Scenario: EAC+P Road Name: Vista Del S Road Segment: n/o Countr				Project Name: Hazelden Betty Ford Cent Job Number: 12720							
SITE SPECIFIC II	NPUT DATA				N	DISE M	DDEL INPU	TS			
Highway Data			S	ite Con	ditions (	Hard = 1	0, Soft = 15)				
Average Daily Traffic (Adt): Peak Hour Percentage: Peak Hour Volume:	1,663 vehicle 8.38% 139 vehicle				dium Truc avy Truck	cks (2 Ax	,				
Vehicle Speed:	25 mph		v	ehicle I	Nix						
Near/Far Lane Distance:	12 feet		Ē		cleType	E	ay Evening	Night	Daily		
Site Data							5.5% 14.0%	· ·			
Barrier Height:	0.0 feet			Me	dium Tru	icks: 4	8.9% 2.2%	6 48.9	% 1.84%		
Barrier Type (0-Wall, 1-Berm):	0.0			ŀ	leavy Tru	icks: 4	7.3% 5.4%	6 47.3	% 0.74%		
Centerline Dist. to Barrier:	30.0 feet		N	oise So	urce Ele	vations	(in feet)				
Centerline Dist. to Observer:	30.0 feet				Autos.	0.00	10				
Barrier Distance to Observer:	0.0 feet			Mediur	n Trucks.	2.29	17				
Observer Height (Above Pad): Pad Elevation:	5.0 feet 0.0 feet			Heav	y Trucks.	8.00	6 Grade A	djustme	nt: 0.0		
Road Elevation:	0.0 feet		L	ane Equ	uivalent	Distance	(in feet)				
Road Grade:	0.0%				Autos.	29.8	6				
Left View:	-90.0 degre	es		Mediur	n Trucks.	29.5	8				
Right View:	90.0 degre	es		Heav	y Trucks.	29.54	7				
FHWA Noise Model Calculation	IS										
VehicleType REMEL	Traffic Flow	Dista	nce	Finite		Fresne	Barrier A	tten B	erm Atten		
Autos: 58.73	-7.96		3.26		-1.20	-4	1.49 (	0.000	0.000		
Medium Trucks: 70.80			3.33		-1.20			0.000	0.000		
Heavy Trucks: 77.97			3.32		-1.20	-{	5.77 (	0.000	0.000		
Unmitigated Noise Levels (with									_		
VehicleType Leq Peak Ho			.eq Ev	~	Leq N		Ldn		CNEL		
		51.6		50.3		44.3		2.7	53.3		
		44.6		37.1		45.8		2.0	52.1		
		47.7		44.3		48.9		5.1	55.2		
		53.7		51.4		51.6	58	3.3	58.		
Centerline Distance to Noise C	ontour (in feet	9	70 d	BA	65 d	BA	60 dBA	5	i5 dBA		
		Ldn:	5		11		23		49		
	C	NEL:	5		11		24		51		

	FHW	A-RD-77-108 HI	GHWAY		EDICT			
Road Nam	o: EAC+P e: MacMillan W nt: e/o Bob Hop	/				Name: Haze lumber: 1272		ord Cent
SITE	SPECIFIC INF	PUT DATA			N	IOISE MOD	EL INPUTS	5
Highway Data				Site Con	ditions	(Hard = 10, 3	Soft = 15)	
Peak H	Percentage: our Volume:	8,708 vehicles 8.38% 311 vehicles				Auto ucks (2 Axles cks (3+ Axles	): 15	
	hicle Speed:	25 mph		Vehicle I	/lix			
Near/Far Lar	ne Distance:	12 feet		Vehi	cleType	e Day	Evening	Night Daily
Site Data						Autos: 75.5	% 14.0%	10.5% 97.42%
Bai	rier Height:	0.0 feet		Me	dium T	rucks: 48.9	% 2.2%	48.9% 1.84%
Barrier Type (0-W		0.0		E	leavy T	rucks: 47.3	% 5.4%	47.3% 0.749
Centerline Dis	. ,	30.0 feet		Noise Or		levations (in	6	
Centerline Dist.		30.0 feet		Noise So			teet)	
Barrier Distance		0.0 feet			Auto			
Observer Height ()	Above Pad):	5.0 feet			n Truck		~	
0 1	d Elevation:	0.0 feet		Heav	y Truck	s: 8.006	Grade Adj	ustment: 0.0
	d Elevation:	0.0 feet		Lane Equ	ivalen	t Distance (ii	1 feet)	
ŀ	Road Grade:	0.0%			Auto	s: 29.816		
	Left View:	-90.0 degrees		Mediur	n Truck	s: 29.518		
	Right View:	90.0 degrees		Heav	y Truck	s: 29.547		
FHWA Noise Mode	el Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atte	en Berm Atten
Autos:	58.73	-4.47	3	.26	-1.20	-4.4	9 0.0	0.00
Medium Trucks:	70.80	-21.71	3	.33	-1.20	-4.80	6 0.0	0.00
Heavy Trucks:	77.97	-25.67	3	.32	-1.20	-5.7	7 0.0	0.00
Unmitigated Noise	e Levels (witho	ut Topo and ba	rrier att	enuation)				
	Leg Peak Hour			Evening	Leg	Night	Ldn	CNEL
Autos:	. 56.3	3 55	.1	53.8		47.8	56.2	56.
Medium Trucks:	51.2	2 48	.1	40.6		49.3	55.5	55.
Heavy Trucks:	54.4	1 51	.2	47.8		52.4	58.6	58.
Vehicle Noise:	59.2	2 57	.1	54.9		55.0	61.7	62.
	e to Noise Co	ntour (in feet)						
Centerline Distance		,		0 dBA	65	dBA	60 dBA	55 dBA
Centerline Distand							00 UDA	33 UDA
Centerline Distand		La		8		18	39	84

	FHV	VA-RD-77-108	HIGH	WAY N	IOISE PR	EDICTIC	N MODE	L			
Scenari	o: EAC+P					Project N	lame: Ha	zelden Betty I	Ford	Cent	
	e: Street A						mber: 127		, ora	Joint	
Road Segmer	nt: e/o Bob Ho	pe Dr.									
SITE	SPECIFIC IN	IPUT DATA				NC	DISE MO	DEL INPUT	ſS		
Highway Data					Site Con	ditions (I	Hard = 10	, Soft = 15)		-	
Average Daily	Traffic (Adt):	2,301 vehicles					Aut	os: 15			
Peak Hour	Percentage:	8.38%			Med	dium Truc	ks (2 Axle	es): 15			
Peak H	our Volume:	193 vehicles			Hea	avy Truck	s (3+ Axle	es): 15			
Vel	hicle Speed:	25 mph		-	Vehicle I	liv					
Near/Far Lar	ne Distance:	12 feet		+		cleType	Da	y Evening	Nic	nht	Daily
Site Data					10/1		-	5% 14.0%			97.42%
Par	rier Height:	0.0 feet			Me	edium Tru	cks: 48	.9% 2.2%	48	.9%	1.84%
Barrier Type (0-Wa	•	0.0			F	leavy Tru	cks: 47.	.3% 5.4%	47	.3%	0.74%
Centerline Dis		30.0 feet		-	N- / 0-		vations (i	- ( 1)			
Centerline Dist.	o Observer:	30.0 feet		-	Noise So			,			
Barrier Distance t	o Observer:	0.0 feet				Autos:					
Observer Height ()	Above Pad):	5.0 feet				n Trucks: v Trucks:			divoto	nonti	0.0
Pa	d Elevation:	0.0 feet			neav	y mucks.	8.000	Grade Ad	ijusui	ient.	0.0
Roa	d Elevation:	0.0 feet			Lane Equ	uivalent l	Distance	(in feet)			
F	Road Grade:	0.0%				Autos:	29.816	6			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	29.518	3			
	Right View:	90.0 degree	s		Heav	y Trucks:	29.547	,			
FHWA Noise Mode	el Calculation:	s		I							
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresnel	Barrier At	tten	Bern	n Atten
Autos:	58.73	-6.55		3.2	6	-1.20	-4.	49 0.	.000	-	0.000
Medium Trucks:	70.80	-23.78		3.3	3	-1.20	-4.	86 0.	.000		0.000
Heavy Trucks:	77.97	-27.74		3.3	2	-1.20	-5.	77 0.	.000		0.000
Unmitigated Noise	e Levels (with	out Topo and I	barri	er atter	nuation)						
VehicleType	Leq Peak Hou	r Leq Day		Leq E	vening	Leq N	ight	Ldn		CN	EL
Autos:	54	.3 5	63.0		51.7		45.7	54	.1		54.7
Medium Trucks:	49	.1 4	6.0		38.5		47.3	53	.4		53.5
Heavy Trucks:	52	.4 4	9.1		45.7		50.3	56	.5		56.6
Vehicle Noise:	57	.2 5	5.1		52.8		53.0	59	.7		59.9
Centerline Distance	e to Noise Co	ontour (in feet)									
			Τ		dBA	65 di		60 dBA		55 c	
			.dn:		6	13		29		6	
		CA	IEL:	6	6	14		30		6	4

FHWA-RD-77-108 HIG	HWAY N	OISE PF	REDICTIO	ON MOE	DEL			
Scenario: EAC+P Road Name: Betty Ford Wy. Road Segment: e/o Joe Friend Ln.				Vame: H Imber: 1		en Betty F	ord Cent	t
SITE SPECIFIC INPUT DATA			N	OISE N	IODE	L INPUTS	5	
Highway Data	5	Site Con	ditions (	Hard =	10, So	oft = 15)		
Average Daily Traffic (Adt): 1,240 vehicles				A	Autos:	15		
Peak Hour Percentage: 8.38%		Me	dium Tru	cks (2 A	xles):	15		
Peak Hour Volume: 104 vehicles		He	avy Truci	ks (3+ A	xles):	15		
Vehicle Speed: 25 mph		(- h / - l - )		•	<i>,</i>			
Near/Far Lane Distance: 12 feet	1	Vehicle I			_			
		ven	icleType		Day	Evening	Night	Daily
Site Data					75.5%		10.5%	
Barrier Height: 0.0 feet			edium Tru		48.9%		48.9%	
Barrier Type (0-Wall, 1-Berm): 0.0		ŀ	leavy Tru	icks: 4	47.3%	5.4%	47.3%	0.74%
Centerline Dist. to Barrier: 30.0 feet	1	Voise So	ource Ele	vations	; (in fe	et)		
Centerline Dist. to Observer: 30.0 feet			Autos			.,		
Barrier Distance to Observer: 0.0 feet		Modiu	n Trucks					
Observer Height (Above Pad): 5.0 feet			v Trucks			Grade Adj	ustment	0.0
Pad Elevation: 0.0 feet								
Road Elevation: 0.0 feet	L	ane Eq	uivalent	Distanc	e (in f	feet)		
Road Grade: 0.0%			Autos	: 29.8	16			
Left View: -90.0 degrees		Mediur	n Trucks	: 29.5	18			
Right View: 90.0 degrees		Heav	y Trucks	: 29.5	47			
FHWA Noise Model Calculations								
VehicleType REMEL Traffic Flow D	istance	Finite	Road	Fresn	el i	Barrier Atte	en Ber	m Atten
Autos: 58.73 -9.23	3.26	3	-1.20		4.49	0.0	00	0.000
Medium Trucks: 70.80 -26.47	3.33	3	-1.20		4.86	0.0	00	0.000
Heavy Trucks: 77.97 -30.43	3.32	2	-1.20		5.77	0.0	00	0.000
Unmitigated Noise Levels (without Topo and barr	rier atteni	uation)						
VehicleType Leq Peak Hour Leq Day	Leq Ev	<i>ening</i>	Leq N	light		Ldn	C	NEL
Autos: 51.6 50.3		49.0		43.0		51.4	ļ.	52.0
Medium Trucks: 46.5 43.3		35.8		44.6		50.7	,	50.8
Heavy Trucks: 49.7 46.4		43.0		47.6		53.8	3	53.9
Vehicle Noise: 54.5 52.4		50.1		50.3		57.0	)	57.2
Centerline Distance to Noise Contour (in feet)								
	70 d		65 a		6	0 dBA		dBA
Ldn:			9			19		41
CNEL:	4		9			20		42

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHV	/A-RD-77-108	HIGHV	VAY NC	ISE PF	REDICTIO	N MOD	EL				
	b: EAC+P e: Country Clu t: w/o Bob Ho				Project Name: Hazelden Betty Ford Cent Job Number: 12720							
SITE S	PECIFIC IN	PUT DATA				NO	ISE M	ODEL	INPUTS	5		
Highway Data				S	ite Cor	ditions (H	ard = 1	0, So	ft = 15)			
	Percentage: our Volume:	8.38% 902 vehicles				dium Truck avy Trucks	s (2 Ax	,	15 15 15			
	icle Speed:	45 mph		V	ehicle	Mix						
Near/Far Lan	e Distance:	52 feet		_	Veh	icleType	L	Day	Evening	Night	Daily	
Site Data						Au	tos: 7	5.5%	14.0%	10.5%	97.42%	
Bar	rier Height:	0.0 feet			М	edium Truc	:ks: 4	8.9%	2.2%	48.9%	1.84%	
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy Truc	:ks: 4	7.3%	5.4%	47.3%	0.74%	
Centerline Dis		55.0 feet		N	oise So	ource Elev	ations	(in fe	et)			
Centerline Dist. to		55.0 feet		_		Autos:	0.00	00	,			
Barrier Distance to		0.0 feet			Mediu	m Trucks:	2.29	97				
Observer Height (A	,	5.0 feet			Heav	y Trucks:	8.00	06	Grade Adj	ustment	: 0.0	
	d Elevation: d Elevation:	0.0 feet		1.	no Ea	uivalent D	istano	in f	oot)			
	a Elevation: Road Grade:	0.0 feet 0.0%		L	ше сч	Autos:	48.7		eel)			
R	l eft View:				Madiu	m Trucks:	48.74					
	Right View:	-90.0 degree 90.0 degree				y Trucks:	48.5					
FHWA Noise Mode	l Calculation	s										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	1 E	Barrier Atte	en Bei	m Atten	
Autos:	68.46	-2.40		0.07		-1.20	-4	4.67	0.0	00	0.00	
Medium Trucks:	79.45	-19.64		0.09		-1.20	-4	4.87	0.0	00	0.00	
Heavy Trucks:	84.25	-23.59		0.09		-1.20	-	5.38	0.0	00	0.00	
Unmitigated Noise	Levels (with	out Topo and										
VehicleType	Leq Peak Hou			Leq Eve	ening	Leq Ni	ght		Ldn	-	NEL	
Autos:	64	-	63.7		62.4		56.4		64.8		65.4	
Medium Trucks:	58		55.6		48.1		56.8		63.0		63.	
Heavy Trucks:	59		56.3		52.9		57.5		63.7		63.	
Vehicle Noise:	66	-	64.9		63.0		61.7		68.7	,	69.	
Centerline Distanc	e to Noise Co	ontour (in feet	)	70 -1	24	6E -10		~	0 484		dD A	
			I dn:	70 dE 45	м	65 dB 97	м		0 dBA 208		dBA 148	
			Lan: VFL :	45 47		97			208 218		148 169	
		CI	VĽL.	47		101			210	4	юэ	

FHWA-RD-77-10	8 HIGH	WAY NC	ISE PREDICT	ION MODE	EL		
Scenario: EAC+P				Name: Ha lumber: 12	azelden Betty F	ord Cent	
Road Name: Country Club Dr. Road Segment: e/o Bob Hope Dr.			JOD N	iumber: 12	120		
SITE SPECIFIC INPUT DATA	1		ſ	NOISE MO	DDEL INPUT	s	
Highway Data		Si	te Conditions	(Hard = 1	0, Soft = 15)		
Average Daily Traffic (Adt): 16,818 vehic	les			AL	itos: 15		
Peak Hour Percentage: 8.38%			Medium Tr	ucks (2 Ax	les): 15		
Peak Hour Volume: 1,409 vehic	les		Heavy Tru	cks (3+ Ax	les): 15		
Vehicle Speed: 50 mph		V	ehicle Mix				
Near/Far Lane Distance: 58 feet		-	VehicleTvp	• D	ay Evening	Night	Dailv
Site Data					5.5% 14.0%	10.5%	
Barrier Height: 0.0 feet			Medium T		3.9% 2.2%		1.849
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy T		7.3% 5.4%		
Centerline Dist. to Barrier: 55.0 feet							
Centerline Dist. to Observer: 55.0 feet		N	oise Source E		, ,		
Barrier Distance to Observer: 0.0 feet			Auto				
Observer Height (Above Pad): 5.0 feet			Medium Truck				
Pad Elevation: 0.0 feet			Heavy Truck	s: 8.00	6 Grade Ad	justment.	0.0
Road Elevation: 0.0 feet		Lá	ne Equivalen	t Distance	(in feet)		
Road Grade: 0.0%			Auto	s: 47.00	10		
Left View: -90.0 deg	ees		Medium Truck	s: 46.81	1		
Right View: 90.0 deg	ees		Heavy Truck	s: 46.83	0		
FHWA Noise Model Calculations	Т				1	Т	
VehicleType REMEL Traffic Flow	_	ance	Finite Road	Fresnel			m Atten
Autos: 70.20 -0.9	-	0.30	-1.20			000	0.00
Medium Trucks: 81.00 -18.1		0.33	-1.20			000	0.00
Heavy Trucks: 85.38 -22.1	1	0.32	-1.20	-5	5.38 0.0	000	0.00
Unmitigated Noise Levels (without Topo an	d barrie	r attenu	ation)				
VehicleType Leq Peak Hour Leq D		Leq Eve	•	Night	Ldn		NEL
Autos: 68.4	67.1		65.8	59.8	68.2	-	68.
Medium Trucks: 62.0	58.8		51.3	60.1	66.3		66.
Heavy Trucks: 62.4	59.1		55.7	60.4	66.6		66.
Vehicle Noise: 70.1	68.3		66.4	64.9	71.9	9	72.
Centerline Distance to Noise Contour (in fe	et)	=0				57	10.4
	L day	70 dE		dBA	60 dBA		dBA
	Ldn: CNFL :	73		58	341		34
	UNEL:	77	1	66	358	7	71

	FHV	A-RD-77-108	HIGH	WAY N	IOISE PF	REDICTIO	N MODI	EL			
Scenari	io: FAC+P					Project N	lame: Ha	azelden	Betty Fo	rd Cent	
	e: Country Clu	ıb Dr.					mber: 12		Douy I o	00000	
Road Segmer	nt: e/o John L.	Sinn Rd.									
SITE	SPECIFIC IN	PUT DATA				NC	DISE MO	ODEL I	NPUTS		
Highway Data					Site Con	ditions (I	lard = 1	0, Soft :	= 15)		
Average Daily	Traffic (Adt): 2	1,119 vehicles					A	utos:	15		
Peak Hour	Percentage:	8.38%			Me	dium Truc	ks (2 Ax	les):	15		
Peak H	our Volume:	1,770 vehicles			He	avy Truck	s (3+ Ax	les):	15		
Vel	hicle Speed:	50 mph			Vehicle I	Mix					
Near/Far Lar	ne Distance:	58 feet				icleType	D	ay Ev	/ening	Night	Daily
Site Data						AL	itos: 7	5.5%	14.0%	10.5%	97.42%
Bar	rrier Height:	0.0 feet			Me	edium Tru	cks: 4	8.9%	2.2%	48.9%	1.84%
Barrier Type (0-W	•	0.0			ŀ	leavy Tru	cks: 4	7.3%	5.4%	47.3%	0.74%
Centerline Dis	st. to Barrier:	55.0 feet		H	Noise Sc	ource Ele	vations	(in feet	1		
Centerline Dist. I	to Observer:	55.0 feet		Ē		Autos:					
Barrier Distance t	to Observer:	0.0 feet			Mediu	n Trucks:	2.29				
Observer Height (/	Above Pad):	5.0 feet				v Trucks:			ade Adju	stment:	0.0
	ad Elevation:	0.0 feet		L		,					
	ad Elevation:	0.0 feet		1	Lane Eq	uivalent l			t)		
F	Road Grade:	0.0%				Autos:					
	Left View:	-90.0 degree				n Trucks:	46.81				
	Right View:	90.0 degree	S		Heav	y Trucks:	46.83	30			
FHWA Noise Mode	el Calculation:	S									-
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite		Fresne	I Ba	rrier Attei	n Ber	m Atten
Autos:	70.20	0.07		0.3	-	-1.20		1.67	0.00	-	0.000
Medium Trucks:	81.00	-17.17		0.3	-	-1.20		1.87	0.00	-	0.000
Heavy Trucks:	85.38	-21.12		0.3	2	-1.20	-5	5.38	0.00	0	0.000
Unmitigated Noise	e Levels (with	out Topo and I	barrie	er atten	nuation)						
	Leq Peak Hou			Leq E	vening	Leq N	<b>v</b>	La		CI	VEL
Autos:	69		8.1		66.8		60.8		69.2		69.9
Medium Trucks:	63		9.8		52.3		61.1		67.2		67.3
Heavy Trucks:	63		60.1		56.7		61.4		67.6		67.6
Vehicle Noise:	71	.1 6	9.3		67.4		65.9		72.9		73.2
Centerline Distant	ce to Noise Co	ontour (in feet)									
					dBA	65 di		60 c			dBA
			.dn:	-	15	184		39		-	55
		CN	IEL:	9	10	193	3	41	7	8	97

