

# Stratford Ranch East (TTM No. 38071) (PLN21-05032/GPA21-05040/ZC21-05039) NOISE IMPACT ANALYSIS CITY OF PERRIS

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13780-03 Noise Study



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# LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
INCE	Institute of Noise Control Engineering
L <sub>eq</sub>	Equivalent continuous (average) sound level
L <sub>max</sub>	Maximum level measured over the time interval
L <sub>min</sub>	Minimum level measured over the time interval
MARB/IPA	March Air Reserve Base/Inland Port Airport
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Stratford Ranch East
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 the necessary noise mitigation measures, if any, for the proposed Stratford Ranch East development ("Project") located on the northeast corner of Evans Road and Ramona Expressway in the City of Perris. The Project is proposed to consist of 197 single family detached residential dwelling units. This study has been prepared to satisfy applicable City of Perris standards and thresholds of significance based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

# **EXTERIOR NOISE LEVELS**

It is expected that the primary source of noise impacts to the Project site will be traffic noise from Ramona Expressway, Evans Road, and Redlands Avenue in the Project study area. The Project will also experience some background traffic noise impacts from the Project's internal local streets, however, due to the distance, topography and low traffic volume/speed, traffic noise from these roads will not make a significant contribution to the noise environment.

The on-site traffic noise level analysis indicates that the first-floor facades will experience exterior noise levels ranging from 65.0 to 69.9 dBA CNEL. With the recommended minimum 6-foot-high noise barriers, shown on Exhibit ES-A, the future exterior noise levels at the lots adjacent to Ramona Expressway, Evans Road, and Redlands Avenue are shown to range from 59.0 to 63.8 dBA CNEL and satisfy the City of Perris General Plan Noise Element 65 dBA CNEL exterior noise level standard for residential uses.

# **NOISE ABATEMENT MEASURES**

To satisfy the City of Perris 45 dBA CNEL interior noise level standard, residential units will require a Noise Reduction (NR) of up to 23.6 dBA and a windows-closed condition requiring a means of mechanical ventilation (e.g., air conditioning). To meet the City of Perris 45 dBA CNEL interior noise standards for residential land use the Project shall provide the following or equivalent noise abatement measures:

- <u>Windows & Glass Doors</u>: All units require windows and glass doors with well-fitted, well-weatherstripped assemblies and shall have minimum sound transmission class (STC) ratings of 27.
- <u>Exterior Doors</u>: All exterior doors shall be well weather-stripped and have minimum STC ratings of 27. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating. (2)
- <u>Walls:</u> At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- <u>Roof:</u> Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.



- <u>Ventilation</u>: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g., air conditioning) or active ventilation system (e.g., fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.
- <u>Notices:</u> Occupancy disclosure notices for all future owners of the residential units within the Project site are required. The occupancy disclosure shall state that the unit will be exposed to noise from the auto and truck racing venue which is located to the east of the Project site.

With the interior noise abatement measures provided in this study, the proposed Project is expected to satisfy the City of Perris 45 dBA CNEL interior noise level standards for residential development.

# SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Stratford Ranch East 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 Section	Significance Findings		
Analysis		Unmitigated	Mitigated	
Off-Site Traffic Noise	7	Less Than Significant	-	
On-Site Traffic Noise	8	Potentially Significant	Less Than Significant	
Construction Noise	11	Less Than Significant	-	
Construction Vibration		Less Than Significant	-	

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



#### **EXHIBIT ES-A: SUMMARY OF RECOMMENDATIONS**

#### LEGEND:

N

Recommended Minimum 6' Foot High Noise Barrier



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# 1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Stratford Ranch East ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the short-term construction noise and vibration impacts.

# **1.1** SITE LOCATION

The proposed Stratford Ranch East site is located on the northeast corner of Evans Road and Ramona Expressway, as shown on Exhibit 1-A. The March Air Reserve Base/Inland Port Airport (MARB/IPA) is located approximately 2.33 miles northwest of the Project site boundary. In addition, the project is located west of the Perris Auto Speedway Racetrack. Noise sensitive residential homes are located to the north, south and southwest of the Project site.

# **1.2 PROJECT DESCRIPTION**

The Project is proposed to consist of 197 single family detached residential dwelling units. The proposed Project land use is consistent with the General Plan, which is Residential.





EXHIBIT 1-A: LOCATION MAP





EXHIBIT 1-B: SITE PLAN



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# 2 FUNDAMENTALS

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

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

### EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

# 2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud (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 used figure is the equivalent level ( $L_{eq}$ ). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level ( $L_{eq}$ ) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period (typically one hour) and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment, however. 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<sub>eq</sub> sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L<sub>eq</sub> sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Perris 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. Based on guidance from the U.S. Department of Transportation, Federal Highway Administration (FHWA), Office of Environment and Planning, Noise and Air Quality Branch, 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 feet. 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 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 nearest residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure (5).

## 2.3.5 REFLECTION

Field studies conducted by the FHWA have shown that the reflection from barriers and buildings does not substantially increase noise levels (5). If all the noise striking a structure was reflected back to a given receiving point, the increase would be theoretically limited to 3 dBA. Further, not all the acoustical energy is reflected back to same point. Some of the energy would go over the structure, some is reflected to points other than the given receiving point, some is scattered by ground coverings (e.g., grass and other plants), and some is blocked by intervening structures and/or obstacles (e.g., the noise source itself). Additionally, some of the reflected energy is lost due to the longer path that the noise must travel. FHWA measurements made to quantify reflective increases in traffic noise have not shown an increase of greater than 1-2 dBA; an increase that is not perceptible to the average human ear.





# 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. 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, recreation areas or buildings where people normally sleep. Although the West Valley Detention Center is a temporary holding facility, there are beds at this facility for temporary stays. Therefore, as a conservative measure, the individuals held at the West Valley Detention Center are considered sensitive receptors for the purposes of this analysis.

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 varies 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. 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 is considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)





# 2.8 VIBRATION

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

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation

(VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities.

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





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

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

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



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# **3 REGULATORY SETTING**

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

# 3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (9) The purpose of the Noise and Safety 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 for all residential units are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Chapter 12, Section 1206. These noise standards are applied to new construction that contains dwelling units or sleeping units, such as residential and hotel or motel uses, in California for controlling interior noise levels resulting from exterior noise sources. For new buildings, the acceptable interior noise limit is 45 dBA CNEL in habitable rooms (9).

# 3.3 CITY OF PERRIS GENERAL PLAN NOISE ELEMENT

The City of Perris has adopted a Noise Element of the General Plan (10) to control and abate environmental noise, and to protect the citizens of Perris from excessive exposure to noise. The Noise Element specifies the maximum allowable unmitigated exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies noise polices and implementation measures designed to protect, create, and maintain an environment free from noise that may jeopardize the health or welfare of sensitive receptors, or degrade quality of life. To protect Perris residents from unacceptable noise levels, the Noise Element contains the following objectives:

Goal I. Future land uses compatible with projected noise environments.

Goal II Roadway improvements compatible with existing noise-sensitive land uses.



The noise policies specified in the City of Perris Noise Element provide the guidelines necessary to satisfy these objectives. To ensure the appropriate exterior and interior noise levels for existing and new land uses, Exhibit N-1 of the City of Perris General Plan Noise Element, shown on Exhibit 3-A, identifies a maximum allowable exterior noise level of 65 dBA CNEL. Implementation measure II.A.3 states that whenever *exterior living areas in the proposed development plan would be exposed to noise levels of 60 dBA or greater, the plans shall incorporate setbacks and/or building design/noise insulation measures to reduce exterior noise levels to no more than 65 dBA and ensure that interior noise levels do not exceed 45 dBA CNEL. This sets an interior noise level limit of 45 dBA CNEL for new residential developments impacted by transportation noise sources such as arterial roads, freeways, airports, railroads, and warehousing uses. The Noise Element also provides several policies to reduce noise impacts from transportation (II.A.1, II.A.2) that includes the use of quieter roadway surface materials, roadway alignment, noise barriers, and pavement surface treatments.* 



Land Use Category	Community Noise Equivalent Level (CNEL) or Day-Night Level (Ldn), dB 55 60 65 70 75 80 85
Residential- Low-Density Single- Family, Duplex, Mobile Homes	
Residential- Multi-Family	
Commercial- Motels, Hotels, Transient Lodging	
Schools, Libraries, Churches, Hospitals, Nursing Homes	
Amphitheaters, Concert Hall, Auditorium, Meeting Hall	7/////
Sports Arenas, Outdoor Spectator Sports	///////
Playgrounds, Neighborhood Parks	
Golf Courses, Riding Stables, Water Rec., Cemeteries	
Office Buildings, Business, Commercial, Professional, and Mixed-Use Developments	
Industrial, Manufacturing Utilities, Agriculture	