	FHW/	A-RD-77-108 HIG	HWAY	NOISE PF	REDICTI	ON MOD	EL			
Road Nam	io: EAC+P e: Country Club nt: e/o Vista Del					Name: H umber: 1		len Betty Fo	ord Cent	
	SPECIFIC INP	UT DATA						L INPUTS	S	
Highway Data				Site Con	ditions	(Hard = '	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 22	118 vehicles				A	utos:	15		
Peak Hour	Percentage:	8.38%		Me	dium Tru	icks (2 A	xles):	15		
Peak H	our Volume: 1	,853 vehicles		He	avy Truc	ks (3+ A	xles):	15		
Ve	hicle Speed:	50 mph	ŀ	Vehicle	Mix					
Near/Far Lai	ne Distance:	58 feet	ŀ		icleType		Day	Evening	Night	Daily
Site Data				Ven			75.5%	•	10.5%	,
				14	م edium Tr		18.9%		48.9%	97.42%
	rrier Height:	0.0 feet			Heavy Tr		+0.9% 17.3%		40.9%	0.74%
Barrier Type (0-W		0.0		,	ieavy II	uchs	+1.370	3.470	47.370	0.7470
Centerline Dis		55.0 feet	Ī	Noise So	ource El	evations	(in fe	eet)		
Centerline Dist.		55.0 feet	Ī		Autos	s: 0.0	00			
Barrier Distance		0.0 feet		Mediu	m Trucks	s: 2.2	97			
Observer Height (	,	5.0 feet		Heav	y Trucks	s: 8.0	06	Grade Adj	ustment:	0.0
	ad Elevation:	0.0 feet	-	1 5		Distance	- //	(		
	ad Elevation:	0.0 feet	-	Lane Eq			· ·	reet)		
	Road Grade:	0.0%		Ma dia	Autos					
		-90.0 degrees			m Trucks					
	Right View:	90.0 degrees		Heav	y Trucks	s: 46.8	30			
FHWA Noise Mode	el Calculations									
VehicleType			listance	Finite	Road	Fresne		Barrier Atte	en Ber	m Atten
Autos:	70.20	0.27	0.3	30	-1.20	-	4.67	0.0	00	0.000
Medium Trucks:	81.00	-16.97	0.3	33	-1.20	-	4.87	0.0	00	0.000
Heavy Trucks:	85.38	-20.92	0.3	32	-1.20	-	5.38	0.0	00	0.000
Unmitigated Noise			rier atter	nuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq	Night		Ldn	CI	VEL
Autos:	69.6			67.0		61.0		69.4		70.1
Medium Trucks:	63.2			52.5		61.3		67.5		67.5
Heavy Trucks:	63.6	60.3		56.9		61.6		67.8	3	67.8
Vehicle Noise:	71.3	69.5	i	67.6		66.1		73.1		73.4
Centerline Distant	ce to Noise Con	ntour (in feet)								
				dBA		dBA	e	60 dBA		dBA
		Ldn.		38		90		409	-	81
		CNEL	: 9	93	19	99		430	9	25

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHW	A-RD-77-108	HIGHV	VAY N	OISE PF	REDICTI		EL			
Scenario: Road Name: Road Segment:	Bob Hope D						Name: H umber: 1	lazelden Be 2720	etty Ford	Cent	
SITE SI	PECIFIC INI	PUT DATA				N	IOISE M	ODEL INF	PUTS		
Highway Data				5	Site Con	ditions	(Hard = 1	10, Soft = 1	5)		
Average Daily Tr Peak Hour Pe Peak Hou	ercentage:	9,881 vehicle 8.38% 2,504 vehicle					A Joks (2 A Joks (3+ A	,			
Vehic	cle Speed:	45 mph			/ehicle	Mix					
Near/Far Lane	Distance:	58 feet		-		icleType		Day Ever	ning Mi	ght	Dailv
Site Data					v ch						97.42%
	er Heiaht:	0.0 feet			Me	edium Ti	rucks: 4	8.9% 2	.2% 48	3.9%	1.84%
Barrier Type (0-Wall		0.0			ŀ	leavy Ti	rucks: 4	7.3% 5	.4% 47	7.3%	0.74%
Centerline Dist.		55.0 feet		1	loise So	ource El	levations	(in feet)			
Centerline Dist. to		55.0 feet				Auto	s: 0.0	00			
Barrier Distance to		0.0 feet			Mediu	m Trucks	s: 2.2	97			
Observer Height (Ab	,	5.0 feet			Heav	y Truck	s: 8.0	06 Grad	e Adjustr	nent: (	0.0
	Elevation:	0.0 feet			ono Ea	wheelen	Diotono	e (in feet)			
	Elevation:	0.0 feet		-	.ane Eq	Auto:		, ,			
Ro	oad Grade: Left View:	0.0%			Madiu	n Truck:					
F	Right View:	-90.0 degre 90.0 degre				y Truck					
FHWA Noise Model	Calculations										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el Barrie	er Atten	Berm	Atten
Autos:	68.46	2.04		0.30	)	-1.20	-	4.67	0.000		0.000
Medium Trucks:	79.45	-15.20		0.33		-1.20		4.87	0.000		0.000
Heavy Trucks:	84.25	-19.16		0.32		-1.20	-	5.38	0.000		0.000
Unmitigated Noise I			-								
	eq Peak Hour			Leq Ev	•	Leq	Night	Ldn		CNE	
Autos:	69.	-	68.4		67.0		61.0		69.4		70.1
Medium Trucks:	63.4		60.2 60.9		52.7 57.5		61.5 62.2		67.7		67.7
Heavy Trucks: Vehicle Noise:	64.: 71.4		69.6		57.5 67.6		66.4		68.4 73.3		68.5 73.6
Centerline Distance	to Noise Co	ntour (in feet	)								
			,	70 a	BA	65	dBA	60 dB/	4	55 dl	BA
			Ldn:	92	2	19	98	426		918	3
		C	VEL:	96	3	20	07	446		962	2

	FHWA	A-RD-77-108 HIG	HWAY	NOISE PR	EDICT	ION MO	DEL			
Scenario: Road Name: Road Segment:	Bob Hope Dr	-				Name: lumber:		den Betty F	ord Cent	
SITE SP	ECIFIC INP	UT DATA			N	IOISE I	NODE	L INPUT	5	
Highway Data				Site Cond	ditions	(Hard =	10, S	oft = 15)		
Average Daily Trai	ffic (Adt): 24	,487 vehicles					Autos	: 15		
Peak Hour Per	centage:	8.38%		Mea	lium Tru	ucks (2 /	(xles)	15		
Peak Hour	Volume: 2	,052 vehicles		Hea	vy Tru	cks (3+ /	(xles)	15		
Vehicle	e Speed:	45 mph		Vehicle N	lix					
Near/Far Lane L	Distance:	58 feet			cleType	2	Dav	Evening	Night	Daily
Site Data						Autos:	75.5%		10.5%	
	r Heiaht:	0.0 feet		Me	dium T	rucks:	48.9%	6 2.2%	48.9%	1.849
Barrier Type (0-Wall,		0.0 teet 0.0					47.39		47.3%	
Centerline Dist. to		55.0 feet								
Centerline Dist. to C		55.0 feet		Noise So				eet)		
Barrier Distance to C		0.0 feet			Auto		000			
Observer Height (Abo		5.0 feet		Mediun			297			
0 1	levation:	0.0 feet		Heavy	/ Truck	s: 8.	006	Grade Adj	ustment.	0.0
	levation:	0.0 feet		Lane Equ	ivalen	t Distan	ce (in	feet)		
	d Grade:	0.0%			Auto	s: 47.	000	,		
L	eft View:	-90.0 degrees		Mediun	n Truck	s: 46.	811			
Ri	ght View:	90.0 degrees		Heavy	/ Truck	s: 46.	830			
FHWA Noise Model C	alculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite I	Road	Fresr	nel	Barrier Atte	en Ber	m Atten
Autos:	68.46	1.17	0.3		-1.20		-4.67			0.00
Medium Trucks:	79.45	-16.07	0.3		-1.20		-4.87			0.00
Heavy Trucks:	84.25	-20.02	0.3	32	-1.20		-5.38	0.0	00	0.00
Unmitigated Noise Le	evels (withou	it Topo and bar	rier atte	nuation)						
	q Peak Hour	Leq Day		vening	Leq	Night		Ldn		VEL
Autos:	68.7		-	66.2		60.2		68.6		69.
Medium Trucks:	62.5			51.9		60.6		66.8		66.
Heavy Trucks:	63.4			56.7		61.3		67.5		67.
Vehicle Noise:	70.6		7	66.8		65.5	5	72.5	5	72.
Centerline Distance t	o Noise Con	tour (in feet)								
				dBA		dBA		60 dBA		dBA
		Ldn CNFI		80 84		73 81		373		04
								391		42