#### EXHIBIT 3-A: CITY OF PERRIS INTERIOR AND EXTERIOR NOISE STANDARDS



Specific land use is satisfactory, based on the assumption that any building is of normal conventional construction, without any special noise insulation requirements



New construction or development should be undertaken only after a detailed analysis of noise reduction require- tion or development ments is made and needed noise insulation tailed analysis of noise features included in design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.



New construction or development should generally be discouraged. If new construcdoes proceed, a dereduction requirements must be made and needed noise insulation features included in design.

Nature of the noise environment where the CNEL or Ldn level is:

Below 55 dB Relatively quiet suburban or urban areas, no arterial streets within 1 block, no freeways within 1/4 mile.

#### 55-65 dB

Most somewhat noisy urban areas, near but not directly adjacent to high volumes of traffic.

#### 65-75 dB

Very noisy urban areas near arterials, freeways or airports.

#### 75+ dB

Extremely noisy urban areas adjacent to freeways or under airport traffic patterns. Hearing damage with constant exposure outdoors.



New construction or development should generally not be undertaken.

The Community Noise Equivalent Level (CNEL) and Day-Night Noise Level (Ldn) are measures of the 24-hour noise environment. They represent the constant A-weighted noise level that would be measured if all the sound energy received over the day were averaged. In order to account for the greater sensitivity of people to noise at night, the CNEL weighting includes a 5-decibel penalty on noise between 7:00 p.m. and 10:00 p.m. and a 10-decibel penalty on noise between 10:00 p.m. and 7:00 a.m. of the next day. The Ldn includes only the 10-decibel weighting for late-night noise events. For practical purposes, the two measures are equivalent for typical urban noise environments.

City of Perris General Plan Noise Element, Exhibit N-1.



# **3.4 CONSTRUCTION NOISE STANDARDS**

To analyze noise impacts originating from the construction of the Stratford Ranch East site, noise from construction activities is typically evaluated against standards established under a City's Municipal Code. The City of Perris Municipal Code, Section 7.34.060 included in Appendix 3.1, identifies the City's construction noise standards and permitted hours of construction activity (refer to Table 3-1). Further, the City of Perris Municipal Code, Section 7.34.060, states that the noise level standard of 80 dBA  $L_{max}$  at residential properties shall apply to the noise-sensitive receiver locations located in the City of Perris. (11)

Jurisdiction	Permitted Hours of Construction Activity	Construction Noise Level Standard
City of Perris <sup>1</sup>	7:00 a.m. to 7:00 p.m. on any day except Sundays and legal holidays (with the exception of Columbus Day and Washington's birthday).	80 dBA L <sub>max</sub>

<b>TABLE 3-1:</b>	<b>CONSTRUCTION NOISE STANDARDS</b>

<sup>1</sup> City of Perris Municipal Code, Section 7.34.060 (Appendix 3.1).

## **3.5 VIBRATION STANDARDS**

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (8)

To analyze vibration impacts originating from the operation and construction of the Stratford Ranch East, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Perris does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (12 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations.

The construction vibration damage potential criteria include consideration of the building conditions. (4 p. 182) Table 3-2 describes the maximum acceptable transient and continuous vibration building damage potential levels by structure type and condition. The existing buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).



Structure and Condition	Maximum Transient Vibration Levels PPV (in/sec)	Maximum Continuous Vibration Levels PPV (in/sec)
Extremely fragile historic buildings	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

#### TABLE 3-2: BUILDING DAMAGE VIBRATION CRITERIA

Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.

## 3.6 MARCH AIR RESERVE BASE/INLAND PORT AIRPORT LAND USE COMPATIBILITY

The March Air Reserve Base/Inland Port Airport (MARB/IPA) is located approximately 2.33 miles northwest of the Project site boundary. The *March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan* (MARB/IPA LUCP) includes the policies for determining the land use compatibility of the Project. (13) The MARB/IPA, Map MA-1, indicates that the Project site is located within Compatibility Zone D and E, and the Table MA-1 Compatibility Zone Factors indicates that this area is considered to have a *moderate to low* noise impact, and is outside the 55 dBA CNEL noise level contour boundaries. Consistent with the Basic Compatibility Criteria, listed in Table MA-2 of the MARB/IPA LUCP, noise sensitive outdoor uses are permitted.

The noise contour boundaries of MARB/IPA are presented on Exhibit 3-A of this report and show that the Project is considered *normally acceptable* land use since it is located outside the 65 dBA CNEL noise level contour boundaries.





EXHIBIT 3-A: MARB/IPA FUTURE AIRPORT NOISE CONTOURS



# 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 Perris 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 nearest public and private airports, if any, and the Project's land use compatibility.

# 4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The closest airport which would require additional noise analysis under CEQA Appendix G Guideline C is the MARB/IPA. As previously described in Section 3.6, the Project is in Compatibility Zone D and E, and the Table MA-1 Compatibility Zone Factors indicates that this area is considered to have a *moderate to low* noise impact. In addition, Table MA-2 indicates that the Project land use satisfies the basic compatibility criteria. Therefore, the potential impacts under CEQA Appendix G Guideline C, are *less than significant* and are not further analyzed in this noise study.

# 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.* (14)

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) (15) 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 are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L<sub>eq</sub>).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (14) 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.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (5 p. 9) and Caltrans (16 p. 2\_48).



# 4.3 SIGNIFICANCE CRITERIA SUMMARY

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

Analysis	Receiving Land Use	Condition(s)	Significance Criteria		
			Daytime	Nighttime	
Off-Site	Noise- Sensitive <sup>1</sup>	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase		
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase		
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase		
Construction	It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. <sup>2</sup>				
	Noise- Sensitive	Noise Level Threshold <sup>2</sup>	80 dBA L <sub>max</sub>	n/a	
		Vibration Level Threshold <sup>3</sup>	0.3 PPV (in/sec)	n/a	

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

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

<sup>2</sup> City of Perris Municipal Code, Section 7.34.060 (Appendix 3.1).

<sup>3</sup> Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.

"Daytime" = 8:00 a.m. - 10:00 p.m.; "Nighttime" = 10:01 p.m. - 7:59 a.m.; "PPV" = Peak Particle Velocity



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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, March 25<sup>th</sup>, 2020. Appendix 5.1 includes study area photos.

# 5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (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. (8)* 

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the 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 (7:01 a.m. to 10:00 p.m.) and nighttime (10:01 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.

Location <sup>1</sup>	Description	Energy Average Noise Level (dBA L <sub>eq</sub> ) <sup>2</sup>		CNEL
		Daytime	Nighttime	
L1	Located north of the Project site on Amaya Drive near existing single-family residential home at 4316 Miraluna Drive.	56.0	51.9	59.4
L2	Located by the eastern boundary of the Project site on Lake Perris Drive.	61.0	56.6	64.2
L3	Located east of the Project site by the Perris Auto Speedway at 18700 Lake Perris Drive.	58.4	54.5	62.0
L4	Located south of the Project site on Cameron Glen Road near existing single-family residential home at 3847 Cameron Glen Road.	60.5	51.7	61.6
L5	Located southwest of the Project site on Ramona Expressway and Akina Avenue near existing single-family residential home at 3896 Akina Avenue.	72.3	70.2	77.4

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

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

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

"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.





## EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



A Measurement Locations



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# 6 TRAFFIC NOISE PREDICTION METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment. Consistent with the *Land Use Compatibility Criteria*, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

## 6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (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. (20)

# 6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site dBA CNEL transportation noise impacts. Table 6-1 identifies the six study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Perris General Plan Circulation Element, and the posted vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on the *Stratford Ranch East Traffic Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios under both Without and With Project alternatives: Existing (2021), Existing Plus Ambient Growth Plus Cumulative Projects (EAC) (2027). (21)

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 total traffic flow distributions (vehicle mixes) used for this analysis.