Average Daily Traffic (Adt):         24,882 vehicles         Autos:         15           Peak Hour Percentage:         8.38%         Medium Trucks (24 Axles):         15           Peak Hour Volume:         2,085 vehicles         Medium Trucks (24 Axles):         15           Vehicle Speed:         45 mph         Heavy Trucks (34 Axles):         15           Near/Far Lane Distance:         58 feet         Vehicle Type         Day         Evening         Night         Da           Site Data         Autos:         75.5%         14.0% (0.5% 97.4%)         0.5% 97.4%         Night         Da           Barrier Type (0-Wall, 1-Berm):         0.0         Centerline Dist to Observer:         50 feet         Medium Trucks:         47.3% 0.3           Centerline Dist to Observer:         0.0 feet         Madium Trucks:         47.3% 0.3           Road Elevation:         0.0 feet         Medium Trucks:         48.00           Road Elevation:         0.0 feet         Medium Trucks:         48.30           FHWA Noise Model Calculations         0.0 degrees         Medium Trucks:         48.30           FHWA Noise Model Calculations         1.24         0.30         -1.20         -4.67         0.000         0.0           Medium Trucks:         79.45         -16.00 </th <th></th> <th>FHWA</th> <th>-RD-77-108 HIG</th> <th>SHWAY I</th> <th>NOISE PI</th> <th>REDICTIC</th> <th>ON MOL</th> <th>DEL</th> <th></th> <th></th> <th></th>		FHWA	-RD-77-108 HIG	SHWAY I	NOISE PI	REDICTIC	ON MOL	DEL			
Road Segment: slo Country Club Dr.           SITE SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt): 24,882 vehicles         Autos: 15         Autos: 15           Peak Hour Volume: 2,085 vehicles         Medium Trucks (2 Axles): 15         Heavy Trucks (3 + Axles): 15           Vehicle Speet         45 mph         Medium Trucks (3 + Axles): 15         Vehicle Speet           Near/Far Lane Distance: 58 feet         Vehicle Trucks (3 + Axles): 15         Vehicle Mix         Vehicle Trucks: 48.9%         2.2%         49.9%         1.4           Barrier Height:         0.0 feet         Autos: 75.5%         14.0%         10.5%         97.4           Barrier Type (0-Wall, 1-Berm):         0.0         Feet         Autos: 75.5%         14.0%         10.5%         97.4           Centerline Dist. to Dserver:         50.0 feet         Heavy Trucks: 8.006         Grade Adjustment: 0.0         Noise Source Elevation: 0.0 feet         Autos: 0.000         Medium Trucks: 46.811         Heavy Trucks: 46.810         Heavy Trucks: 46.810           Road Grade:         0.00         Grades         0.30         -1.20         -4.67         0.000         0.0           Medium Trucks:         82.45         <									len Betty F	ord Cen	t
Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt): 24,882 vehicles Peak Hour Percentage: 8.38%         Autos: 15           Peak Hour Percentage: 2,085 vehicles Vehicle Speed: 45 mph         Medium Trucks (2 Avles): 15           Near/Far Lane Distance: 58 feet         Vehicle Mix           Barrier Height: 0.0 feet Barrier Distance to Observer: 55.0 feet Centerline Dist. to Observer: 55.0 feet Road Elevation: 0.0 feet         Autos: 75.5% 14.0% 10.5% 97. Medium Trucks: 24.89% 2.2% 48.9% 1.8 Heavy Trucks: 47.3% 5.4% 47.3% 0.1           Noise Source Elevations (in feet)         Noise Source Elevations (in feet)           Road Grade. 0.0% Left View: -90.0 degrees Right View: 90.0 degrees         Heavy Trucks: 46.811 Heavy Trucks: 46.811 Heavy Trucks: 46.811 Heavy Trucks: 46.830           FHWA Noise Model Calculations         Vehicle Type         Rem Att Noise Levels (without Top and barrier attenuation)           Vehicle Type         ReMel         Traffic Flow         Distance           Vehicle Type         ReMel         Traffic Flow         Distance           Vehicle Type         Leq Day         Leq Evening         Leq Night           Medium Trucks:         68.8         67.6         66.2         60.2         68.7           Medium Trucks:         63.4         60.1         56.8         61.4         67.6           Medium Trucks:         68.8         66						000710		2120			
Average Delity Traffic (Adt):         24,882 vehicles         Autos:         15           Peak Hour Percentage:         8.38%         Medium Trucks:         24,882 vehicles           Peak Hour Volume:         2,085 vehicles         Medium Trucks:         15           Vehicle Speed:         45 mph         Heavy Trucks:         34 Autos:         15           Near/Far Lane Distance:         58 feet         Vehicle Mix         Day         Evening         Night         Da           Site Data         Autos:         75.5%         14.0%         10.5%         97.4           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         2.2%         49.9%         1.8           Barrier Dist to Doserver:         5.0 feet         Medium Trucks:         47.3%         5.4%         47.3%         0.7           Centerline Dist. to Doserver:         0.0 feet         Moise Source Elevations (in feet)         Autos:         0.0           Road Grade:         0.0%         Left View:         90.0 degrees         Medium Trucks:         46.811           Right View:         90.0 degrees         Finite Road         Fresnel         Barrier Atten         Berm Att           Autos:         68.46         1.24		PECIFIC INP	UT DATA							5	
Noise Source         Barier Height:         0.06         Medium Trucks (2 Addes):         15           Peak Hour Volume:         2.085 vehicles         Heavy Trucks (3+ Addes):         15           Vehicle Speed:         45 mph         Heavy Trucks (3+ Addes):         15           Vehicle Speed:         45 mph         Vehicle Type         Day         Evening         Night         Da           Site Data         Autos:         75.5%         14.0%         10.5%         97.4           Barrier Height:         0.0         Centerline Dist. to Barrier:         55.0 feet         Medium Trucks:         48.9%         1.6           Centerline Dist. to Diserver:         55.0 feet         Autos:         0.000         Medium Trucks:         2.2%         48.9%         1.6           Diserver Height (Above Pad):         5.0 feet         Autos:         0.000         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Autos:         0.000         Medium Trucks:         2.27         48.9%         1.0           Road Grade:         0.0%         Autos:         48.06         Grade Adjustment:         0.0           Left View:         90.0 degrees         Finite Road         Fresnel         Barrier Atten         Berm Atten <td>Highway Data</td> <td></td> <td></td> <td></td> <td>Site Cor</td> <td>ditions (</td> <td>Hard =</td> <td>10, Sc</td> <td>oft = 15)</td> <td></td> <td></td>	Highway Data				Site Cor	ditions (	Hard =	10, Sc	oft = 15)		
Peak Hour Volume:         2,085 vehicles Vehicle Speed:         Heavy Trucks (3+ Akles):         15           Vehicle Speed:         45 mph         Vehicle Mix         Vehicle Mix           Site Data         Autos:         75.5%         14.0%         10.5%         97.4           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         1.5%           Barrier Type (0-Wall, 1-Berm):         0.0         Centerline Dist. to Observer:         50.0 feet         Heavy Trucks:         47.3%         5.4%         47.3%         0.1           Barrier Distance to Observer:         50.0 feet         Heavy Trucks:         2.297         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Mutos:         7.000         Medium Trucks:         8.006         Grade Adjustment:         0.0           Road Grade.         0.0%         Lane Equivalent Distance (in feet)         Autos:         48.80         Heavy Trucks:         48.80           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           VehicleType         REMEL         Traffic Flow         Distance         Finite Road	Average Daily Tr	affic (Adt): 24	,882 vehicles				-	Autos:	15		
Vehicle Speed: Near/Far Lane Distance:         45 mph 58 feet         Vehicle Mix           Vehicle Mix         Vehicle Mix         Vehicle Mix           Vehicle Mix         Vehicle Mix         Vehicle Mix           Site Data         Autos:         75.5%         14.0%         10.5%         97.4           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         2.2%         49.9%         10.5%         97.4           Barrier Type (0-Wall, 1-Berm):         0.0         Centerline Dist. to Desrever:         50.0 feet         Medium Trucks:         47.3%         5.4%         47.3%         0.1           Centerline Dist. to Desrever:         0.0 feet         Medium Trucks:         2.97         Heavy Trucks:         48.00         Grade Adjustment:         0.0           Road Grade:         0.0%         Left View:         -90.0 degrees         Medium Trucks:         46.811         Heavy Trucks:         46.811           Heavy Trucks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.0           Medium Trucks:         84.25         -19.95         0.32         -1.20         -4.67         0.000         0.0           Medium Trucks:         84.8	Peak Hour Pe	ercentage:	8.38%				,				
Venicie Mix         Venicie Mix         Venicie Mix         Venicie Mix           Site Data         Venicie Mix         Autos:         75.5%         14.0%         10.5%         97.4           Barrier Height:         0.0 feet         Autos:         75.5%         14.0%         10.5%         97.4           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         1.8           Barrier Jope (0-Wall, 1-Berm):         0.0         Centerline Dist. to Barrier:         55.0 feet         Medium Trucks:         47.3%         47.3%         47.3%         1.8           Centerline Dist. to Dserver:         5.0 feet         Moise Source Elevations (in feet)         Moise Source Elevations (in	Peak Hou	ur Volume: 2	,085 vehicles		He	avy Truck	(3+ A	xles):	15		
Site Data         Venicle /ype         Day         Evening         Night         Day           Site Data         Autos: 75%         14.0%         10.5%         77.4%           Barrier Height:         0.0 feet         Marrier, 55.0         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         14.0%         15.5%         16.0%         0.0         16.0%         0.0         16.0%         0.0         16.0%         0.0         16.0%         0.0         0.0         16.0%         0.0 <t< td=""><td></td><td></td><td>45 mph</td><td>ŀ</td><td>Vehicle</td><td>Mix</td><td></td><td></td><td></td><td></td><td></td></t<>			45 mph	ŀ	Vehicle	Mix					
Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         1.6           Barrier Type (0-Wall, 1-Berm):         0.0         Heavy Trucks:         47.3%         0.1           Centerline Dist. to Dserver:         55.0 feet         Heavy Trucks:         47.3%         0.1           Centerline Dist. to Observer:         50.0 feet         Noise Source Elevations (in feet)         Noise Source Elevations (in feet)           Deserver Height (Above Pad):         5.0 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Road Grade:         0.0%         Left View:         -90.0 degrees         Medium Trucks:         46.811           Heavy Trucks:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.0           Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.0           Medium Trucks:         79.45         -19.95         0.32         -1.20         -4.67         0.000         0.0           Medium Trucks:         68.4         67.6         66.2         60.2         68.7         0           Medium Trucks:         63.4         60.1         56.8         61.4 <td>Near/Far Lane</td> <td>Distance:</td> <td>58 feet</td> <td></td> <td></td> <td></td> <td></td> <td>Day</td> <td>Evening</td> <td>Night</td> <td>Daily</td>	Near/Far Lane	Distance:	58 feet					Day	Evening	Night	Daily
Barrier Tier (Newal), 1. Burnier, 1990, 100 (Server, 160 (Server, 150, 0)         Heavy Trucks: 47.3%         5.4%         47.3%         0.1           Centerline Dist. to Diserver:         55.0 feet         Moise Source Elevations (in feet)         Noise Source Elevations (in feet)           Observer Height (Above Pad):         5.0 feet         Autos:         0.000           Pad Elevation:         0.0 feet         Noise Source Elevations (in feet)         Noise Source Elevations 0.0 feet           Road Grade:         0.0%         Left View:         -90.0 degrees         Autos:         46.811           Right View:         90.0 degrees         Medium Trucks:         46.811         Heavy Trucks:         46.811           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bernier Atten           Autos:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.0           Medium Trucks:         79.45         -16.00         0.33         -1.20         -5.38         0.000         0.0           Medium Trucks:         62.6         59.4         51.9         60.7         66.9         1.46           Medium Trucks:         62.6         59.4         51.9 <td< td=""><td>Site Data</td><td></td><td></td><td></td><td></td><td>A</td><td>utos:</td><td>75.5%</td><td>14.0%</td><td>10.5%</td><td>97.42</td></td<>	Site Data					A	utos:	75.5%	14.0%	10.5%	97.42
Dame Type (of Vial, Toberty, Toberty, Contentino Dist, to Barrier: 55,0 feet         Noise Source Elevations (in feet)           Centerline Dist, to Darrier: 55,0 feet         Noise Source Elevations (in feet)           Barrier Distance to Observer: 0,0 feet         Noise Source Elevations (in feet)           Diserver Height (Above Pad): 5,0 feet         Autos: 2,297           Pad Elevation: 0,0 feet         Heavy Trucks: 8,006         Grade Adjustment: 0,0           Road Grade: 0,0%         Left View: -90,0 degrees         Medium Trucks: 46,811           Right View: 90,0 degrees         Heavy Trucks: 46,830         Heavy Trucks: 46,830           FHWA Noise Model Calculations         VehicleType         Reflex Taffic Flow         Distance         Finite Road         Freenel         Barrier Atten         Berm Att           Autos:         68,46         1,24         0,30         -1,20         -4,67         0,000         0,           Heavy Trucks:         84,25         -19,95         0,32         -1,20         -5,38         0,000         0,           VehicleType         Leq Day         Leq Evening         Leq Night         Ledn         CNEL           Medium Trucks:         62,6         59,4         51,9         60,7         66,9         0           Medium Trucks:         62,6         59,4	Barri	ier Heiaht:	0.0 feet		М	edium Tru	icks:	48.9%	2.2%	48.9%	1.849
Centerline Dist. to Observer:         55.0 feet         Noise Source Levations (in feet)           Barrier Distance to Observer:         0.0 feet         Autos:         0.000           Deserver Height (Above Pad):         50.6 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)         Autos:         0.000           Road Grade.         0.0%         Lattos:         47.000         Medium Trucks:         48.811           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Att           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Att           Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.0           Medium Trucks:         79.45         -19.95         0.32         -1.20         -4.87         0.000         0.0           Medium Trucks:         68.8         67.6         66.2         60.2         68.7         0.00         0.0           Medium Trucks:         62.6         59.4         51.9			0.0		1	Heavy Tru	icks:	47.3%	5.4%	47.3%	0.749
Barrier Distance to Observer:         0.0 feet         Autos:         0.000           Observer Height (Above Pad):         5.0 feet         Madium Trucks:         2.297           Madium Trucks:         2.297         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Left View:         90.0 degrees         Autos:         48.811           Right View:         90.0 degrees         Medium Trucks:         46.811         Heavy Trucks:         46.80           FHWA Noise Model Calculations         VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bernier Atten           Medium Trucks:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.           Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leq Evening         Leq Night         CNEL         CNEL           Autos:         68.8         67.6         66.2         60.7         66.9         0.0           Medium Trucks:         63.4         60.1         56.8         61.4				ŀ	Noise S	ource Ele	vations	; (in fe	et)		
Observer Height (Above Pad):         5.0 feet         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Left View:         -90.0 degrees         Medium Trucks:         4.000           Right View:         -90.0 degrees         Medium Trucks:         46.811         Heavy Trucks:         46.811           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Att           Autos:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.0           Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.87         0.000         0.0           Medium Trucks:         84.25         -19.95         0.32         -120         -5.38         0.000         0.0           Unmitigated Noise Levels (without Topo and barrier attenuation)         Leq Evening         Leq Night         Ldn         CNEL           Medium Trucks:         62.6         59.4         51.9         60.7         66.9         0.0           Medium Trucks:         63.4         60.1				ľ		Autos.	0.0	00	,		
Pad Elevation:         0.0 feet         Heavy Tracks:         8.00         Gade Adjustment.         0.0           Road Elevation:         0.0 feet         Lane Equivalent Distance (in feet)         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Lattos:         47.000         Medium Tracks:         48.811           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Att           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Att           Medium Tracks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.0           Heavy Tracks:         84.25         -19.95         0.32         -1.20         -5.38         0.000         0.0           Unmitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Medium Tracks:         62.6         59.4         51.9         60.7         66.9         0.00           VehicleType         Leq Day         Leq Evening         Leq Night         Ldn					Mediu	m Trucks.	2.2	97			
Road Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Autos:         47.000           Left View:         90.0 degrees         Medium Trucks:         46.811           Right View:         90.0 degrees         Frisher Road         Fresnel         Barrier Atten           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Att           Autos:         66.46         1.24         0.30         -1.20         -4.67         0.000         0.           Medium Trucks:         79.45         -16.00         0.33         -1.20         -5.38         0.000         0.           Heavy Trucks:         84.25         -19.95         0.32         -1.20         -5.38         0.000         0.           Unmitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leg Peak Hour         Leg Leg Vening         Leg Night         Ldn         CNEL           Autos:         68.8         67.6         66.2         68.7         66.9         0.0           Medium Trucks:         63.4         60.1         56.8         61.4         67.6         0.0         0.0 <t< td=""><td></td><td>,</td><td></td><td></td><td>Hear</td><td>v Trucks.</td><td>8.0</td><td>06</td><td>Grade Adj</td><td>ustment</td><td>: 0.0</td></t<>		,			Hear	v Trucks.	8.0	06	Grade Adj	ustment	: 0.0
Road Grade:         0.0%         Autos:         47.000           Left View:         -90.0 degrees         Medium Trucks:         46.811           Right View:         90.0 degrees         Medium Trucks:         46.811           Heavy Trucks:         46.830         14.000         0.000           FHWA Noise Model Calculations         VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Att           Autos:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.0           Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.0           Heavy Trucks:         84.25         -19.95         0.32         -120         -5.38         0.000         0.0           Unmitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leg Day         Leg Evening         Leg Night         Ldn         CNEL           Medium Trucks:         62.6         59.4         51.9         60.7         66.9         1           Medium Trucks:         63.4         60.1         56.8         61.4         67.6         1				-							
Left View:         -90.0 degrees         Medium Trucks:         46.811           Right View:         90.0 degrees         Medium Trucks:         46.811           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Att           Autos:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.           Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.           Heavy Trucks:         84.25         -19.95         0.32         -1.20         -5.38         0.000         0.           Unnitigated Noise Levels (without Top and barrier attenuation)         Image: 68.8         67.6         66.2         60.2         68.7         0.           Medium Trucks:         62.6         59.4         51.9         60.7         66.9         0.           Medium Trucks:         63.4         60.1         56.8         61.4         67.6         0.           Medium Trucks:         63.4         60.1         56.8         61.4         67.6         0.           Vehicle Noise:         70.6         68.8         66.9         65.6         72				-	Lane Eq				reet)		
Right View.         90.0 degrees         Heavy Trucks:         46.830           FHWA Noise Model Calculations         Heavy Trucks:         46.830           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.           Medium Trucks:         79.45         -16.00         0.33         -1.20         -5.38         0.000         0.           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leq Evening         Leq Night         Ldn         CNEL           VehicleType         Edge Peak Hour         Leq Day         Leq Evening         Leq Night         ddn         CNEL           Autos:         68.8         67.6         66.2         60.2         68.7         60.7         66.9         0.0           Unnitigated Noise:         63.4         60.1         56.8         61.4         67.6         0.0           Autos:         63.4         60.1         56.8         61.4         67.6         0.0         0.0           Vehicle Noise:         70.6         68.8         66.9         65.6 <th< td=""><td>Ro</td><td>du orado.</td><td>0.070</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	Ro	du orado.	0.070								
FHWA Noise Model Calculations           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bernier Atten           Autos:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.           Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.           Heavy Trucks:         84.25         -19.95         0.32         -1.20         -5.38         0.000         0.           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         68.8         67.6         66.2         68.7         66.9         0.00           Heavy Trucks:         63.4         60.1         56.8         61.4         67.6         0.00           Heavy Trucks:         63.4         60.1         56.8         65.6         72.5         0.00           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA	F										
VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berna Atten           Autos:         68.46         1.24         0.30         -1.20         -4.67         0.000         0.           Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.67         0.000         0.           Heavy Trucks:         84.25         -19.95         0.32         -1.20         -5.38         0.000         0.           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         68.8         67.6         66.2         60.7         66.9         0.0           Medium Trucks:         62.6         59.4         51.9         60.7         66.9         0.0           Heavy Trucks:         63.4         60.1         56.8         61.4         67.6         0.0           Vehicle Noise:         70.6         68.8         66.9         65.6         72.5         0	EHWA Noise Model	Calculations	-								
Medium Trucks:         79.45         -16.00         0.33         -1.20         -4.87         0.000         0.           Heavy Trucks:         84.25         -19.95         0.32         -1.20         -5.38         0.000         0.           Unmitigated Noise Levels (without Topo and barrier attenuation)			raffic Flow D	Distance	Finite	Road	Fresn	el	Barrier Atte	en Bei	m Atter
Heavy Trucks:         84.25         -19.95         0.32         -1.20         -5.38         0.000         0.           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         68.8         67.6         66.2         60.7         66.9	Autos:	68.46	1.24	0.3	30	-1.20		4.67	0.0	00	0.00
Unmitigated Noise Levels (without Topo and barrier attenuation)           VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         68.8         67.6         66.2         60.2         68.7         Indicestructure         CNEL           Medium Trucks:         62.6         59.4         51.9         60.7         66.9         Indicestructure         Indicestructure         Indicestructure         65.8         61.4         67.6         Indicestructure         Indic	Medium Trucks:	79.45	-16.00	0.3	33	-1.20		4.87	0.0	00	0.00
VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         68.8         67.6         66.2         60.2         68.7         Modum Trucks:         62.6         59.4         51.9         60.7         66.9         Modum Trucks:         63.4         60.1         56.8         61.4         67.6         Modum Trucks:         63.4         60.1         56.8         61.4         67.6         Modum Trucks:         70.6         9         Modum Trucks:         63.4         60.1         56.8         61.4         67.6         Modum Trucks:         70.6         9         Modum Trucks:         63.4         60.1         56.8         61.4         67.6         Modum Trucks:         63.4         60.1         56.8         61.4         67.6         Modum Trucks:         63.4         60.4         57.6         Modum Trucks:         60.4         57.6         Modum Trucks:         60.4         60.4         55.6         Modum Trucks:         60.4         60.4         55.6         Modum Trucks:         60.4         60.6         Modum Trucks:         60.4         60.6         Modum Trucks:         60.6         Modum Trucks:         60.6         Modum Trucks:         60.6         Modum Trucks:	Heavy Trucks:	84.25	-19.95	0.3	32	-1.20		-5.38	0.0	00	0.00
Autos:         68.8         67.6         66.2         60.2         68.7           Medium Trucks:         62.6         59.4         51.9         60.7         66.9         1           Heavy Trucks:         63.4         60.1         56.8         61.4         67.6         1           Vehicle Noise:         70.6         68.8         66.9         65.6         72.5         5           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA								r		-	
Medium Trucks:         62.6         59.4         51.9         60.7         66.9         1           Heavy Trucks:         63.4         60.1         56.8         61.4         67.6         0           Vehicle Noise:         70.6         68.8         66.9         65.6         72.5         0           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA							·			-	
Heavy Trucks:         63.4         60.1         56.8         61.4         67.6         1           Vehicle Noise:         70.6         68.8         66.9         65.6         72.5         7           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA											69. 66.
Vehicle Noise:         70.6         68.8         66.9         65.6         72.5           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA											
Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA							-				67.
70 dBA 65 dBA 60 dBA 55 dBA				5	66.9		65.6		72.5	)	72
	Centerline Distance	to Noise Con	tour (in feet)	70	dBA	65 4	RΔ	6	0 dBA	55	dBA
			I da					6			
CNEL: 85 183 395 851							-			-	
UNEL 00 100 399 001			CIVEL	. (	55	10	5		353	c	501

	FHW	/A-RD-77-108	HIGHW	AY N	OISE PR	EDICTIC	ON MOD	DEL			
Road Nam	o: GPBO e: John L. Sin nt: s/o Street A						Name: H Imber: 1		len Betty F	ord Cent	
SITE	SPECIFIC IN	PUT DATA				N	OISE N	IODE	L INPUTS	S	
Highway Data				S	Site Con	ditions (	'Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	4,656 vehicles	6				1	Autos:	15		
Peak Hour	Percentage:	8.38%			Mee	dium Tru	cks (2 A	xles):	15		
Peak H	our Volume:	390 vehicles	6		Hea	avy Truci	ks (3+ A	xles):	15		
Vel	hicle Speed:	25 mph		v	/ehicle	Vix					
Near/Far Lar	ne Distance:	12 feet		-		icleTvpe		Dav	Evening	Night	Daily
Site Data								75.5%	v	v	97.429
Pa	rier Height:	0.0 feet			Me	edium Tru	ucks:	48.9%		48.9%	1.849
Barrier Type (0-W		0.0			F	leavy Tru	ucks:	47.3%	5.4%	47.3%	0.74%
Centerline Dis		30.0 feet		-							
Centerline Dist.		30.0 feet		^	loise So	ource Ele			eet)		
Barrier Distance	to Observer:	0.0 feet				Autos					
Observer Height ()	Above Pad);	5.0 feet				m Trucks			Our de Ad		0.0
0 1	d Elevation:	0.0 feet			Heav	ry Trucks	: 8.0	006	Grade Adj	ustment	0.0
Roa	d Elevation:	0.0 feet		L	ane Eq	uivalent	Distand	e (in i	feet)		
ŀ	Road Grade:	0.0%				Autos	: 29.8	816			
	Left View:	-90.0 degree	es		Mediur	m Trucks	: 29.5	518			
	Right View:	90.0 degree	es		Heav	ry Trucks	: 29.5	547			
FHWA Noise Mode	el Calculation	5									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	58.73	-3.49		3.26	6	-1.20		4.49	0.0	00	0.00
Medium Trucks:	70.80	-20.72		3.33	6	-1.20		4.86	0.0	00	0.00
Heavy Trucks:	77.97	-24.68		3.32	!	-1.20		-5.77	0.0	00	0.00
Unmitigated Noise											
	Leq Peak Hou			eq Ev	ening	Leq N	·		Ldn		VEL
Autos:	57.	-	56.1		54.8		48.7		57.2		57.
Medium Trucks:	52	-	49.1		41.6		50.3		56.5		56.
Heavy Trucks:	55.		52.1		48.7		53.4		59.6		59.
Vehicle Noise:	60.		58.1		55.9		56.0		62.7		63.
Centerline Distant	e to Noise Co	ntour (in feet	)	70	04	05	04		0.404		-/0.4
			Ldn:	70 d		65 a		e	60 dBA		dBA 98
			Lan: VFL :	10	-	21			46 47		98 02

Tuesday, February 4, 2020

Tuesday, February 4, 2020

Tuesday, February 4, 2020

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Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         1.84           Barrier Type (0-Wall, 1-Berm):         0.0         1.84         Heavy Trucks:         47.3%         5.4%         47.3%         0.74           Centerline Dist. to Dserver:         30.0 feet         Noise Source Elevations (in feet)         Autos:         0.00           Barrier Distance to Observer:         0.0 feet         Autos:         0.00         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Autos:         0.00         Grade Adjustment:         0.0           Road Grade:         0.0%         Autos:         2.9518         Heavy Trucks:         29.518           FHWA Noise Model Calculations         VenicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         70.80         -23.42         3.33         -1.20         -4.49         0.000         0.00           Medium Trucks:         79.7         -27.38         3.32         -1.20         -5.77         0.000         0.00           Medium Trucks:         54.6         53.4         52.1         46.1         54.5         55 <th></th> <th>FHW</th> <th>/A-RD-77-108</th> <th>HIGHW</th> <th>VAY NO</th> <th>DISE PR</th> <th>REDICT</th> <th></th> <th>DEL</th> <th></th> <th></th> <th></th>		FHW	/A-RD-77-108	HIGHW	VAY NO	DISE PR	REDICT		DEL			
Road Segment: slo MacMillan Wy.           SITE SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adl):         2,503 vehicles         Autors: 15           Peak Hour Percentage:         8.3%         Medium Trucks (2 Axles): 15           Vehicle Speed:         25 mph         Vehicle Mix           Vehicle Speed:         25 mph         Vehicle Mix           Ste Data         Aurorage (Pwall, 1-Berrr):         0.0           Barrier Type (Owall, 1-Berrr):         0.0         Vehicle Type         Day         Venice Wall, 1-Berrr):           Barrier Type (Owall, 1-Berrr):         0.0 feet         Autos:: 75.5%         Autos:: 75.5%         Autos:           Barrier Type (Owall, 1-Berrr):         0.0 feet         Autos:: 75.5%         Autos:: 8.006         Grade Adjustment: 0.0           Barrier Type (Owall, 1-Berrr):         0.0 feet         Autos:: 2.9.816           Medium Trucks:         29.916         Medium Trucks: 29.518           WehicleType         REMEL         Traffic Flow         Distance         Finite Road	Scenario	o: GPBO					Project	t Name: H	lazelde	en Betty F	ord Cen	t
SITE SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)         Average Daily Traffic (Adi):         2,503 vehicles         Autos:         15           Peak Hour Porcentage:         8.38%         Medium Trucks (24 Akles):         15           Peak Hour Volume:         210 vehicles         Heavy Trucks (34 Akles):         15           Vehicle Speed:         25 mph         Vehicle Type         Day         Evening         Night         Daily           Site Data          Autos:         75.5%         14.0%         10.5%         97.42'           Barrier Height:         0.0 feet         Heavy Trucks:         47.3%         5.4%         47.3%         0.74'           Centerline Dist. to Barrier:         30.0 feet         Autos:         0.000         Medium Trucks:         2.29'         Heavy Trucks:         2.29'         Mole Calculations         Noise Barrier Atten         Deret theavy Trucks:         2.29'         Heavy Trucks:	Road Name	e: Joe Friend l	_n.				Job N	lumber: '	2720			
Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adi):         2,503 vehicles         Autos:         15           Peak Hour Percentage:         8.38%         Autos:         15           Peak Hour Volume:         210 vehicles         Medium Trucks (24 Ades):         15           Vehicle Speed:         25 mph         Vehicle Type         Day         Evening         Night         Daily           Site Data         Vehicle Type         Day         Evening         Night         Daily           Site Data         0.0 feet         Heavy Trucks:         47.3%         5.4%         47.3%         0.74           Barrier Height:         0.0 feet         Heavy Trucks:         47.3%         5.4%         47.3%         0.74           Centerline Dist. to Barrier:         0.0 feet         Autos:         0.000         Medium Trucks:         2.297         Heavy Trucks:         2.297           Deserver Height (Above Pad):         5.0 feet         Road Grade:         0.0%         Laft View:         9.00 degrees         Mutos:         2.29.518         Heavy Trucks:         2.9.518           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Attent	Road Segmen	nt: s/o MacMilla	an Wy.									
Average Delly Traffic (Adt):         2,503 vehicles           Average Delly Traffic (Adt):         2,503 vehicles           Peak Hour Percentage:         8,38%           Peak Hour Volume:         210 vehicles           Vehicle Speed:         25 mph           Near/Far Lane Distance:         12 feet           Barrier Type (0-Wall, 1-Berm):         0.0           Centerline Dist. to Diserver:         30.0 feet           Barrier Type (0-Wall, 1-Berm):         0.0           Centerline Dist. to Diserver:         30.0 feet           Barrier Type (0-Wall, 1-Berm):         0.0           Centerline Dist. to Darrier:         30.0 feet           Road Elevation:         0.0 feet           Road Elevation:         0.0 feet           Road Grade:         0.0%           Left Ivew:         90.0 degrees           Right View:         90.0 degrees           Right View:         90.0 degrees           Ridelum Trucks:         73.3           Type         REIMEL Traffic Flow           Distance         Finite Road           Finite Road         Fresnel           Barrier Atten         Berr Atten           Autos:         57.7           VehicleType         REIMeL Traffic Flow	SITES	SPECIFIC IN	PUT DATA				ľ	NOISE N	IODEL	. INPUTS	S	
Peak Hour Percentage:         8.38%         Medium Trucks (2 Axles):         15           Peak Hour Volume:         210 vehicles         Heavy Trucks (3 + Axles):         15           Vehicle Speed:         25 mph         Vehicle Mix         Vehicle Mix         Vehicle Mix           Site Data         Autos:         75.5%         14.0%         10.5%         97.42'           Barrier Type (Owall, 1-Berm):         0.0 feet         Autos:         75.5%         48.9%         2.2%         48.9%         0.74'           Centerline Dist. to Barrier:         30.0 feet         Medium Trucks:         2.29'         48.9%         0.74'           Barrier Type (Owall, 1-Berm):         0.0 feet         Autos:         0.000         Medium Trucks:         47.3%         5.4%         0.74'           Barrier Dist. to Diserver:         0.0 feet         Autos:         0.000         Medium Trucks:         2.29'         Medium Trucks:         2.29'         Medium Trucks:         2.29'         Medium Trucks:         2.9.816         Medium Trucks:         0.00           Road Elevation:         0.0 feet         Autos:         29.518         Heavy Trucks:         29.518         Heavy Trucks:         29.518           VehicleType         REIMEL         Traffic Flow         Distance	Highway Data				S	ite Cor	ditions	(Hard =	10, Soi	ft = 15)		
Peak Hour Volume:         210 vehicles           Vehicle Speed:         25 mph           Near/Far Lane Distance:         12 feet           Vehicle Type         Day         Evening         Night         Daily           Site Data         Vehicle Type         Day         Evening         Night         Daily           Site Data         Pariter Height:         0.0 feet         Nearrier Height:         0.0 feet         Nation:         Notes           Barrier Type (0-Wail, 1-Berm):         0.0 feet         Noise Source Elevations (in feet)         Noise Source Elevations (in feet)           Centerline Dist. to Dbserver:         0.0 feet         Autos:         0.000         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Road Grade:         0.0%         Laft View:         90.0 degrees         Heavy Trucks:         29.518           WehicleType         RefMed         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           VehicleType         Leq Day         Leq Evening         Leq Evening         Leq Evening         Moil         CNO           Watos:         58.73	Average Daily 1	Traffic (Adt):	2,503 vehicle	s					Autos:	15		
Vehicle Speed:         25 mph 12 feet         Vehicle Type         Day         Evening         Night         Daily           Site Data         Autos:         75 % 14.0%         10.5%         97.42           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         2.4%         48.9%         10.5%         97.42           Barrier Type (0-Wall, 1-Berm):         0.0         feet         Medium Trucks:         48.9%         2.2%         48.9%         2.2%         44.9%         10.5%         97.42           Barrier Type (0-Wall, 1-Berm):         0.0 feet         Medium Trucks:         48.9%         2.2%         44.9%         0.074           Centerline Dist. to Dserver:         0.0 feet         Autos:         0.000         Trucks:         42.97           Pad Elevation:         0.0 feet         Autos:         2.9.816         Medium Trucks:         2.9.816           Road Grade:         0.0%         Autos:         29.518         Heavy Trucks:         29.518           FHWA Noise Model Calculations         VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         58.7         -6.18	Peak Hour F	Percentage:	8.38%			Me	dium Tr	ucks (2 A	xles):	15		
Near/Far Lane Distance:         12 feet         Vehicle Mix         Day         Evening         Night         Daily           Site Data         Autos:         75.5%         14.0%         10.5%         97.42'           Barrier Type (O-Walt, 1-Berm):         0.0         0         Medium Trucks:         48.9%         2.2%         48.9%         18.4%           Barrier Type (O-Walt, 1-Berm):         0.0         0         Centerline Dist. to Diserver:         30.0 feet         Autos:         0.000         0.742'           Barrier Type (O-Walt, 1-Berm):         0.0 feet         Autos:         0.000         0.000         0.742'           Barrier Distance to Observer:         0.0 feet         Autos:         0.000         Medium Trucks:         2.297         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Autos:         2.9.816         Autos:         2.9.816           Medium Trucks:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -2.3.42         3.33         -1.20         -4.49         0.000         0.00           Heavy Trucks:         77.97         -27.38         3.26<	Peak Ho	our Volume:	210 vehicle	s		He	avy Tru	cks (3+ A	xles):	15		
Near/Far Lane Distance:         12 feet           WehicleType         Day         Evening         Night         Daily           Site Data         Autos:         75.5%         14.0%         10.5%         97.42%           Barrier Type (0-Wall, 1-Berrn):         0.0         Centerline Dist. to Darier:         30.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         1.24%           Barrier Type (0-Wall, 1-Berrn):         0.0         Test         Autos:         0.10         Night         Daily           Centerline Dist. to Darier:         30.0 feet         Autos:         0.00         Centerline Dist. to Darier:         No feet         Noise Source Elevations (in feet)           Deal Elevation:         0.0 feet         Autos:         0.00         Centerline Dist.         0.00           Road Elevation:         0.0 feet         Autos:         29.816         Left Ivew:         0.0           Heavy Trucks:         29.816         Left Ivew:         90.0 degrees         Finite Road         Fresnel         Barrier Atten         Berm Atten           WehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           WehicleType         Leg Deait	Veh	hicle Speed:	25 mph		v	ehicle	Mix					
Site Data         Autos:         75.5%         14.0%         10.5%         97.42           Barrier Type (V-Walt, 1-Berm):         0.0         Medium Trucks:         48.9%         2.2%         48.9%         12.5%         41.0%         10.5%         97.42           Barrier Type (V-Walt, 1-Berm):         0.0         Genterline Dist. to Barrier:         30.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         2.4%         47.3%         5.4%         67.4%         67.4%         67.4%         67.4%         67.4%         67.4%         67.4%         67.4%         67.4%         67.4%         67.4%         67.4%         67.4%<	Near/Far Lan	ne Distance:	12 feet		-			9	Dav	Evenina	Niaht	Daily
Barrier Type (0.4)wall, 1-Barm):         0.0 feet         Heavy Trucks:         47.3%         5.4%         47.3%         0.74'           Centerline Dist. to Diserver:         30.0 feet         Noise Source Elevations (in feet)           Barrier Dist. to Observer:         0.0 feet         Autos:         0.000         Medium Trucks:         2.297           Moise Source Elevation:         0.0 feet         Autos:         8.006         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Autos:         29.816         Medium Trucks:         29.518           FHWA Noise Model Calculations         Uestivew:         90.0 degrees         Heavy Trucks:         29.547           FHWA Noise Model Calculations         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         7.97         -27.38         3.32         -1.20         -5.77         0.000         0.00           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leq Evening         Leq Night         Ldn	Site Data								.,			
Barrier Type (0-Wall, 1-Berm):         0.0         Heavy Trucks:         47.3%         5.4%         47.3%         0.74'           Centerline Dist. to Dserver:         30.0 feet         Noise Source Elevations (in feet)         Autos:         0.000           Deserver Height (Above Pad):         5.0 feet         Autos:         0.000         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Autos:         0.006         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Autos:         29.816         Autos:         29.816           Road Grade:         0.0%         Autos:         29.518         Heavy Trucks:         29.518           Heavy Trucks:         70.80         -23.42         3.33         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -5.77         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -5.77         0.000         0.00           Medium Trucks:         79.5         46.4         38.9         47.6         53.8         53           Medium Trucks:         49.5         46.6         53.2	Par	rior Hoight:	0.0 foot			М	edium T	rucks:	48.9%	2.2%	48.9%	1.84%
Centerline Dist. to Observer:         30.0 feet         Noise Source Elevations (in feet)           Barrier Distance to Observer:         0.0 feet         Autos:         0.000           Deserver Height (Above Pac)         5.0 feet         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Medium Trucks:         2.297           Road Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Grade         0.0%         Autos:         29.518           Right View:         -90.0 degrees         Medium Trucks:         29.518           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -5.77         0.000         0.00           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55           Me						1	Heavy T	rucks:	47.3%	5.4%	47.3%	0.74%
Barrier Distance to Observer:         0.0 feet         Autos:         0.000           Observer Height (Above Pad):         5.0 feet         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Left View:         90.0 degrees         Autos:         29.816           Road Grade:         0.0%         Autos:         29.816         Medium Trucks:         29.513           FHWA Noise Model Calculations         90.0 degrees         Feed Elevation:         90.0 degrees         Heavy Trucks:         29.513           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Free         Barrier Atten         Bern Atter           Autos:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -5.77         0.000         0.00           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leg Evening         Leg Night         Ldn         CNEL           VehicloType         E9.64         38.9         47.6         53.8         53.8					N	oise Se	ource E	levations	; (in fe	et)		
Observer Height (Above Pad):         5.0 feet         Image: Constraint of the							Auto	os: 0.0	00	1		
Pad Elevation:         0.0 feet         Interset         0.00 Grade Adjustment.         0.00 Gradjustment.         0.00 Grade Adjustment.<						Mediu	m Truck	s: 2.2	97			
Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Autos:         29.816           Left View:         -90.0 degrees         Medium Trucks:         29.518           FHWA Noise Model Calculations         VehicleType         ReBMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berma Atten           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atter           Autos:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -5.77         0.000         0.00           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leg Peak Hour         Leg Qay         Leg Evening         Leg Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55           Medium Trucks:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (In feet) <t< td=""><td>0 1</td><td>,</td><td></td><td></td><td></td><td>Heav</td><td>v Truck</td><td>s: 8.0</td><td>06 (</td><td>Grade Adj</td><td>ustment</td><td>: 0.0</td></t<>	0 1	,				Heav	v Truck	s: 8.0	06 (	Grade Adj	ustment	: 0.0
Road Grade:         0.0%         Autos:         29.816           Left View:         -90.0 degrees         Autos:         29.816           Right View:         -90.0 degrees         Medium Trucks:         29.513           FHWA Noise Model Calculations         VehicleType         RegMet         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atter           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atter           Medium Trucks:         70.80         -23.42         3.33         -1.20         -4.46         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -5.77         0.000         0.00           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Qay         Leq Evening         Leq Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55           Medium Trucks:         49.5         46.4         38.9         47.6         53.8         53           Heavy Trucks:         52.7         49.							· · ·					
Left View:         -90.0 degrees         Medium Trucks:         29.518           Right View:         90.0 degrees         Heavy Trucks:         29.547           FHWA Noise Model Calculations         Entite Road         Fresnel         Barrier Atten         Bern Atten           Autos:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -4.49         0.000         0.00           Medium Trucks:         77.9         -27.38         3.32         -1.20         -5.77         0.000         0.00           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55           Medium Trucks:         19.5         46.4         38.9         47.6         53.8         53           Heavy Trucks:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (In feet)					L	ane Eq				eet)		
Right View:         90.0 degrees         Heavy Trucks:         29.547           FHWA Noise Model Calculations         Heavy Trucks:         29.547           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berrn Atten           Medium Trucks:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -4.86         0.000         0.00           Medium Trucks:         77.97         -27.38         3.32         -1.20         -5.77         0.000         0.00           Unmitigated Noise Levels (without Topo and barrier attenuation)         Leq Revining         Leq Right         Ldn         CNEL           VehicleType         Leq Peak Hour         Leq Day         Leq Revining         Leg Right         Ldn         CNEL           Medium Trucks:         52.7         49.4         46.0         50.7         55.4         53.2         53.3         60.0           Meavy Trucks:         57.5         55.4         53.2         53.3         60.0         60           Canter line Distance to Noise Contour (In feet)         Tuby <t< td=""><td>F</td><td></td><td></td><td></td><td></td><td></td><td></td><td>20.0</td><td></td><td></td><td></td><td></td></t<>	F							20.0				
FHWA Noise Model Calculations           FHWA Noise Model Calculations           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atter           Autos:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -4.46         0.000         0.00           Imitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leg Peak Hour         Leg Day         Leg Evening         Leq Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55           Medium Trucks:         49.5         46.4         38.9         47.6         53.8         53           Medium Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise								20.0				
VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atter           Autos:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -4.49         0.000         0.00           Heavy Trucks:         77.97         -27.38         3.32         -1.20         -5.77         0.000         0.00           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leq Evening         Leq Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55           Medium Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (in feet)         Tradiba         Contour (in feet)         Tradiba         55 dBA           Ldn:         7         14         30         65		Right View:	90.0 degre	es		Heav	y Truck	(S: 29.5	647			
Autos:         58.73         -6.18         3.26         -1.20         -4.49         0.000         0.00           Medium Trucks:         70.80         -23.42         3.33         -1.20         -4.86         0.000         0.00           Heavy Trucks:         77.97         -27.38         3.32         -1.20         -5.77         0.000         0.00           Unitigated Noise Levels (without Topo and barrier attenuation)         Leq Revening         Leq Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55           Medium Trucks:         49.5         46.4         38.9         47.6         53.8         53           Heavy Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (in feet)         To dBA         65 dBA         60 dBA         55 dBA           Ldn:         7         14         30         65	FHWA Noise Mode											
Medium Trucks:         70.80         -23.42         3.33         -1.20         -4.86         0.000         0.00           Heavy Trucks:         77.97         -27.38         3.32         -1.20         -5.77         0.000         0.00           Unnitigated Noise Levels (without Topo and barrier attenuation)          -6.77         0.000         0.00           VehicloType         Leg Peak Hour         Leg Devining         Leg Reining         Leg Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55           Medium Trucks:         49.5         46.4         38.9         47.6         53.8         53           Heavy Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (In feet)         -         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         7         14         30         65         55				Dista		Finite						
Heavy Trucks:         77.97         -27.38         3.32         -1.20         -5.77         0.000         0.000           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leq Night         Ldn         CNEL           VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Medium Trucks:         54.6         53.4         52.1         46.1         54.5         55.8           Medium Trucks:         59.5         46.4         38.9         47.6         53.8         53.8           Heavy Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (in feet)												0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)           VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55.4           Medium Trucks:         49.5         46.4         38.9         47.6         53.8         53.8           Heavy Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (In feet)												0.000
VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         54.6         53.4         52.1         46.1         54.5         55.5           Medium Trucks:         49.5         46.4         38.9         47.6         53.8         53.8           Heavy Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         600           Centerline Distance to Noise Contour (In feet)		-			0.02		-1.20		-5.77	0.0	00	0.000
Autos:         54.6         53.4         52.1         46.1         54.5         55           Medium Trucks:         49.5         46.4         38.9         47.6         53.8         53           Heavy Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         7         14         30         65												
Medium Trucks:         49.5         46.4         38.9         47.6         53.8         53           Heavy Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         7         14         30         65		1			Leq Eve		Leq					
Heavy Trucks:         52.7         49.4         46.0         50.7         56.9         57           Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         7         14         30         65			-									
Vehicle Noise:         57.5         55.4         53.2         53.3         60.0         60           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         7         14         30         65			-									
T0 dBA         65 dBA         60 dBA         55 dBA           Ldn:         7         14         30         65	· · · · ·	-										60.3
T0 dBA         65 dBA         60 dBA         55 dBA           Ldn:         7         14         30         65	Centerline Distanc	e to Noise Co	ntour (in feet	)								
					70 dl	BA	65	dBA	60	0 dBA	55	dBA
				Ldn:	7			14		30		65
CNEL: 7 15 31 67			C	NEL:	7			15		31		67

	FHW	/A-RD-77-108	HIGHW	AY NO	ISE PREDICT	ION MO	DEL			
Road Nam	o: GPBO e: Vista Del So nt: n/o Betty Fo					t Name: lumber:		len Betty Fo	ord Cent	
SITE	SPECIFIC IN	PUT DATA			1	NOISE I	/IODE	L INPUTS	5	
Highway Data				Si	te Conditions					
	Traffic (Adt): Percentage: our Volume:	2,199 vehicles 8.38% 184 vehicles			Medium Tr Heavy Tru	ucks (2 /		15 15 15		
	hicle Speed:	25 mph			,					
Near/Far I ar		12 feet		Ve	ehicle Mix			,		
	io Biotanoo.	12 1000			VehicleType		Day	Evening	Night	Daily
Site Data							75.5%		10.5%	
	rier Height:	0.0 feet			Medium T		48.9%		48.9%	1.849
Barrier Type (0-W	all, 1-Berm):	0.0			Heavy T	rucks:	47.3%	5.4%	47.3%	0.749
Centerline Dis	t. to Barrier:	30.0 feet		N	oise Source E	levation	s (in fe	et)		
Centerline Dist.	to Observer:	30.0 feet		-	Auto		000	,		
Barrier Distance	to Observer:	0.0 feet			Medium Truck		297			
Observer Height (J	Above Pad):	5.0 feet			Heavy Truck		006	Grade Adj	ustment	0.0
Pa	d Elevation:	0.0 feet			-			,	Journorm	0.0
Roa	d Elevation:	0.0 feet		Lá	ane Equivalen	t Distan	ce (in	feet)		
ŀ	Road Grade:	0.0%			Auto	s: 29.	816			
	Left View:	-90.0 degree	s		Medium Truck	s: 29.	518			
	Right View:	90.0 degree	s		Heavy Truck	:s: 29.	547			
FHWA Noise Mode	el Calculation	5								
VehicleType	REMEL	Traffic Flow	Dista		Finite Road	Fresr	-	Barrier Atte		m Atten
Autos:	58.73	-6.74		3.26	-1.20		-4.49	0.0		0.00
Medium Trucks:	70.80	-23.98		3.33	-1.20		-4.86	0.0		0.00
Heavy Trucks:	77.97	-27.94		3.32	-1.20		-5.77	0.0	00	0.00
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)					
VehicleType	Leq Peak Hou	r Leq Day	L	eq Eve	ning Leq	Night		Ldn	CI	VEL
Autos:	54.		52.8		51.5	45.5		53.9		54.
Medium Trucks:	48.		45.8		38.3	47.1		53.2		53.
Heavy Trucks:	52	.2 4	48.9		45.5	50.1		56.3		56.
Vehicle Noise:	57.	.0 .	54.9		52.6	52.8	3	59.5		59.
Centerline Distand	ce to Noise Co	ontour (in feet)	)							
				70 dE		dBA	6	60 dBA	55	dBA
			Ldn:	6		13		28		50
			JFI :	0		13		29		32

	FHW	/A-RD-77-108	HIGH	HWAY N	IOISE PF	REDICTIO	ON MOI	DEL				
	o: GPBO e: Vista Del So nt: n/o Country						Name: I Imber:		ien Betty F	ord Ce	ent	
	SPECIFIC IN	PUT DATA								s		
Highway Data					Site Con	ditions (	Hard =	10, So	oft = 15)			
Average Daily T Peak Hour I Peak He	. ,	2,199 vehicle 8.38% 184 vehicle				dium Tru avy Truc	cks (2 A		15			
Vel	nicle Speed:	25 mph		-	Vehicle I	Mix						
Near/Far Lar	e Distance:	12 feet		-		icleType		Day	Evening	Nigh	t .	Daily
Site Data								75.5%	•	10.5		7.42%
Bar	rier Height:	0.0 feet			Me	edium Tr	ucks:	48.9%	2.2%	48.9	%	1.84%
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	leavy Tr	ucks:	47.3%	5.4%	47.3	%	0.74%
Centerline Dis		30.0 feet		1	Noise So	ource Ele	evation	s (in fe	eet)			
Centerline Dist. t		30.0 feet				Autos	: 0.0	000				
Barrier Distance t		0.0 feet			Mediur	n Trucks	: 2.2	297				
Observer Height (/	,	5.0 feet			Heav	y Trucks	: 8.0	006	Grade Adj	iustme	nt: C	0.0
	d Elevation:	0.0 feet		-			Distant		64)			
	d Elevation:	0.0 feet		Ľ.	Lane Eq				ieel)			
F	Road Grade:	0.0%				Autos n Trucks						
	Left View: Right View:	-90.0 degree 90.0 degree				n Trucks y Trucks						
FHWA Noise Mode	el Calculations	s										
VehicleType	REMEL	Traffic Flow	Di	stance	Finite	Road	Fresn	el	Barrier Att	en E	lerm	Atten
Autos:	58.73	-6.74		3.2	6	-1.20		-4.49	0.0	000		0.000
Medium Trucks:	70.80	-23.98		3.3	3	-1.20		-4.86	0.0	000		0.000
Heavy Trucks:	77.97	-27.94		3.3	2	-1.20		-5.77	0.0	000		0.000
Unmitigated Noise												
	Leq Peak Hou			Leq E	vening	Leq I	· ·		Ldn		CNE	
Autos:	54.		52.8		51.5		45.5		53.9	-		54.5
Medium Trucks:	48.	-	45.8		38.3		47.1		53.2	-		53.3
Heavy Trucks:	52.	-	48.9		45.5		50.1		56.3			56.4
Vehicle Noise:	57.	.0	54.9		52.6		52.8		59.5	5		59.7
Centerline Distance	e to Noise Co	ontour (in feet	)									
					dBA	65 0		6	60 dBA		55 dE	BA
			Ldn:		6	1:	-		28		60	
		CI	VEL:	6	ö	1:	3		29		62	