ID	Roadway	Segment	Receiving Land Use <sup>1</sup>	Classification <sup>2</sup>	Centerline Distance to Receiving Land Use (Feet) <sup>3</sup>	Vehicle Speed (mph)
1	Redlands Av.	s/o Ramona Exwy.	Sensitive	Secondary Arterial	47'	40
2	Evans Rd.	n/o Street A	Sensitive	Primary Arterial	64'	45
3	Evans Rd.	s/o Ramona Exwy.	Sensitive	Primary Arterial	64'	45
4	Ramona Exwy.	w/o Redlands Av.	Sensitive	Expressway	92'	55
5	Ramona Exwy.	w/o Evans Rd.	Sensitive	Expressway	92'	55
6	Ramona Exwy.	e/o Evans Rd.	Sensitive	Expressway	92'	55

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

<sup>1</sup> Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

<sup>2</sup> City of Perris General Plan Circulation Element Exhibit CE-4.

<sup>3</sup> Based upon the right-of-way distances for each roadway classification provided in the General Plan Circulation Element.

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

			Aver	age Daily T	raffic Volur	nes1	
ID	Roadway	Segment	Exis	ting	Existing Plus Ambient Growth Plus Cumulative Projects		
			Without Project	With Project	Without Project	With Project	
1	Redlands Av.	s/o Ramona Exwy.	1,720	1,720	5,540	5,540	
2	Evans Rd.	n/o Street A	25,664	26,036	41,436	41,844	
3	Evans Rd.	s/o Ramona Exwy.	19,069	19,441	48,459	48,867	
4	Ramona Exwy.	w/o Redlands Av.	32,445	33,283	84,487	85,407	
5	Ramona Exwy.	w/o Evans Rd.	37,395	38,233	91,578	92,498	
6	Ramona Exwy.	e/o Evans Rd.	25,899	26,179	80,223	80,531	

<sup>1</sup> Stratford Ranch East Traffic Analysis, Urban Crossroads, Inc.

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

		Time of Day Splits <sup>1</sup>		Total of Time of
venicie Type	Daytime	Evening	Nighttime	Day Splits
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

<sup>1</sup>Typical Southern California vehicle mix.

"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.

Roadway	т	otal % Traffic Flow	1	Tatal
Classification	Autos	Medium Trucks	Heavy Trucks	Iotai
All Roadways	97.42%	1.84%	0.74%	100.00%

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

<sup>1</sup> Typical Southern California vehicle mix.

### 6.3 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 6-5. Based on the City of Perris General Plan Circulation Element Exhibit CE-4, Ramona Expressway is classified as a 6-lane Expressway, Evans Road is classified as a 4-lane Primary Arterial and Redlands Avenue is classified as a 4-lane secondary arterial. (22) To predict the future on-site noise environment at the Project site, parameters including the number of lanes and daily volume thresholds were obtained from the City of Perris General Plan Circulation Element Table CE-2. For the purposes of this analysis, soft site conditions were used to analyze the on-site traffic noise impacts for the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. 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. (20)

#### TABLE 6-5: ON-SITE ROADWAY PARAMETERS

Roadway	Roadway Lanes Classification <sup>1</sup>		Maximum Daily Traffic Volume <sup>2</sup>	Posted Speed Limit (mph) <sup>3</sup>	Site Conditions
Ramona Expressway	6	Expressway	49,000	55	Soft
Evans Road	4	Primary Arterial	28,700	45	Soft
Redlands Avenue	4	Secondary Arterial	28,700	40	Soft

<sup>1</sup> City of Perris General Plan Circulation Element, Exhibit CE-4, 2008. <sup>2</sup> City of Perris General Plan Circulation Element, Table CE-2, 2008.

<sup>3</sup> Speed limits



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# 7 OFF-SITE TRAFFIC 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 the Stratford Ranch East Traffic Analysis. (21) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

# 7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 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 to 7-4 present a summary of the exterior traffic noise levels for each traffic condition.

	Road		Pacaiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID		Segment	Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Redlands Av.	s/o Ramona Exwy.	Sensitive	59.3	RW	RW	RW	
2	Evans Rd.	n/o Street A	Sensitive	70.5	70	150	323	
3	Evans Rd.	s/o Ramona Exwy.	Sensitive	69.3	RW	123	265	
4	Ramona Exwy.	w/o Redlands Av.	Sensitive	71.0	107	231	497	
5	Ramona Exwy.	w/o Evans Rd.	Sensitive	71.6	118	254	547	
6	Ramona Exwy.	e/o Evans Rd.	Sensitive	70.0	92	199	428	

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

<sup>1</sup> Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

<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.



			Pacaiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	Segment	Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Redlands Av.	s/o Ramona Exwy.	Sensitive	59.3	RW	RW	RW	
2	Evans Rd.	n/o Street A	Sensitive	70.6	70	151	326	
3	Evans Rd.	s/o Ramona Exwy.	Sensitive	69.3	RW	125	268	
4	Ramona Exwy.	w/o Redlands Av.	Sensitive	71.1	109	235	506	
5	Ramona Exwy.	w/o Evans Rd.	Sensitive	71.7	120	258	555	
6	Ramona Exwy.	e/o Evans Rd.	Sensitive	70.1	93	200	431	

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

<sup>1</sup> Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

<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.

#### **TABLE 7-3: EAC WITHOUT PROJECT CONTOURS**

			Pocoiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID	Road	Segment	Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Redlands Av.	s/o Ramona Exwy.	Sensitive	64.4	RW	RW	93	
2	Evans Rd.	n/o Street A	Sensitive	72.6	96	206	444	
3	Evans Rd.	s/o Ramona Exwy.	Sensitive	73.3	106	229	493	
4	Ramona Exwy.	w/o Redlands Av.	Sensitive	75.2	203	437	942	
5	Ramona Exwy.	w/o Evans Rd.	Sensitive	75.5	214	461	994	
6	Ramona Exwy.	e/o Evans Rd.	Sensitive	74.9	196	422	910	

<sup>1</sup> Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

<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.

#### **TABLE 7-4: EAPC WITH PROJECT CONTOURS**

	Road		Possiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ID		Segment	Land Use <sup>1</sup>	Receiving Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	Redlands Av.	s/o Ramona Exwy.	Sensitive	64.4	RW	RW	93	
2	Evans Rd.	n/o Street A	Sensitive	72.7	96	208	447	
3	Evans Rd.	s/o Ramona Exwy.	Sensitive	73.3	107	230	496	
4	Ramona Exwy.	w/o Redlands Av.	Sensitive	75.2	204	440	948	
5	Ramona Exwy.	w/o Evans Rd.	Sensitive	75.5	216	464	1000	
6	Ramona Exwy.	e/o Evans Rd.	Sensitive	74.9	196	423	912	

<sup>1</sup> Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

<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.



# 7.2 EXISTING 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 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 Year 2027 conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels range from 59.3 to 71.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions ranging from 59.3 to 71.7 dBA CNEL. Table 7-5 shows that the Project off-site traffic noise level increases range from 0.0 to 0.1 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

# 7.3 EAC TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Existing plus Ambient Growth plus Cumulative Projects without Project conditions CNEL noise levels. The Existing plus Ambient Growth plus Cumulative Projects without Project exterior noise levels range from 64.4 to 75.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows that the Existing plus Ambient Growth plus Cumulative Projects with Project conditions will range from 64.4 to 75.5 dBA CNEL. Table 7-6 shows that the Project off-site traffic noise level increases range from 0.0 to 0.1 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 increases on receiving land uses due to the Project-related traffic.



ID	Road	Segment	Receiving Land Use <sup>1</sup>	CN La	EL at Receivi Ind Use (dBA	Incremental Noise Level Increase Threshold <sup>3</sup>		
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Redlands Av.	s/o Ramona Exwy.	Sensitive	59.3	59.3	0.0	5.0	No
2	Evans Rd.	n/o Street A	Sensitive	70.5	70.6	0.1	1.5	No
3	Evans Rd.	s/o Ramona Exwy.	Sensitive	69.3	69.3	0.0	1.5	No
4	Ramona Exwy.	w/o Redlands Av.	Sensitive	71.0	71.1	0.1	1.5	No
5	Ramona Exwy.	w/o Evans Rd.	Sensitive	71.6	71.7	0.1	1.5	No
6	Ramona Exwy.	e/o Evans Rd.	Sensitive	70.0	70.1	0.1	1.5	No