FH	WA-RD-77-108 HIG	SHWAY I	NOISE PR	EDICT		DEL			
Scenario: GPBO Road Name: MacMillan	Wy				Name: H umber: 1		len Betty F	ord Cent	
Road Segment: e/o Bob H	/			00014	umber. 1	2120			
SITE SPECIFIC I	NPUT DATA			N	IOISE N	IODE	L INPUT	s	
Highway Data			Site Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily Traffic (Adt):	4,079 vehicles				A	Autos:	15		
Peak Hour Percentage:	8.38%		Med	dium Tru	ucks (2 A	xles):	15		
Peak Hour Volume:	342 vehicles		Hea	avy Truc	cks (3+ A	xles):	15		
Vehicle Speed:	25 mph	ŀ	Vehicle I	Niv					
Near/Far Lane Distance:	12 feet	-		cleType		Day	Evening	Night	Daily
Site Data			veni			75.5%	0	10.5%	
Barrier Height:	0.0 feet		Ме	dium Ti		48.9%		48.9%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0		H	leavy T	rucks:	47.3%	5.4%	47.3%	0.74%
Centerline Dist. to Barrier:	30.0 feet	-	Noise So	urco E	lovations	(in fr	not)		
Centerline Dist. to Observer:	30.0 feet	ŀ	110/30 00	Auto					
Barrier Distance to Observer:	0.0 feet		Madium	n Truck					
Observer Height (Above Pad):	5.0 feet			y Truck			Grade Ad	ustmont	0.0
Pad Elevation:	0.0 feet		i ieav	y much	s. o.u	00	Orade Adj	usunoni	0.0
Road Elevation:	0.0 feet		Lane Equ	uivalen	t Distanc	e (in i	feet)		
Road Grade:	0.0%			Auto	s: 29.8	16			
Left View:	-90.0 degrees		Mediur	n Truck	s: 29.5	18			
Right View:	90.0 degrees		Heav	y Truck	s: 29.5	47			
FHWA Noise Model Calculation	ns								
VehicleType REMEL	Traffic Flow E	Distance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos: 58.73	-4.06	3.2	26	-1.20		4.49	0.0	000	0.000
Medium Trucks: 70.80		3.3		-1.20		4.86	0.0		0.000
Heavy Trucks: 77.97	-25.25	3.3	32	-1.20		-5.77	0.0	000	0.000
Unmitigated Noise Levels (with									
VehicleType Leq Peak Ho	ur Leq Day	Leq E	vening	Leq	Night		Ldn		NEL
	6.7 55.5	-	54.2		48.2		56.6		57.2
	1.6 48.5		41.0		49.7		55.9		56.0
	4.8 51.6		48.2		52.8		59.0		59.1
Vehicle Noise: 5	9.6 57.5	5	55.3		55.5		62.2	2	62.4
Centerline Distance to Noise C	contour (in feet)								
			dBA		dBA	6	60 dBA		dBA
	Ldn		9		9		42		90
	CNEL		9	2	20		43	9	93

Tuesday, February 4, 2020

Tuesday, February 4, 2020

FHV	VA-RD-77-108 HIG	GHWAY I	NOISE PF	REDICTIO	N MODEL		
Scenario: GPBO Road Name: Street A Road Segment: e/o Bob Ho	pe Dr.				ame: Haze nber: 1272	lden Betty Fo	ord Cent
SITE SPECIFIC IN	IPUT DATA			NO	ISE MOD	EL INPUTS	5
Highway Data			Site Con	ditions (H	lard = 10, S	oft = 15)	
Average Daily Traffic (Adt): Peak Hour Percentage: Peak Hour Volume:	2,531 vehicles 8.38% 212 vehicles				Autos ks (2 Axles) s (3+ Axles)	: 15	
Vehicle Speed:	25 mph		Vehicle	Mix			
Near/Far Lane Distance:	12 feet			icleType	Dav	Evening	Night Daily
Site Data			1011		tos: 75.5	•	10.5% 97.42%
Barrier Height:	0.0 feet		Me	edium True	cks: 48.9	% 2.2%	48.9% 1.84%
Barrier Type (0-Wall, 1-Berm):	0.0		ŀ	leavy Tru	cks: 47.3	% 5.4%	47.3% 0.74%
Centerline Dist. to Barrier:	30.0 feet		Noise So	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			y Trucks:	8.006	Grade Adj	ustment: 0.0
Pad Elevation: Road Elevation:	0.0 feet 0.0 feet		l ano Ea	uivalent F	)istance (in	foot)	
Road Elevation: Road Grade:	0.0 feet		LaneLy	Autos:	29.816	leel)	
Left View:	-90.0 degrees		Modiu	m Trucks:	29.610		
Right View:	90.0 degrees			ry Trucks:	29.518		
FHWA Noise Model Calculation	s						
VehicleType REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atte	en Berm Atten
Autos: 58.73	-6.13	3.2	26	-1.20	-4.49	0.0	00 0.000
Medium Trucks: 70.80	-23.37	3.3	33	-1.20	-4.86	0.0	00 0.000
Heavy Trucks: 77.97	-27.33	3.3	32	-1.20	-5.77	0.0	00 0.000
Unmitigated Noise Levels (with							
VehicleType Leq Peak Hou			vening	Leq Ni	•	Ldn	CNEL
Autos: 54			52.1		46.1	54.5	
Medium Trucks: 49			38.9		47.7	53.8	
Heavy Trucks: 52		-	46.1		50.7	56.9	
Vehicle Noise: 57		5	53.2		53.4	60.1	60.3
Centerline Distance to Noise Co	ontour (in feet)	70	dBA	65 dE	BA	60 dBA	55 dBA
	Ldn		7	14		30	65
	CNEL	.:	7	15		32	68

	FHW	/A-RD-77-108	HIGH\	NAY NO	ISE PRE	EDICT	ION MO	DEL			
Scenar	io: GPBO				F	Project	Name:	Hazel	den Betty F	ord Cent	
Road Nam	e: Betty Ford V	Vy.				Job N	lumber:	12720	-		
Road Segmer	nt: e/o Joe Frie	nd Ln.									
	SPECIFIC IN	PUT DATA							L INPUT	5	
Highway Data				Si	te Cond	litions	(Hard =	: 10, S	oft = 15)		
Average Daily	Traffic (Adt):	1,364 vehicles						Autos:	15		
Peak Hour	Percentage:	8.38%			Medi	ium Tr	ucks (2 )	Axles):	15		
Peak H	our Volume:	114 vehicles			Hear	vy Tru	cks (3+ )	Axles):	15		
Ve	hicle Speed:	25 mph		14	ehicle M	1					
Near/Far Lai	ne Distance:	12 feet		Ve				Dav	Evening	Night	Daily
Site Data					venic	leType	# Autos:	75.5%		10.5%	
					Mar		rucks:	48.9%		48.9%	1.849
	rrier Height:	0.0 feet					rucks: rucks:	40.9%		40.9%	0.749
Barrier Type (0-W	. ,	0.0			пе	eavy I	IUCKS.	47.37	0 0.470	47.370	0.747
Centerline Dis		30.0 feet		N	oise Sou	ırce E	levation	s (in f	eet)		
Centerline Dist.		30.0 feet				Auto	s: 0.	000			
Barrier Distance		0.0 feet			Medium	Truck	s: 2.	297			
Observer Height (.	,	5.0 feet			Heavy	Truck	s: 8.	006	Grade Adj	ustment	0.0
	ad Elevation:	0.0 feet		_							
	ad Elevation:	0.0 feet		Lá	ane Equ				feet)		
1	Road Grade:	0.0%				Auto	LU.	816			
	Left View:	-90.0 degree			Medium		LU.	518			
	Right View:	90.0 degree	s		Heavy	Truck	s: 29.	547			
FHWA Noise Mod	el Calculations	6									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite R	Road	Fresi	nel	Barrier Atte		m Atten
Autos:	58.73	-8.82		3.26		-1.20		-4.49	0.0	00	0.00
Medium Trucks:	70.80	-26.06		3.33		-1.20		-4.86	0.0		0.00
Heavy Trucks:	77.97	-30.01		3.32		-1.20		-5.77	0.0	00	0.00
Unmitigated Noise											
VehicleType	Leq Peak Hou			Leq Eve	•	Leq	Night		Ldn		NEL
Autos:	52.		50.7		49.4		43.4		51.8		52.
Medium Trucks:	46.		3.7		36.2		45.0		51.2		51.
Heavy Trucks:	50.		6.8		43.4		48.		54.3		54.
Vehicle Noise:	54.	-	52.8		50.6		50.3	7	57.4		57.
Centerline Distant	ce to Noise Co	ntour (in feet)		70 1		07	-/0.4		0.404		-10.4
			dn:	70 dE	5A		dBA	1 1	60 dBA		dBA
			un:	4			9		20		43
		-	IFL :	4			10		21		45

	FHV	VA-RD-77-108	HIGHW	AY N	IOISE PR	EDICTIO	ON MOD	EL			
Scenario	GPBO					Project I	Vame: H	lazeld	len Betty Fo	ord Cen	t
	: Country Clu					Job NL	mber: 1	2720			
Road Segment	: w/o Bob Ho	pe Dr.									
	PECIFIC IN	IPUT DATA			014 0					5	
Highway Data					Site Con	ditions (			,		
Average Daily T	. ,		s					utos:			
Peak Hour P		8.38%				lium Tru			15		
	ur Volume:	2,022 vehicle	s		Hea	avy Truci	ks (3+ A	xles):	15		
	icle Speed:	45 mph		F	Vehicle N	<i>lix</i>					
Near/Far Lane	e Distance:	52 feet		F	Vehi	cleType	1	Day	Evening	Night	Daily
Site Data						A	utos: 7	75.5%	14.0%	10.5%	97.42%
Rarr	ier Height:	0.0 feet			Me	dium Tri	icks: 4	18.9%	2.2%	48.9%	1.84%
Barrier Type (0-Wa	•	0.0			E	leavy Tri	icks: 4	17.3%	5.4%	47.3%	0.74%
Centerline Dist.		55.0 feet		h	Noise So	urce Ele	vations	(in fe	et)		
Centerline Dist. to	Observer:	55.0 feet		F		Autos			.,		
Barrier Distance to	Observer:	0.0 feet			Mediur	n Trucks					
Observer Height (A	bove Pad):	5.0 feet				y Trucks			Grade Adju	ustment	t: 0.0
	l Elevation:	0.0 feet		F							
	l Elevation:	0.0 feet		4	Lane Equ				feet)		
R	oad Grade:	0.0%				Autos					
	Left View:	-90.0 degree				n Trucks					
	Right View:	90.0 degree	es		Heav	y Trucks	: 48.5	60			
FHWA Noise Model	Calculation	-									
VehicleType	REMEL	Traffic Flow	Dista		Finite		Fresne		Barrier Atte		rm Atten
Autos:	68.46	1.11		0.0		-1.20		4.67	0.0		0.000
Medium Trucks:	79.45	-16.13		0.0	-	-1.20		4.87	0.0		0.000
Heavy Trucks:	84.25	-20.09		0.0	9	-1.20	-	5.38	0.0	00	0.000
Unmitigated Noise											
	.eq Peak Hou			.eq E	vening	Leq N	•		Ldn	-	NEL
Autos:	68		67.2		65.9		59.9		68.3		68.9
Medium Trucks:	62		59.1		51.6		60.3		66.5		66.5
Heavy Trucks:	63	.1	59.8		56.4		61.0		67.2		67.3
Vehicle Noise:	70	.3	68.4		66.5		65.2		72.2		72.5
	to Noise Co	ontour (in feet	)								
Centerline Distance	e lo noise co							6			-10.4
Centerline Distance	e lo Noise Co			70 0		65 c		C	i0 dBA		5 dBA
Centerline Distance	e to Noise Ct		Ldn: VFL :	7	dBA 7 0	65 c 16 17	5	C	356 373	1	767 304

	FHW	A-RD-77-108 H	IGHWA	NOISE PI	REDICT	ION MOD	EL			
Road Nam	o: GPBO e: Country Clu nt: e/o Bob Hop					Name: H lumber: 1		en Betty F	ord Cent	t
	SPECIFIC IN	PUT DATA						INPUT:	S	
Highway Data				Site Cor	nditions	(Hard = 1	10, So	ft = 15)		
Average Daily	Traffic (Adt): 2	7,458 vehicles				A	utos:	15		
Peak Hour	Percentage:	8.38%		Me	dium Tru	ucks (2 A)	xles):	15		
Peak H	our Volume:	2,301 vehicles		He	avy Truc	cks (3+ A)	xles):	15		
Vel	hicle Speed:	50 mph		Vehicle	Mix					
Near/Far Lar	ne Distance:	58 feet			icleType		Day	Evening	Night	Daily
Site Data				Ven			75.5%	14.0%	10.5%	
					, edium T		18.9%	2.2%	48.9%	
	rier Height:	0.0 feet			Heavy T		17.3%		47.3%	
Barrier Type (0-W		0.0			icavy i	uons	1.070	0.470	47.070	0.7470
Centerline Dis Centerline Dist.		55.0 feet		Noise S	ource E	levations	(in fe	et)		
		55.0 feet			Auto	s: 0.0	00			
Barrier Distance		0.0 feet		Mediu	m Truck	s: 2.2	97			
Observer Height (	above Pad): ad Flevation:	5.0 feet 0.0 feet		Hear	vy Truck	s: 8.0	06	Grade Adj	iustment	: 0.0
				Lano Eo	wivalon	t Distanc	o (in f	oot)		
	d Elevation: Road Grade:	0.0 feet 0.0%		LaneLy	Auto			eel)		
r	Road Grade:			Madiu	m Truck					
		-90.0 degrees			vy Truck					
	Right View:	90.0 degrees		пеа	у писк	5. 40.0	30			
FHWA Noise Mode	el Calculations	:								
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresne	el L	Barrier Att	en Ber	rm Atten
Autos:	70.20	1.21	C	0.30	-1.20	-	4.67	0.0	000	0.000
Medium Trucks:	81.00	-16.03	C	.33	-1.20	-	4.87	0.0	000	0.000
Heavy Trucks:	85.38	-19.98	C	.32	-1.20	-	5.38	0.0	000	0.000
Unmitigated Noise	e Levels (witho	out Topo and ba	arrier att	enuation)						
VehicleType	Leq Peak Hour	r Leq Day	Leq	Evening	Leq	Night		Ldn	C	NEL
Autos:	70.	5 69	9.3	68.0		61.9		70.4	Ļ	71.0
Medium Trucks:	64.	1 61	.0	53.5		62.2		68.4	Ļ	68.4
Heavy Trucks:	64.	5 61	.2	57.8		62.5		68.7	7	68.8
Vehicle Noise:	72.	2 70	).4	68.5		67.0		74.0	)	74.3
Centerline Distance	e to Noise Co	ntour (in feet)								
		-	7	'0 dBA	65	dBA	6	0 dBA	55	dBA
		Lo	ın:	102	2	19		473	1,	018
		CNE	L:	107	2	30		496	1,	069

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Tuesday, February 4, 2020

	FHW	/A-RD-77-108 H	IGHWAY	NOISE PI	REDICTIO	N MODEL		
Road Nam	io: GPBO e: Country Clu nt: e/o John L.					ame: Haze nber: 1272	Iden Betty Fo	ord Cent
	SPECIFIC IN	PUT DATA					EL INPUTS	5
Highway Data				Site Cor	nditions (H	ard = 10, S	Soft = 15)	
	Percentage:	7,458 vehicles 8.38% 2,301 vehicles			edium Truck eavy Trucks		: 15	
Vei	hicle Speed:	50 mph		Vehicle	Mix			
Near/Far Lar	ne Distance:	58 feet				Dav	Evening	Night Doily
Site Data				ver	nicleType Aut		Evening % 14.0%	Night Daily 10.5% 97.42%
					Aut Nedium Truc			48.9% 1.84%
	rrier Height:	0.0 feet			Heavy Truc			47.3% 0.74%
Barrier Type (0-W		0.0			neavy 11uu	KS. 47.3	70 3.470	41.3% 0.14%
Centerline Dis		55.0 feet		Noise S	ource Elev	ations (in	feet)	
Centerline Dist.		55.0 feet			Autos:	0.000		
Barrier Distance		0.0 feet		Mediu	m Trucks:	2.297		
Observer Height (J	,	5.0 feet		Hea	vy Trucks:	8.006	Grade Adj	ustment: 0.0
	ad Elevation:	0.0 feet		Lana Fa			6	
	ad Elevation:	0.0 feet		Lane Eq	uivalent D		i teet)	
	Road Grade:	0.0%			Autos:	47.000		
	Left View: Right View:	-90.0 degrees 90.0 degrees			ım Trucks: vy Trucks:	46.811 46.830		
FHWA Noise Mode	el Calculations	;						
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atte	en Berm Atten
Autos:	70.20	1.21	0.	.30	-1.20	-4.67	<b>'</b> 0.0	00 0.000
Medium Trucks:	81.00	-16.03	0.	.33	-1.20	-4.87	<b>0.0</b>	00 0.000
Heavy Trucks:	85.38	-19.98	0	.32	-1.20	-5.38	8 0.0	00 0.000
Unmitigated Noise				,				
VehicleType	Leq Peak Hou		,	Evening	Leq Nig	,	Ldn	CNEL
Autos:	70.		9.3	68.0		61.9	70.4	
Medium Trucks:	64.		1.0	53.5		62.2	68.4	
Heavy Trucks:	64.		1.2	57.8		62.5	68.7	
Vehicle Noise:	72.		0.4	68.5	i	67.0	74.0	74.3
Centerline Distant	ce to Noise Co	ntour (in feet)			05 10		00 104	<i>CC -1</i> 04
				) dBA	65 dB	A	60 dBA	55 dBA
				102	219		473	1,018
		CNE	=L.:	107	230		496	1,069

	FHW	A-RD-77-108 I	HIGHW.	AY NO	ISE PREDICT		EL				
Road Nam	o: GPBO e: Country Clu nt: e/o Vista De			Project Name: Hazelden Betty Ford Cent Job Number: 12720							
SITE	SPECIFIC IN	PUT DATA			1	NOISE N	IODEI	INPUTS	6		
Highway Data				Si	te Conditions	(Hard =	10, So	ft = 15)			
Peak H	Percentage: our Volume:	8.38% 2,307 vehicles			Medium Ti Heavy Tru	ucks (2 A		15 15 15			
	hicle Speed:	50 mph		Ve	hicle Mix						
Near/Far Lar	ne Distance:	58 feet			VehicleTyp	e .	Day	Evening	Night	Daily	
Site Data						Autos:	75.5%	14.0%	10.5%	97.429	
Bai	rier Heiaht:	0.0 feet			Medium 1	rucks:	48.9%	2.2%	48.9%	1.849	
Barrier Type (0-W		0.0			Heavy T	rucks:	47.3%	5.4%	47.3%	0.749	
Centerline Dis		55.0 feet					() K-	- 4)			
Centerline Dist.		55.0 feet		NO	ise Source E			et)			
Barrier Distance		0.0 feet			Auto						
Observer Height (		5.0 feet			Medium Truck						
0 1	d Flevation:	0.0 feet			Heavy Truck	(S: 8.0	06	Grade Adji	ustment:	0.0	
	d Elevation:	0.0 feet		La	ne Equivaler	t Distand	e (in f	eet)			
	Road Grade:	0.0%			Auto			,			
	Left View:	-90.0 degree	e		Medium Truck						
	Right View:	90.0 degree			Heavy Truck	(s: 46.8	30				
FHWA Noise Mode	el Calculations	;									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite Road	Fresn	el I	Barrier Atte	en Ber	m Atten	
Autos:	70.20	1.22		0.30	-1.20		4.67	0.0	00	0.00	
Medium Trucks:	81.00	-16.02		0.33	-1.20		4.87	0.0	00	0.00	
Heavy Trucks:	85.38	-19.97		0.32	-1.20		-5.38	0.0	00	0.00	
Unmitigated Noise	e Levels (with	out Topo and b	oarrier a	attenua	ation)						
VehicleType	Leq Peak Hou	r Leq Day	L	eq Eve	ning Leq	Night		Ldn	CI	VEL	
Autos:	70.	5 6	9.3		68.0	62.0		70.4		71.	
Medium Trucks:	64.	1 6	1.0		53.5	62.2		68.4		68.	
Heavy Trucks:	64.	5 6	1.3		57.9	62.5		68.7		68.	
Vehicle Noise:	72.	2 7	0.4		68.5	67.0		74.0		74.	
Centerline Distand	e to Noise Co	ntour (in feet)									
				70 dB	A 65	dBA	6	0 dBA	55	dBA	
			alar i	100		20		473	4.1	)20	
		L	.dn:	102	2	20		4/3	1,1	J20	

	FHV	/A-RD-77-108	HIGH	WAY N	IOISE PF	REDICTIO	N MOD	EL			
Scenario	: GPBO+P					Project N	ame: H	lazeld	en Betty F	ord Cen	t
Road Name	Bob Hope E	Dr.				Job Nun	nber: 1	2720			
Road Segmen	:: n/o MacMill	an Wy.									
	PECIFIC IN	PUT DATA								S	
Highway Data					Site Con	ditions (H	lard = 1	10, So	ft = 15)		
Average Daily T	raffic (Adt): 2	9,937 vehicle	5				A	utos:	15		
Peak Hour F	ercentage:	8.38%				dium Trucl	•		15		
Peak Ho	ur Volume:	2,509 vehicle	S		Hei	avy Trucks	s (3+ A)	des):	15		
	icle Speed:	45 mph		-	Vehicle I	Mix					
Near/Far Lan	e Distance:	58 feet		-		icleType	Ĺ	Day	Evening	Night	Daily
Site Data						Au	tos: 7	5.5%	14.0%	10.5%	97.42
Barı	ier Height:	0.0 feet			Me	edium Truc	cks: 4	8.9%	2.2%	48.9%	1.849
Barrier Type (0-Wa	•	0.0			ŀ	leavy Truc	cks: 4	7.3%	5.4%	47.3%	0.74
Centerline Dist		55.0 feet		1	Noise So	ource Elev	ations	(in fe	et)		
Centerline Dist. to		55.0 feet				Autos:	0.0	00	,		
Barrier Distance to		0.0 feet			Mediu	n Trucks:	2.2	97			
Observer Height (A	,	5.0 feet			Heav	y Trucks:	8.0	06	Grade Adj	ustment	: 0.0
	d Elevation:	0.0 feet		L		,					
	d Elevation:	0.0 feet		1	Lane Eq	uivalent D			eet)		
R	oad Grade:	0.0%				Autos:	47.0				
	Left View:	-90.0 degree				n Trucks:	46.8				
	Right View:	90.0 degree	es		Heav	y Trucks:	46.8	30			
FHWA Noise Mode	Calculation:	s									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite		Fresne		Barrier Atte		rm Atter
Autos:	68.46	2.04		0.3	-	-1.20		4.67	0.0		0.00
Medium Trucks:	79.45	-15.19		0.3	-	-1.20		4.87	0.0		0.00
Heavy Trucks:	84.25	-19.15		0.3	2	-1.20	-	5.38	0.0	000	0.00
Unmitigated Noise											
	.eq Peak Hou			Leq E	vening	Leq Ni	·		Ldn		NEL
Autos:	69	-	68.4		67.0		61.0		69.5		70.
Medium Trucks:	63		60.3		52.7		61.5		67.7		67.
Heavy Trucks:	64	-	60.9		57.6		62.2		68.4		68
Vehicle Noise:	71	.4	69.6		67.7		66.4		73.3	3	73
Centerline Distance	e to Noise Co	ontour (in feet	)	70	10.4	05.15					
			L		dBA	65 dE		-	0 dBA		dBA
			Ldn:	9	-	198			426		919
		CI	VEL:	9	o	207			447	6	963

	FHV	VA-RD-77-108	HIGHWA	AY NO	ISE PR	EDICTI		DEL			
Scenar	io: GPBO+P								len Betty F	ord Cen	t
	e: Bob Hope I					Job Ni	umber:	12720			
Road Segmer	nt: s/o Street A	4									
SITE	SPECIFIC IN	IPUT DATA							L INPUT	s	
Highway Data				Sit	te Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	24,543 vehicle	s					Autos:	15		
Peak Hour	Percentage:	8.38%			Med	dium Tru	cks (2 A	(xles):	15		
Peak H	our Volume:	2,057 vehicle	s		Hea	avy Truc	ks (3+ A	(xles):	15		
Ve	hicle Speed:	45 mph		Ve	hicle I	/ix					
Near/Far Lai	ne Distance:	58 feet				cleType		Day	Evening	Night	Daily
Site Data					1011		utos:	75.5%	v .	10.5%	
		0.0 feet		_	Me	, dium Tr		48.9%		48.9%	
вал Barrier Type (0-W	rier Height:	0.0 teet				leavy Tr		47.3%		47.3%	
Centerline Dis		0.0 55.0 feet				,					
Centerline Dist		55.0 feet		No	oise So	urce El	evation	s (in fe	eet)		
Barrier Distance		0.0 feet				Autos		000			
Observer Height (		5.0 feet			Mediur	n Trucks	: 2.:	297			
0,1	ad Elevation:	0.0 feet			Heav	y Trucks	: 8.0	006	Grade Ad	iustmen	: 0.0
	d Elevation:	0.0 feet		La	ne Fai	iivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%			no Equ	Autos					
,	Left View:	-90.0 degree			Mediur	n Trucks					
	Right View:	90.0 degree				v Trucks					
	rugin rion.	oo.o dogro.				,					
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	ice	Finite	Road	Fresr	el	Barrier Att	en Be	rm Atten
Autos:	68.46	1.18		0.30		-1.20		-4.67	0.0	000	0.00
Medium Trucks:	79.45	-16.06		0.33		-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	84.25	-20.01		0.32		-1.20		-5.38	0.0	000	0.00
Unmitigated Noise				ttenua	ation)						
VehicleType	Leq Peak Hou	ır Leq Day	' Le	attenua eq Eve	ning		Vight		Ldn		NEL
VehicleType Autos:	Leq Peak Hou 68	Ir Leq Day	, Le 67.5		ning 66.2		60.2		68.6	3	69.
VehicleType Autos: Medium Trucks:	Leq Peak Hou 68 62	Ir Leq Day 1.7 1.5	, Le 67.5 59.4		ning 66.2 51.9		60.2 60.6	i	68.6 66.8	6 3	69. 66.
VehicleType Autos:	Leq Peak Hou 68	Ir Leq Day 1.7 1.5	, Le 67.5		ning 66.2		60.2	i	68.6	6 3	69. 66.
VehicleType Autos: Medium Trucks:	Leq Peak Hou 68 62	ir Leq Day 5.7 5.5 5.4	, Le 67.5 59.4		ning 66.2 51.9		60.2 60.6	; ;	68.6 66.8	6 3 5	69 66 67
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	Leq Peak Hou 68 62 63 70	Ir Leq Day 1.7 1.5 1.4 1.6	67.5 59.4 60.1 68.8	eq Eve	ning 66.2 51.9 56.7 66.8	Leq I	60.2 60.6 61.3 65.5	; ;	68.6 66.8 67.9 72.9	3 3 5 5	69 66 67 72
VehicleType Autos: Medium Trucks: Heavy Trucks:	Leq Peak Hou 68 62 63 70	rr Leq Day 	2010 Contract Contrac	70 dB	ning 66.2 51.9 56.7 66.8	Leq 1	60.2 60.6 61.3 65.5	; ;	68.6 66.8 67.8 72.8	5 5 5 55	69. 66. 67. 72.
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	Leq Peak Hou 68 62 63 70	Ir Leq Day 1.7 1.5 1.4 1.6 1.6 1.6 1.6	67.5 59.4 60.1 68.8	eq Eve	ning 66.2 51.9 56.7 66.8	Leq I	60.2 60.6 61.3 65.5 //BA	; ;	68.6 66.8 67.9 72.9	5	69. 66. 67. 72.

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	FHWA-RD-7	77-108 HIG	HWAY N	IOISE PF	REDICTIO	N MOD	EL		
Scenario: GPBO Road Name: Bob Ho Road Segment: s/o Co	ope Dr.	r.				lame: H mber: 12	azelden Betty F 2720	ord Cent	
SITE SPECIFI	C INPUT D	ATA					DDEL INPUT	s	
Highway Data				Site Con	ditions (I	Hard = 1	0, Soft = 15)		
Average Daily Traffic (Ad Peak Hour Percentag	, .			Me	dium Truc		utos: 15 les): 15		
Peak Hour Volum	e: 2,090 \	/ehicles		He	avy Truck	s (3+ Ax	les): 15		
Vehicle Spee	d: 45 r	mph	H	Vehicle I	Mix				
Near/Far Lane Distance	e: 58 f	eet	-		icleType	5	ay Evening	Night Dai	ih.
Site Data				ven			5.5% 14.0%	10.5% 97.4	
				Me	dium Tru		8.9% 2.2%		84%
Barrier Heig Barrier Type (0-Wall, 1-Berr		feet			leavy Tru		7.3% 5.4%		74%
Centerline Dist. to Barri	er: 55.0	feet		Noise So	ource Ele	vations	(in feet)		
Centerline Dist. to Observ	er: 55.0	feet			Autos		, ,		
Barrier Distance to Observe		feet		Mediur	n Trucks:	2.29	97		
Observer Height (Above Pa Pad Elevatio	,	feet feet			y Trucks:			iustment: 0.0	
Road Elevation	n: 0.0	feet		Lane Eq	uivalent l	Distance	e (in feet)		
Road Grad	le: 0.09	%			Autos:	47.00	00		
Left Vie	w: -90.0	degrees		Mediur	n Trucks:	46.81	11		
Right Vie	w: 90.0	degrees		Heav	y Trucks:	46.83	30		
FHWA Noise Model Calcula	tions								
VehicleType REME	Traffic	Flow D	listance	Finite	Road	Fresne	I Barrier Att	en Berm Att	ten
Autos: 6	3.46	1.25	0.3	0	-1.20	-4	4.67 0.0	.0 00	.000
		-15.99	0.3	-	-1.20				.000
		-19.94	0.3		-1.20	-{	5.38 0.0	000 0.	.000
Unmitigated Noise Levels (									
VehicleType Leq Peak		eq Day	Leq E	~	Leq N	•	Ldn	CNEL	
Autos:	68.8	67.6		66.3		60.2	68.7		69.3
Medium Trucks:	62.6	59.5		52.0		60.7	66.9		66.9
Heavy Trucks:	63.4	60.2	-	56.8		61.4	67.6		67.7
Vehicle Noise:	70.7	68.8	5	66.9		65.6	72.5	5 T	72.9
Centerline Distance to Nois	e contour (	in feet)	70 0	'BA	65 di	BA	60 dBA	55 dBA	
		Ldn			175		378	813	
		CNEL			184		396	852	

	FHW	/A-RD-77-108	HIGHW	AY NO			DEL			
Road Nam	o: GPBO+P e: John L. Sin nt: s/o Street A					t Name: 1 lumber: 1		en Betty Fo	ord Cent	
SITE	SPECIFIC IN	PUT DATA			1	NOISE N	IODEL	INPUTS	5	
Highway Data				Si	te Conditions	(Hard =	10, So	ft = 15)		
	Traffic (Adt): Percentage: our Volume:	4,824 vehicles 8.38% 404 vehicles			Medium Ti Heavy Tru	ucks (2 A		15 15 15		
Vel	hicle Speed:	25 mph		V	ehicle Mix					
Near/Far Lar	ne Distance:	12 feet		-	VehicleTyp	a .	Dav	Evening	Night	Daily
Site Data							75.5%	14.0%	10.5%	
		0.0.6			Medium 1		48.9%	2.2%	48.9%	1.849
Barrier Type (0-W	rier Height:	0.0 feet 0.0			Heavy 1		47.3%	5.4%	47.3%	0.749
<i>,</i> , ,	. ,						-			0.7 17
Centerline Dis Centerline Dist.		30.0 feet		N	oise Source E	levation	s (in fe	et)		
		30.0 feet			Auto	os: 0.0	000			
Barrier Distance		0.0 feet			Medium Truck	(s: 2.2	97			
Observer Height (	,	5.0 feet			Heavy Truck	rs: 8.0	06	Grade Adji	ustment:	0.0
	d Elevation: d Elevation:	0.0 feet			ane Equivaler	4 Distant	o (in f	a a 4 l		
	a Elevation: Road Grade:	0.0 feet		Le	Auto			eer)		
,	Road Grade:	0.0%			Medium Truck					
	Right View:	-90.0 degree 90.0 degree			Heavy Truck					
FHWA Noise Mode	el Calculation:	5								
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite Road	Fresn	el I	Barrier Atte	en Ber	m Atten
Autos:	58.73	-3.33		3.26	-1.20		4.49	0.0	00	0.00
Medium Trucks:	70.80	-20.57		3.33	-1.20		-4.86	0.0	00	0.00
Heavy Trucks:	77.97	-24.53		3.32	-1.20		-5.77	0.0	00	0.00
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenu	ation)					
VehicleType	Leq Peak Hou	r Leq Day	L	eq Eve	ning Leq	Night		Ldn	CI	VEL
Autos:	57.	.5 !	56.2		54.9	48.9		57.3		57.
Medium Trucks:	52.	.4 4	19.2		41.7	50.5		56.6		56.
Heavy Trucks:	55.	.6 .	52.3		48.9	53.5		59.7		59.
Vehicle Noise:	60.	.4	58.3		56.0	56.2		62.9		63.
Centerline Distant	ce to Noise Co	ntour (in feet)								
				70 dE	BA 65	dBA	6	0 dBA	55	dBA
			dn:	10		22		47	1	01
			un.	10		~~				01

	FHV	/A-RD-77-108	HIGHV	VAY N	OISE PR	EDICTIO	N MODEL			
Scenario:	GPBO+P					Project N	a <i>me:</i> Haze	Iden Betty F	ord Cent	t
Road Name:						Job Nun	nber: 1272	0		
Road Segment:	s/o MacMill	an Wy.								
	ECIFIC IN	PUT DATA						EL INPUT	s	
Highway Data				1	Site Con	ditions (H	lard = 10, S	Soft = 15)		
Average Daily Tra	affic (Adt):	2,559 vehicle	S				Autos	s: 15		
Peak Hour Pe	rcentage:	8.38%			Med	lium Trucl	ks (2 Axles,	): 15		
Peak Hou	r Volume:	214 vehicle	S		Hea	avy Trucks	s (3+ Axles	): 15		
	le Speed:	25 mph			Vehicle N	<i>lix</i>				-
Near/Far Lane	Distance:	12 feet		F		cleType	Day	Evening	Night	Daily
Site Data						Au	tos: 75.5	% 14.0%	10.5%	97.429
Barrie	er Heiaht:	0.0 feet			Me	dium Truc	cks: 48.9	% 2.2%	48.9%	1.849
Barrier Type (0-Wall		0.0			H	leavy Truc	cks: 47.3	% 5.4%	47.3%	0.74
Centerline Dist.	to Barrier:	30.0 feet			Noise So	urce Elev	ations (in	feet)		-
Centerline Dist. to	Observer:	30.0 feet				Autos:	0.000	,		
Barrier Distance to	Observer:	0.0 feet			Mediur	n Trucks:	2,297			
Observer Height (Ab	,	5.0 feet			Heav	v Trucks:	8.006	Grade Ad	justment.	: 0.0
	Elevation:	0.0 feet								
	Elevation:	0.0 feet		1	Lane Equ		istance (ir	n feet)		
110	ad Grade:	0.0%				Autos:	29.816			
	Left View:	-90.0 degree				n Trucks:	29.518			
R	ight View:	90.0 degree	es		Heav	y Trucks:	29.547			
FHWA Noise Model		-								-
VehicleType	REMEL	Traffic Flow	Dista		Finite		Fresnel	Barrier At		rm Atten
Autos:	58.73	-6.09		3.26	-	-1.20	-4.49		000	0.00
Medium Trucks:	70.80	-23.32		3.33	-	-1.20	-4.86		000	0.00
Heavy Trucks:	77.97	-27.28		3.32	2	-1.20	-5.77	° 0.	000	0.00
Unmitigated Noise L										
VehicleType Le	eq Peak Hou 54		53.5	Leq Ev	/ening 52.2	Leq Ni	46.1	Ldn 54		NEL
Autos: Medium Trucks:	54. 49		53.5 46.5		52.2 39.0		40.1	53	-	55. 53
Heavy Trucks:	49	-	40.5 49.5		39.0 46.1		47.7 50.8	53. 57.	-	53. 57.
Vehicle Noise:	52	-	49.5 55.5		40.1 53.3		50.8	57.		57. 60
					53.3		53.4	60.	I	60.
Centerline Distance	to Noise Co	ontour (in feet	)	70 c	RΔ	65 dF	24	60 dBA	55	dBA
				700		00 UE	2/1			
			I dn.	7	7	14		21		
			Ldn: VFL:	7		14 15		31 32		66 68

	FHW	A-RD-77-108	HIGHWA	V NC	DISE PI	REDICT		DEL			
Road Nam	io: GPBO+P e: Vista Del So nt: n/o Betty Fo						Name: I umber: 1		len Betty F	ord Cer	nt
SITE	SPECIFIC IN	PUT DATA				N	IOISE N	IODE	L INPUT	s	
Highway Data				S	ite Cor	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	2.339 vehicles	5				,	Autos:	15		
,	Percentage:	8.38%			Me	dium Tru	ucks (2 A	xles):	15		
Peak H	our Volume:	196 vehicles			He	avy Truc	cks (3+ A	xles):	15		
Vel	hicle Speed:	25 mph									
Near/Far Lar	ne Distance:	12 feet		V	ehicle			_			
		12			Veh	icleType		Day	Evening	Night	Daily
Site Data								75.5%		10.5%	
Bar	rier Height:	0.0 feet				edium T		48.9%		48.9%	
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy T	rucks:	47.3%	5.4%	47.3%	6 0.74%
Centerline Dis	st. to Barrier:	30.0 feet		N	oise S	ource E	levations	s (in fe	et)		
Centerline Dist. t	to Observer:	30.0 feet				Auto		000	,		
Barrier Distance t	to Observer:	0.0 feet			Modiu	m Truck		297			
Observer Height (/	Above Pad):	5.0 feet				vy Truck		006	Grade Ad	iustmen	t: 0.0
Pa	ad Elevation:	0.0 feet			mou	iy maon	0. 0.0	000	,		
Roa	ad Elevation:	0.0 feet		L	ane Eq		t Distand		feet)		
F	Road Grade:	0.0%				Auto					
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 29.8	518			
	Right View:	90.0 degree	s		Hear	vy Truck	s: 29.5	547			
FHWA Noise Mode	el Calculations	;									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Att	en Be	erm Atten
Autos:	58.73	-6.48		3.26		-1.20		-4.49	0.0	000	0.000
Medium Trucks:	70.80	-23.71		3.33		-1.20		-4.86	0.0	000	0.000
Heavy Trucks:	77.97	-27.67		3.32		-1.20		-5.77	0.0	000	0.000
Unmitigated Noise	e Levels (witho	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	q Eve	ening	Leq	Night		Ldn	(	ONEL
Autos:	54.	3	53.1		51.8		45.8		54.2	2	54.8
Medium Trucks:	49.	2 ·	46.1		38.6		47.3		53.5	5	53.5
Heavy Trucks:	52.	4 .	49.2		45.8		50.4		56.6	6	56.7
Vehicle Noise:	57.	2	55.1		52.9		53.0		59.7	7	60.0
Centerline Distance	ce to Noise Co	ntour (in feet,									
			ட	70 dł	ЗA		dBA	6	0 dBA	5	5 dBA
			Ldn:	6			13		29		62
		CI	JEL:	6		1	4		30		64

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHW	/A-RD-77-108 H	IIGHWAY	NOISE P	REDICTIO	N MODEL		Í
Road Nam	io: GPBO+P e: Vista Del So nt: n/o Country					ame: Haze nber: 1272	Iden Betty Fo 0	rd Cent
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOD	EL INPUTS	
Highway Data				Site Col	nditions (H	lard = 10, S	Soft = 15)	
	Traffic (Adt): Percentage: our Volume:	2,339 vehicles 8.38% 196 vehicles			edium Truck eavy Trucks		: 15	
Vel	hicle Speed:	25 mph		Vehicle	Mix			
Near/Far Lar	ne Distance:	12 feet			nicleType	Dav	Evening	Night Daily
Site Data				10.		tos: 75.5	•	10.5% 97.42%
Par	rier Heiaht:	0.0 feet		N	ledium Truc	cks: 48.9	% 2.2%	48.9% 1.84%
Barrier Type (0-W		0.0			Heavy Truc	cks: 47.3	% 5.4%	47.3% 0.74%
Centerline Dis	t. to Barrier:	30.0 feet		Noise S	ource Elev	ations (in	feet)	-
Centerline Dist. t	to Observer:	30.0 feet			Autos:	0.000		
Barrier Distance t	to Observer:	0.0 feet		Mediu	m Trucks:	2,297		
Observer Height (/	Above Pad): ad Elevation:	5.0 feet 0.0 feet		Hea	vy Trucks:	8.006	Grade Adju	stment: 0.0
	d Elevation:	0.0 feet		Lane Ec	uivalent D	istance (ir	(feet)	
	Road Grade:	0.0%			Autos:	29.816		-
	Left View:	-90.0 degrees		Mediu	m Trucks:	29.518		
	Right View:	90.0 degrees		Hea	vy Trucks:	29.547		
FHWA Noise Mode	el Calculations	;						
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atter	n Berm Atten
Autos:	58.73	-6.48	3.	26	-1.20	-4.49	0.00	0.00
Medium Trucks:	70.80	-23.71	3.	33	-1.20	-4.86	6 0.00	0.00
Heavy Trucks:	77.97	-27.67	3.	32	-1.20	-5.77	0.00	0.00
Unmitigated Noise			arrier atte	nuation)				
	Leq Peak Hour			Evening	Leq Ni		Ldn	CNEL
Autos:	54.		3.1	51.8		45.8	54.2	54.8
Medium Trucks:	49.		6.1	38.6		47.3	53.5	53.5
Heavy Trucks:	52.		9.2	45.8		50.4	56.6	56.
Vehicle Noise:	57.		5.1	52.9	)	53.0	59.7	60.0
Centerline Distant	ce to Noise Co	ntour (in feet)	7(	dBA	65 dB	24	60 dBA	55 dBA
		1.	dn:	6	13	r.v.	29	62
		CNE		6	13		30	64
		0.11		0	14		00	04

	FHW	/A-RD-77-108	HIGHV	NAY NO			EL					
Road Nam	o: GPBO+P e: MacMillan V nt: e/o Bob Hoj				Project Name: Hazelden Betty Ford Cent Job Number: 12720							
-	SPECIFIC IN						ODEL INF	PUTS				
Highway Data		TOTDATA		s	ite Conditions							
Peak H	Traffic (Adt): Percentage: our Volume: hicle Speed:	4,135 vehicles 8.38% 346 vehicles 25 mph			Medium Ti Heavy Tru	A rucks (2 A	utos: 15 des): 15					
Vei Near/Far Lai	· · · · /· · · ·	25 mpn 12 feet		V	ehicle Mix							
Neal/Fal Lai	le Distance.	12 leel			VehicleTyp	e L	Day Ever	ning Ni	ight Daily			
Site Data						Autos: 7			0.5% 97.429			
Bar	rier Height:	0.0 feet			Medium 1	rucks: 4	8.9% 2	.2% 4	8.9% 1.849			
Barrier Type (0-W	all, 1-Berm):	0.0			Heavy T	rucks: 4	7.3% 5	.4% 4	7.3% 0.749			
Centerline Dis	t. to Barrier:	30.0 feet		N	oise Source E	lovations	(in feet)					
Centerline Dist.	to Observer:	30.0 feet			Auto							
Barrier Distance	to Observer:	0.0 feet			Medium Truck							
Observer Height (J	Above Pad):	5.0 feet			Heavy Truck			o Adjust	ment: 0.0			
Pa	d Elevation:	0.0 feet			neavy Truci	15. 0.0	00 0/20	e Aujusi	ment. 0.0			
Roa	d Elevation:	0.0 feet		L	ane Equivaler	t Distanc	e (in feet)					
F	Road Grade:	0.0%			Auto	os: 29.8	16					
	Left View:	-90.0 degree	s		Medium Truck	(s: 29.5	18					
	Right View:	90.0 degree	es		Heavy Truck	(s: 29.5	47					
FHWA Noise Mode	el Calculation:	5										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite Road	Fresne	el Barrie	er Atten	Berm Atten			
Autos:	58.73	-4.00		3.26	-1.20	-	4.49	0.000	0.00			
Medium Trucks:	70.80	-21.24		3.33	-1.20	-	4.86	0.000	0.00			
Heavy Trucks:	77.97	-25.20		3.32	-1.20	-	5.77	0.000	0.00			
Unmitigated Noise	e Levels (with	out Topo and	barrie	r attenu	ation)							
VehicleType	Leq Peak Hou	r Leq Day		Leq Eve	ening Leq	Night	Ldn		CNEL			
Autos:	56.	.8 !	55.6		54.2	48.2		56.7	57.			
Medium Trucks:	51.	.7 4	48.6		41.1	49.8		56.0	56			
Heavy Trucks:	54	.9 !	51.6		48.2	52.9		59.1	59.			
Vehicle Noise:	59.	.7	57.6		55.4	55.5		62.2	62			
Centerline Distand	e to Noise Co	ntour (in feet)	)									
				70 dł	BA 65	dBA	60 dBA	4	55 dBA			
			Ldn:	9		20	42		91			
		1	Lun.	9		20	42		51			

		A-RD-77-108	monw	ATN	OISE PR				
Scenario: GPB								elden Betty F	ord Cent
Road Name: Stree						Job Nui	nber: 1272	20	
Road Segment: e/o B	lob Hope	e Dr.							
SITE SPECIF Highway Data	IC INP	UT DATA			Site Con			Soft = 15)	5
• •				•	Sile Con	uiuons (r		,	
Average Daily Traffic (A	'	,587 vehicles	5				Auto		
Peak Hour Percent	-9	8.38%					ks (2 Axles	· · ·	
Peak Hour Volu		217 vehicles	5		Hei	avy Truck	s (3+ Axles	s): 15	
Vehicle Spe		25 mph		١	Vehicle I	Mix			
Near/Far Lane Dista	nce:	12 feet			Vehi	icleType	Day	Evening	Night Da
Site Data						AL	tos: 75.5	5% 14.0%	10.5% 97.4
Barrier Hei	aht:	0.0 feet			Me	edium Tru	cks: 48.9	9% 2.2%	48.9% 1.8
Barrier Type (0-Wall, 1-Be	•	0.0			ŀ	leavy Tru	cks: 47.3	3% 5.4%	47.3% 0.7
Centerline Dist. to Bar	rier:	30.0 feet		,	Voise Sr	ource Ele	vations (in	(feet)	
Centerline Dist. to Obser	ver:	30.0 feet		-	10,00 00	Autos:	0.000		
Barrier Distance to Obser	ver:	0.0 feet			Modiu	n Trucks:	2.297		
Observer Height (Above P	ad):	5.0 feet				v Trucks:	8.006	Grade Adi	ustment: 0.0
Pad Eleva	tion:	0.0 feet			mour	y maono.	0.000		
Road Eleva	tion:	0.0 feet		L	ane Eq		Distance (i	n feet)	
Road Gr	ade:	0.0%				Autos:	29.816		
Left V		-90.0 degree				n Trucks:	29.518		
Right V	lew:	90.0 degree	es		Heav	y Trucks:	29.547		
FHWA Noise Model Calcu	lations								
VehicleType REM	EL T	Traffic Flow	Dista	nce	Finite		Fresnel	Barrier Atte	en Berm Att
	58.73	-6.04		3.26	-	-1.20	-4.4		
	70.80	-23.28		3.33		-1.20	-4.8		
Heavy Trucks:	77.97	-27.23		3.32	2	-1.20	-5.7	7 0.0	00 0.
Unmitigated Noise Levels									
<i>,</i> ,	ak Hour	Leq Day		eq Ev	rening	Leq N	0	Ldn	CNEL
Autos:	54.8		53.5		52.2		46.2	54.6	
Medium Trucks:	49.6		46.5		39.0		47.8	53.9	
Heavy Trucks:	52.9		49.6		46.2		50.8	57.0	
	57.7		55.6		53.3		53.5	60.2	2 (
Vehicle Noise:			)						
Vehicle Noise: Centerline Distance to No	ise Con	tour (in feet							
	ise Con			70 a		65 dl	BA	60 dBA	55 dBA
	oise Con		Ldn:	70 a 7 7		65 dl 14 15	BA	60 dBA 31 32	55 dBA 66 69

	FHW	A-RD-77-108 HIG	HWAY I	NOISE PF	REDICTI	ON MOD	EL			
Road Nam Road Segmer	io: GPBO+P e: Betty Ford V nt: e/o Joe Frie	nd Ln.				Name: H umber: 1		en Betty F	ord Cent	
	SPECIFIC IN	PUT DATA						L INPUTS	5	
Highway Data				Site Con	ditions	(Hard = 1	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	1,646 vehicles				A	utos:	15		
Peak Hour	Percentage:	8.38%		Me	dium Tru	icks (2 A)	des):	15		
Peak H	our Volume:	138 vehicles		He	avy Truc	ks (3+ A)	kles):	15		
Vel	hicle Speed:	25 mph		Vehicle	Mix					
Near/Far Lar	ne Distance:	12 feet					2014	Evening	Night	Dailu
Site Data				ven	icleType		Day 15.5%	Evening	10.5%	Daily
					ء edium Tr		'5.5%  8.9%		10.5% 48.9%	97.42% 1.84%
	rrier Height:	0.0 feet			eaium Tr Heavy Tr		8.9%		48.9%	1.84%
Barrier Type (0-W		0.0		,	Heavy II	UCKS: 4	1.3%	5.4%	47.3%	0.74%
Centerline Dis		30.0 feet		Noise So	ource El	evations	(in fe	et)		
Centerline Dist.		30.0 feet			Autos	s: 0.0	00			
Barrier Distance		0.0 feet		Mediu	m Trucks	2.2	97			
Observer Height (	,	5.0 feet		Heav	v Trucks	s: 8.0	06	Grade Adj	ustment:	0.0
	ad Elevation:	0.0 feet								
	ad Elevation:	0.0 feet		Lane Eq			· ·	feet)		
F	Road Grade:	0.0%			Autos					
	Left View:	-90.0 degrees		Mediu	m Trucks					
	Right View:	90.0 degrees		Heav	ry Trucks	8: 29.5	47			
FHWA Noise Mode	el Calculations									
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road	Fresne		Barrier Atte	en Ber	m Atten
Autos:	58.73	-8.00	3.2		-1.20		4.49	0.0		0.000
Medium Trucks:	70.80	-25.24	3.3	33	-1.20	-	4.86	0.0	00	0.000
Heavy Trucks:	77.97	-29.20	3.3	32	-1.20		5.77	0.0	00	0.000
Unmitigated Noise										
	Leq Peak Hour			vening	Leq I			Ldn	-	VEL
Autos:	52.			50.2		44.2		52.7		53.3
Medium Trucks:	47.			37.1		45.8		52.0		52.0
Heavy Trucks:	50.			44.2		48.9		55.1		55.2
Vehicle Noise:	55.	7 53.6	5	51.4		51.5		58.2	2	58.5
Centerline Distant	ce to Noise Co.	ntour (in feet)								
				dBA	65 0		6	0 dBA		dBA
		Ldn		5	1			23		49
		CNEL	:	5	1	1		24	Ę	51

Tuesday, February 4, 2020

Tuesday, February 4, 2020

	FHW	A-RD-77-108	HIGHW	VAY NO	DISE PR	EDICTI	ON MOD	EL		
	: GPBO+P : Country Clul : w/o Bob Hop						Name: H umber: 1	lazelden B 2720	etty Ford	Cent
SITE S	PECIFIC IN	PUT DATA						ODEL IN		
Highway Data				S	ite Con	ditions	(Hard = :	10, Soft =	15)	
Average Daily T Peak Hour P Peak Ho	ercentage:	4,236 vehicle 8.38% 2,031 vehicle					A Icks (2 A Iks (3+ A	,	5	
Vehi	icle Speed:	45 mph		V	ehicle I	Ai~				
Near/Far Lane	e Distance:	52 feet				cleType		Dav Eve	ning Ni	ght Daily
Site Data					von			,		).5% 97.42
	ier Heiaht:	0.0 feet			Me	dium Tr	ucks: 4	8.9%	2% 4	3.9% 1.84
Barrier Type (0-Wa		0.0			F	leavy Tr	ucks: 4	17.3% 5	5.4% 4	7.3% 0.74
Centerline Dist.		55.0 feet		Ν	loise So	urce El	evations	(in feet)		
Centerline Dist. to		55.0 feet				Autos	s: 0.0	00		
Barrier Distance to		0.0 feet			Mediur	n Trucks	s: 2.2	97		
Observer Height (A	,	5.0 feet			Heav	y Trucks	8: 8.0	06 Grad	le Adjusti	ment: 0.0
	d Elevation:	0.0 feet			ono Ea	ulualant	Distanc	e (in feet)		
	d Elevation:	0.0 feet		L	ane Equ	Autos		. ,		
R	oad Grade: Left View:	0.0%			Madium	n Trucks				
	Right View:	-90.0 degree 90.0 degree				y Trucks				
FHWA Noise Model	Calculations	:								
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el Barri	er Atten	Berm Atter
Autos:	68.46	1.13		0.07		-1.20		4.67	0.000	0.00
Medium Trucks:	79.45	-16.11		0.09		-1.20		4.87	0.000	0.00
Heavy Trucks:	84.25	-20.07		0.09		-1.20	-	5.38	0.000	0.00
Unmitigated Noise										
	eq Peak Hour			Leq Ev	~	Leq	Night	Ldn		CNEL
Autos: Medium Trucks:	68. 62.	-	67.2 59.1		65.9 51.6		59.9 60.3		68.3 66.5	68 66
Heavy Trucks:	62	-	59.1 59.8		56.4		61.0		67.2	67
Vehicle Noise:	70.3		68.5		66.5		65.2		72.2	72
Centerline Distance	e to Noise Co	ntour (in feet	)							
		,		70 d	BA	65 (	dBA	60 dB	A	55 dBA
			Ldn:	77		16	66	357		770
		Ci	VEL:	81		17	74	374		807

	FHW	/A-RD-77-108	HIGH	WAY NO			DEL			
Road Nam	o: GPBO+P e: Country Clu nt: e/o Bob Hop					ct Name: Number:		den Betty F )	ord Cen	t
SITE	SPECIFIC IN	PUT DATA				NOISE	MODE	L INPUT	s	
Highway Data				S	ite Condition	s (Hard :	= 10, S	oft = 15)		
Peak H	Percentage: our Volume:	8.38% 2,310 vehicles			Medium 1 Heavy Tr			15		
Vei Near/Far Lai	hicle Speed:	50 mph		V	ehicle Mix					
Near/Far Lar	ne Distance:	58 feet			VehicleTyp	be .	Day	Evening	Night	Daily
Site Data						Autos:	75.5%	6 14.0%	10.5%	97.42%
Bar	rier Heiaht:	0.0 feet			Medium	Trucks:	48.9%	6 2.2%	48.9%	1.84%
Barrier Type (0-W		0.0			Heavy	Trucks:	47.3%	6 5.4%	47.3%	0.749
Centerline Dis		55.0 feet			oise Source	Flowatio		[0.04]		
Centerline Dist.	to Observer:	55.0 feet		N				eel)		
Barrier Distance	to Observer:	0.0 feet					.000			
Observer Height ()	Above Pad);	5.0 feet			Medium Truc		.297	Out de Ad		
0 1	d Elevation:	0.0 feet			Heavy Truc	KS: 8	.006	Grade Adj	ustment	0.0
Roa	d Elevation:	0.0 feet		L	ane Equivale	nt Distar	nce (in	feet)		
ŀ	Road Grade:	0.0%			Au	os: 47	.000			
	Left View:	-90.0 degree	s		Medium Truc	ks: 46	.811			
	Right View:	90.0 degree			Heavy Truc	ks: 46	.830			
FHWA Noise Mode	el Calculations	5								
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite Road	Fres	nel	Barrier Att	en Bei	m Atten
Autos:	70.20	1.23		0.30	-1.20	)	-4.67	0.0	100	0.00
Medium Trucks:	81.00	-16.01		0.33	-1.20	)	-4.87	0.0	00	0.00
Heavy Trucks:	85.38	-19.97		0.32	-1.20	)	-5.38	0.0	00	0.00
Unmitigated Noise	e Levels (witho	out Topo and	barrie	er attenu	ation)					
VehicleType	Leq Peak Hou	r Leq Day	·	Leq Eve	ening Le	q Night		Ldn	-	NEL
Autos:	70.	5	69.3		68.0	62	0	70.4		71.
Medium Trucks:	64.	1	61.0		53.5	62	2	68.4	Ļ	68.
Heavy Trucks:	64.	5	61.3		57.9	62	5	68.7	,	68.
Vehicle Noise:	72.	2	70.4		68.5	67	0	74.0	)	74.
Centerline Distand	e to Noise Co	ntour (in feet,	)							
				70 dł	BA 6	5 dBA		60 dBA	55	dBA
			Ldn:	102	,	220		474	1.	021
			VFI :	107		231				

	FHV	VA-RD-77-108	HIGHV	NAY N	OISE PR	EDICTIO	N MODEL	-			
Scenar	io: GPBO+P					Project N	ame: Haz	elden Betty I	Ford (	Cent	
Road Nam	e: Country Clu	ub Dr.				Job Nur	nber: 127	20			
Road Segme	nt: e/o John L.	Sinn Rd.									
	SPECIFIC IN	IPUT DATA				NO	ISE MO	DEL INPUT	'S		
Highway Data				5	Site Con	ditions (H	lard = 10,	Soft = 15)			
Average Daily	Traffic (Adt): 2	27,570 vehicles	5				Aut	os: 15			
Peak Hour	Percentage:	8.38%			Med	dium Truc	ks (2 Axle	s): 15			
Peak H	lour Volume:	2,310 vehicles	5		Hea	avy Trucks	s (3+ Axle	s): 15			
Ve	hicle Speed:	50 mph		1	/ehicle I	Nix					
Near/Far La	ne Distance:	58 feet		-		cleType	Da	y Evening	Nig	ht l	Daily
Site Data						Au	tos: 75.	5% 14.0%	10	.5% 9	7.42%
Bai	rrier Height:	0.0 feet			Me	edium True	cks: 48.	9% 2.2%	48	.9%	1.84%
Barrier Type (0-W		0.0			F	leavy Tru	cks: 47.	3% 5.4%	47	.3%	0.74%
Centerline Dis	st. to Barrier:	55.0 feet			Voise Sc	urce Elev	ations (i	n foot)			
Centerline Dist.	to Observer:	55.0 feet		-	10/30 00	Autos:	0.000	,			
Barrier Distance	to Observer:	0.0 feet			Modiur	n Trucks:	2.297				
Observer Height (	Above Pad):	5.0 feet				y Trucks:	8.006	Grade Ad	liustr	ent: 0	0
Pa	ad Elevation:	0.0 feet									
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent D		,			
1	Road Grade:	0.0%				Autos:	47.000				
	Left View:	-90.0 degree				n Trucks:	46.811				
	Right View:	90.0 degree	s		Heav	y Trucks:	46.830				
FHWA Noise Mod		-									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite		Fresnel	Barrier At		Berm	
Autos:	70.20	1.23		0.30		-1.20	-4.0		000		0.000
Medium Trucks:	81.00	-16.01		0.33		-1.20	-4.8		000		0.000
Heavy Trucks:	85.38	-19.97		0.32	2	-1.20	-5.3	38 0.	000		0.000
Unmitigated Nois			-		<b>(</b>						
VehicleType	Leq Peak Hou			Leq Ev	~	Leq Ni	•	Ldn		CNE	
Autos:	70		59.3		68.0		62.0	70			71.0
Medium Trucks:	64		51.0		53.5		62.2	68			68.4
Heavy Trucks:	64	-	51.3		57.9		62.5	68			68.8
Vehicle Noise:	72	.2	70.4		68.5		67.0	74	.0		74.3
Centerline Distant	ce to Noise Co	ontour (in feet)	1								
			L	70 d		65 dE		60 dBA		55 dE	
			Ldn:	10	-	220		474		1,02	
		CI	IEL:	10	7	231		498		1,072	2

	FHV	/A-RD-77-108	HIGHWA	Y NOISE	PREDICT	ON MODI	EL		
Road Nam	o: GPBO+P e: Country Clu ht: e/o Vista De					Name: Hi umber: 12	azelden Betty 2720	Ford C	ent
SITES	SPECIFIC IN	PUT DATA			N	IOISE MO	DEL INPU	тs	
Highway Data				Site C	onditions	(Hard = 1	0, Soft = 15)		
Average Daily	Traffic (Adt): 2 Percentage:	27,728 vehicle 8.38%	s		/ledium Tri		utos: 15 les): 15		
	our Volume:	2.324 vehicle	-		leavy Truc		,		
	nicle Speed:	50 mph							
Near/Far Lar		58 feet		Vehicl				-	
	ie Distance.	30 1001		V	ehicleType		ay Evening	· ·	,
Site Data							5.5% 14.0%		
Bar	rier Height:	0.0 feet			Medium T		8.9% 2.2%		
Barrier Type (0-Wa	all, 1-Berm):	0.0			Heavy T	rucks: 4	7.3% 5.4%	6 47.3	3% 0.74%
Centerline Dis	t. to Barrier:	55.0 feet		Noise	Source E	evations	(in feet)		
Centerline Dist. t	o Observer:	55.0 feet		110100	Auto		. ,		
Barrier Distance t	o Observer:	0.0 feet		Maa	ium Truck				
Observer Height (/	Above Pad):	5.0 feet			avy Truck			diustm	ont: 0.0
Pa	d Elevation:	0.0 feet		ne	avy muck	s. 8.00	6 Grade A	ujusum	5m. 0.0
Roa	d Elevation:	0.0 feet		Lane I	quivalen	Distance	e (in feet)		
F	Road Grade:	0.0%			Auto	s: 47.00	00		
	Left View:	-90.0 degree	es	Med	ium Truck	s: 46.81	1		
	Right View:	90.0 degree	es	He	avy Truck	s: 46.83	80		
FHWA Noise Mode	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distan	ce Fini	te Road	Fresne	Barrier A	Atten	Berm Atten
Autos:	70.20	1.25		0.30	-1.20	-4	1.67 0	0.000	0.000
Medium Trucks:	81.00	-15.99		0.33	-1.20	-4	1.87 0	0.000	0.000
Heavy Trucks:	85.38	-19.94		0.32	-1.20	-5	5.38 0	0.000	0.000
			barrier a	ttenuation	•1				
	Levels (with								
VehicleType	Leq Peak Hou	r Leq Day	' Le	q Evening	Leq	Night	Ldn		CNEL
VehicleType Autos:	Leq Peak Hou 70	r Leq Day .6	, Le 69.3	q Evening 68	Leq	62.0	70	).4	71.0
VehicleType Autos: Medium Trucks:	Leq Peak Hou 70 64	r Leq Day .6 .1	, Le 69.3 61.0	q Evening 68 53	.0 .5	62.0 62.3	70	3.4	71.0 68.5
VehicleType Autos: Medium Trucks: Heavy Trucks:	Leq Peak Hou 70 64 64	r <u>Leq</u> Day .6 .1 .6	γ Le 69.3 61.0 61.3	q Evening 68 53 57	.0 .5 .9	62.0 62.3 62.5	70 68 68	3.4 3.7	71.0 68.5 68.8
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	Leq Peak Hou 70 64 64 72	r Leq Day .6 .1 .6 .3	2 Le 69.3 61.0 61.3 70.5	q Evening 68 53	.0 .5 .9	62.0 62.3	70 68 68	3.4	71.0 68.5 68.8
VehicleType Autos: Medium Trucks: Heavy Trucks:	Leq Peak Hou 70 64 64 72	r Leq Day .6 .1 .6 .3	2 Le 69.3 61.0 61.3 70.5	q Evening 68 53 57 68	Leq .0 .5 .9 .5	62.0 62.3 62.5 67.0	70 68 68 74	3.4 3.7	71.0 68.5 68.8 74.4
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	Leq Peak Hou 70 64 64 72	r Leq Day .6 .1 .6 .3 ontour (in feet	2 Le 69.3 61.0 61.3 70.5	q Evening 68 53 57 68 70 dBA	Leq .0 .5 .9 .5 .5	62.0 62.3 62.5 67.0	70 68 68 74 60 dBA	3.4 3.7	71.0 68.5 68.8 74.4 55 dBA
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	Leq Peak Hou 70 64 64 72	r Leq Day 6 .1 .6 .3 ontour (in feet	2 Le 69.3 61.0 61.3 70.5	q Evening 68 53 57 68	Leq .0 .5 .9 .5 .5 .5 .5 .5 .5	62.0 62.3 62.5 67.0	70 68 68 74	3.4 3.7	71.0 68.5 68.8 74.4

Tuesday, February 4, 2020

Tuesday, February 4, 2020

APPENDIX 9.1:

CADNAA OPERATIONAL NOISE LEVEL CALCULATIONS



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CadnaA Noise Prediction Model

12720\_02.cna

Date:

08.02.20

Analyst:

B. Lawson

### **Receiver Noise Levels**

Name	М.	ID		Level Lr		Lir	mit. Valı	ue		Land	l Use	Height		C	oordinates	
			Day	Eve	Night	Day	Eve	Night	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	49.8	49.8	41.2	55.0	50.0	45.0				5.00	а	6515936.20	2221578.98	5.00
R2		R2	48.6	48.6	43.0	55.0	50.0	45.0				5.00	а	6516852.37	2221158.87	5.00
R3		R3	44.2	44.2	34.8	55.0	50.0	45.0				5.00	а	6515696.83	2220682.82	5.00
R4		R4	40.5	40.5	34.1	55.0	50.0	45.0				5.00	а	6515434.52	2221411.04	5.00
R5		R5	39.2	39.2	35.5	55.0	50.0	45.0				5.00	а	6515387.25	2221630.76	5.00

### Point Source(s)

Name	М.	ID	R	esult. PW	Ľ		Lw/L	.i	(	Correctio	n	Soun	d Reduction	Attenuation	Op	erating T	ime	К0	Freq.	Direct.	Height	C	oordinates	
			Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Х	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft <sup>2</sup> )		(min)	(min)	(min)	(dB)	(Hz)		(ft)	(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6516693.64	2221188.30	5.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6516650.23	2221189.17	5.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6516671.94	2221188.30	5.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6515750.93	2221498.20	5.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6515769.16	2221499.07	5.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6515788.26	2221499.07	5.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6515604.23	2220947.85	5.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6515622.13	2220948.39	5.00
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0				468.00	117.00	252.00	0.0	500	(none)	5.00 a	6515639.96	2220947.92	5.00
POINTSOURCE		COURT01	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				720.00	180.00	0.00	0.0	500	(none)	5.00 a	6516627.67	2221095.42	5.00
POINTSOURCE		COURT02	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				720.00	180.00	0.00	0.0	500	(none)	5.00 a	6515734.44	2221113.65	5.00
POINTSOURCE		COURT03	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				720.00	180.00	0.00	0.0	500	(none)	5.00 a	6515638.95	2221059.83	5.00
POINTSOURCE		COURT04	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				720.00	180.00	0.00	0.0	500	(none)	5.00 a	6515637.21	2221091.95	5.00
POINTSOURCE		COURT05	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				720.00	180.00	0.00	0.0	500	(none)	5.00 a	6515697.98	2221329.79	5.00
POINTSOURCE		COURT06	91.5	91.5	91.5	Lw	91.5		0.0	0.0	0.0				720.00	180.00	0.00	0.0	500	(none)	5.00 a	6515699.71	2221373.20	5.00

#### Line Source(s)

Name	M	. ID	,	Result. PW	'L	R	esult. PW	/L'		Lw / L	i	(	Correctio	า	Sound	d Reduction	Attenuation	Op	erating Ti	me	к0	Freq.	Direct.		Moving	Pt. Src	
			Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number		Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(mph)

## Area Source(s)

N	Name	М.	ID	R	esult. PW	/L	R	esult. PW	L''		Lw/L	i	(	Correction	ı	Soun	d Reduction	Attenuation	Op	erating Ti	me	ко	Freq.	Direct.	Mo	ving Pt. S	Src
				Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number	
				(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
AREA	ASOURCE		PARKING01	88.6	88.6	88.6	56.6	56.6	56.6	Lw	88.6		0.0	0.0	0.0							0.0	500	(none)			

Barrier(s)

Name	М.	ID	Abso	rption	Z-Ext.	Canti	ilever	H	lei	ght
			left	right		horz.	vert.	Begin		End
					(ft)	(ft)	(ft)	(ft)		(ft)
BARRIERS		ACWALL01						8.00	а	
BARRIERS		ACWALL02						8.00	а	
BARRIERS		ACWALL03						8.00	а	
BARRIERS		WALL01						6.00	а	
BARRIERS		WALL02						6.00	а	

## Building(s)

Name	М.	ID	RB	Residents	Absorption	Height	:	
						Begin (ft) 30.00 a		
						(ft)	Γ	
BUILDING		BUILDING00001	х	0		30.00	а	
BUILDING		BUILDING00002	х	0		30.00	a	
BUILDING		BUILDING00003	х	0		0.00	a	

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE LEVEL CALCULATIONS



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CadnaA Noise Prediction Model

12720\_02\_Demo.cna

Date:

09.02.20

Analyst: B. Lawson

D. Lawson

### **Receiver Noise Levels**

Name	М.	ID		Level Lr		Lir	mit. Valı	ue		Land	l Use	Height		C	oordinates	
			Day	Eve	Night	Day	Eve	Night	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	60.4	60.4	60.4	55.0	50.0	45.0				5.00	а	6515936.20	2221578.98	5.00
R2		R2	52.1	52.1	52.1	55.0	50.0	45.0				5.00	а	6516852.37	2221158.87	5.00
R3		R3	60.5	60.5	60.5	55.0	50.0	45.0				5.00	а	6515696.83	2220682.82	5.00
R4		R4	62.1	62.1	62.1	55.0	50.0	45.0				5.00	а	6515434.52	2221411.04	5.00
R5		R5	58.6	58.6	58.6	55.0	50.0	45.0				5.00	а	6515387.25	2221630.76	5.00

Name	М.	ID	R	esult. PW	'L	Re	esult. PW	L''		Lw/L	.i	(	Correctio	ı	Soun	d Reduction	Attenuation	Оре	erating Ti	me	ко	Freq.	Direct.	M	oving Pt. S	Src
			Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
DEMO		DEMO00001	102.9	102.9	102.9	71.9	71.9	71.9	Lw"	71.9		0.0	0.0	0.0							0.0	500	(none)			
DEMO		DEMO00002	103.6	103.6	103.6	71.9	71.9	71.9	Lw"	71.9		0.0	0.0	0.0							0.0	500	(none)			
DEMO		DEMO00003	102.8	102.8	102.8	71.9	71.9	71.9	Lw"	71.9		0.0	0.0	0.0							0.0	500	(none)			
DEMO		DEMO00004	102.7	102.7	102.7	71.9	71.9	71.9	Lw"	71.9		0.0	0.0	0.0							0.0	500	(none)			

CadnaA Noise Prediction Model

12720\_02\_SitePrep.cna

Date:

09.02.20

Analyst:

B. Lawson

### **Receiver Noise Levels**

Name	М.	ID		Level Lr		Lir	nit. Valı	ue		Land	l Use	Height	:	C	oordinates	
			Day	Eve	Night	Day	Eve	Night	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	65.6	65.6	65.6	55.0	50.0	45.0				5.00	а	6515936.20	2221578.98	5.00
R2		R2	74.5	74.5	74.5	55.0	50.0	45.0				5.00	а	6516852.37	2221158.87	5.00
R3		R3	63.6	63.6	63.6	55.0	50.0	45.0				5.00	a	6515696.83	2220682.82	5.00
R4		R4	61.9	61.9	61.9	55.0	50.0	45.0				5.00	a	6515434.52	2221411.04	5.00
R5		R5	61.2	61.2	61.2	55.0	50.0	45.0				5.00	а	6515387.25	2221630.76	5.00

Name	м.	ID	R	esult. PW	'L	Re	esult. PW	L''		Lw / L	.i		Correctio	n	Sound	Reduction	Attenuation	Op	erating Ti	ime	ко	Freq.	Direct.	M	oving Pt. S	Src
			Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
SITEPREPARATION		SITEPREPARATION00002	119.4	119.4	119.4	75.3	75.3	75.3	Lw"	75.3		0.0	0.0	0.0							0.0	500	(none)			

CadnaA Noise Prediction Model

12720\_02\_Grading.cna

Date:

09.02.20

Analyst: B. Lawson

**Receiver Noise Levels** 

	-	-														
Name	М.	ID		Level Lr		Lii	nit. Val	Je		Land	l Use	Height		Co	oordinates	
			Day	Eve	Night	Day	Eve	Night	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	63.8	63.8	63.8	55.0	50.0	45.0				5.00	а	6515936.20	2221578.98	5.00
R2		R2	72.7	72.7	72.7	55.0	50.0	45.0				5.00	а	6516852.37	2221158.87	5.00
R3		R3	61.8	61.8	61.8	55.0	50.0	45.0				5.00	а	6515696.83	2220682.82	5.00
R4		R4	60.1	60.1	60.1	55.0	50.0	45.0				5.00	а	6515434.52	2221411.04	5.00
R5		R5	59.4	59.4	59.4	55.0	50.0	45.0				5.00	а	6515387.25	2221630.76	5.00

Name	м.	ID	R	esult. PW	'L	Re	esult. PW	L''		Lw / L	.i	(	Correctio	ı	Sound	d Reduction	Attenuation	Op	erating Ti	me	ко	Freq.	Direct.	Mo	oving Pt. S	Src
			Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
SITEPREPARATION		SITEPREPARATION00002	117.6	117.6	117.6	73.5	73.5	73.5	Lw"	73.5		0.0	0.0	0.0							0.0	500	(none)			

CadnaA Noise Prediction Model

12720\_02\_BuildingConstruction.cna

Date:

09.02.20

Analyst:

B. Lawson

### **Receiver Noise Levels**

Name	М.	ID		Level Lr		Lir	nit. Valu	Je		Land	l Use	Height		C	oordinates	
			Day	Eve	Night	Day	Eve	Night	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	62.7	62.7	62.7	55.0	50.0	45.0				5.00	а	6515936.20	2221578.98	5.00
R2		R2	63.5	63.5	63.5	55.0	50.0	45.0				5.00	а	6516852.37	2221158.87	5.00
R3		R3	61.4	61.4	61.4	55.0	50.0	45.0				5.00	а	6515696.83	2220682.82	5.00
R4		R4	65.3	65.3	65.3	55.0	50.0	45.0				5.00	а	6515434.52	2221411.04	5.00
R5		R5	61.6	61.6	61.6	55.0	50.0	45.0				5.00	а	6515387.25	2221630.76	5.00

Name	М.	ID	R	Result. PW	/L	R	esult. PW	L''		Lw / L	.i		Correctio	n	Sou	und Reduction	Attenuation	Op	erating Ti	ime	К0	Freq.	Direct.	M	oving Pt. S	Src
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	R Area		Day	Special	Night					Number	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00001	107.5	107.5	107.5	71.6	71.6	71.6	Lw"	71.6		0.0	0.0	0.0	)						0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00002	96.7	96.7	96.7	71.6	71.6	71.6	Lw"	71.6		0.0	0.0	0.0							0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00003	107.0	107.0	107.0	71.6	71.6	71.6	Lw"	71.6		0.0	0.0	0.0	)						0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00004	96.8	96.8	96.8	71.6	71.6	71.6	Lw"	71.6		0.0	0.0	0.0	)						0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00005	107.0	107.0	107.0	71.6	71.6	71.6	Lw"	71.6		0.0	0.0	0.0	)						0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00006	96.6	96.6	96.6	71.6	71.6	71.6	Lw"	71.6		0.0	0.0	0.0	)						0.0	500	(none)			

CadnaA Noise Prediction Model

12720\_02\_Paving.cna

Date:

09.02.20

Analyst: B. Lawson

D. Lawson

### **Receiver Noise Levels**

Name	М.	ID		Level Lr		Lir	nit. Valı	Je		Land	l Use	Height	:	C	oordinates	
			Day	Eve	Night	Day	Eve	Night	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	61.5	61.5	61.5	55.0	50.0	45.0				5.00	а	6515936.20	2221578.98	5.00
R2		R2	70.4	70.4	70.4	55.0	50.0	45.0				5.00	а	6516852.37	2221158.87	5.00
R3		R3	59.5	59.5	59.5	55.0	50.0	45.0				5.00	а	6515696.83	2220682.82	5.00
R4		R4	57.8	57.8	57.8	55.0	50.0	45.0				5.00	а	6515434.52	2221411.04	5.00
R5		R5	57.1	57.1	57.1	55.0	50.0	45.0				5.00	а	6515387.25	2221630.76	5.00

	Name	м.	ID	R	esult. PW	'L	Re	esult. PW	L''		Lw / L	.i		Correctio	ı	Sound	d Reduction	Attenuation	Op	erating Ti	me	ко	Freq.	Direct.	Mo	oving Pt. S	Src
Γ				Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number	
Γ				(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
-	SITEPREPARATION		SITEPREPARATION00002	115.3	115.3	115.3	71.2	71.2	71.2	Lw"	71.2		0.0	0.0	0.0							0.0	500	(none)			

CadnaA Noise Prediction Model

12720\_02\_ArchCoating.cna

Date:

09.02.20

Analyst:

B. Lawson

### **Receiver Noise Levels**

Name	М.	ID		Level Lr		Lii	mit. Valı	ue		Land	l Use	Height		C	oordinates	
			Day	Eve	Night	Day	Eve	Night	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	56.3	56.3	56.3	55.0	50.0	45.0				5.00	а	6515936.20	2221578.98	5.00
R2		R2	57.1	57.1	57.1	55.0	50.0	45.0				5.00	а	6516852.37	2221158.87	5.00
R3		R3	55.0	55.0	55.0	55.0	50.0	45.0				5.00	а	6515696.83	2220682.82	5.00
R4		R4	58.9	58.9	58.9	55.0	50.0	45.0				5.00	а	6515434.52	2221411.04	5.00
R5		R5	55.2	55.2	55.2	55.0	50.0	45.0				5.00	а	6515387.25	2221630.76	5.00

Name	М.	ID	F	Result. PW	/L	R	esult. PW	L''		Lw/L	i		Correctio	n	Sou	und Reduction	Attenuation	Op	erating Ti	ime	К0	Freq.	Direct.	M	oving Pt. S	Src
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	R Area		Day	Special	Night					Number	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00001	101.1	101.1	101.1	65.2	65.2	65.2	Lw"	65.2		0.0	0.0	0.0	)						0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00002	90.3	90.3	90.3	65.2	65.2	65.2	Lw"	65.2		0.0	0.0	0.0							0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00003	100.6	100.6	100.6	65.2	65.2	65.2	Lw"	65.2		0.0	0.0	0.0	)						0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00004	90.4	90.4	90.4	65.2	65.2	65.2	Lw"	65.2		0.0	0.0	0.0	)						0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00005	100.6	100.6	100.6	65.2	65.2	65.2	Lw"	65.2		0.0	0.0	0.0	)						0.0	500	(none)			
BUILDINGCONSTRUCTION		BUILDINGCONSTRUCTION00006	90.2	90.2	90.2	65.2	65.2	65.2	Lw"	65.2		0.0	0.0	0.0	)						0.0	500	(none)			