 TABLE 7-5:
 EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

<sup>1</sup> Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

<sup>2</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>3</sup> Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-0: EAC WITH PROJECT TRAFFIC NOISE LEVEL INCREASE	<b>TABLE 7-6:</b>	EAC WITH	PROJECT	TRAFFIC	NOISE	LEVEL	<b>INCREASES</b>
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ID	Road	Segment	Receiving Land Use <sup>1</sup>	CN La	EL at Receiv and Use (dBA	Incremental Noise Level Increase Threshold <sup>3</sup>		
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Redlands Av.	s/o Ramona Exwy.	Sensitive	64.4	64.4	0.0	3.0	No
2	Evans Rd.	n/o Street A	Sensitive	72.6	72.7	0.1	1.5	No
3	Evans Rd.	s/o Ramona Exwy.	Sensitive	73.3	73.3	0.0	1.5	No
4	Ramona Exwy.	w/o Redlands Av.	Sensitive	75.2	75.2	0.0	1.5	No
5	Ramona Exwy.	w/o Evans Rd.	Sensitive	75.5	75.5	0.0	1.5	No
6	Ramona Exwy.	e/o Evans Rd.	Sensitive	74.9	74.9	0.0	1.5	No

<sup>1</sup> Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

<sup>2</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>3</sup> Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

# 8 ON-SITE TRAFFIC NOISE IMPACTS

An on-site exterior noise impact analysis has been completed to determine the traffic noise exposure and to identify potential necessary noise abatement measures for the proposed Stratford Ranch East Project. It is expected that the primary source of noise impacts to the Project site will be traffic noise from Ramona Expressway, Evans Road, and Redlands Avenue in the Project study area. The Project will also experience some background traffic noise from the Project's internal local streets, however, due to the distance, topography and low traffic volume/speed, traffic noise from these roads will not make a significant contribution to the noise environment.

# 8.1 ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model and the parameters outlined in Section 6, the expected future exterior noise levels for the building façade were calculated. Table 8-1 presents a summary of future exterior noise levels at the building façade within the Project site. The onsite traffic noise level analysis indicates that the building facades adjacent to Ramona Expressway, Evans Road, and Redlands Avenue will experience exterior noise levels ranging from 65.0 to 69.9 dBA CNEL.

With the recommended minimum 6-foot-high noise barriers, shown on Exhibit ES-A, the future exterior noise levels at the lots adjacent to Ramona Expressway, Evans Road, and Redlands Avenue are shown to range from 59.0 to 63.8 dBA CNEL. This noise analysis shows that the recommended noise barriers will satisfy the City of Perris 65 dBA CNEL exterior noise level standards for residential land use. The recommended noise barrier height represents the minimum wall and/or berm combination height required to satisfy the City of Perris exterior noise level standards.

Lot	Roadway	Unmitigated Noise Level (dBA CNEL)	Mitigated Noise Level (dBA CNEL)	Barrier Height (Feet)
177	Ramona Expressway	66.0	60.2	6.0
182	Ramona Expressway	66.0	60.2	6.0
1	Evans Road	69.9	63.8	6.0
11	Evans Road	69.6	63.5	6.0
172	Redlands Avenue	66.3	60.2	6.0
46	Redlands Avenue	65.0	59.0	6.0
168	Redlands Avenue	65.8	59.8	6.0

## TABLE 8-1: EXTERIOR NOISE LEVELS (CNEL)

<sup>1</sup> Exterior noise level calculations are included Appendix 8.1.



# 8.2 ON-SITE INTERIOR NOISE ANALYSIS

The future noise levels were calculated at the first and second-floor building façades to ensure that the interior noise levels comply with the City of Perris 45 dBA CNEL interior noise standards.

### 8.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: [1] weather-stripped solid core exterior doors; [2] upgraded dual glazed windows; [3] mechanical ventilation/air conditioning; and [4] exterior wall/roof assembles free of cut outs or openings.

### 8.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Tables 8-2 to 8-3 show that the residential units require a windows-closed condition and a means of mechanical ventilation (e.g., air conditioning). Table 8-2 shows that the future mitigated noise levels at the first-floor building façade are expected to range from 59.0 to 63.8 dBA CNEL. The first-floor interior noise level analysis shows that the City of Perris 45 dBA CNEL with windows-closed interior noise standards can be satisfied using windows with a minimum STC rating of 27 for units adjacent to Ramona Expressway, Evans Road, and Redlands Avenue, based on the minimum interior noise reduction for standard construction.

Table 8-3 shows the future unmitigated noise levels at the second-floor building façade are expected to range from 64.4 to 68.8 dBA CNEL. The second-floor interior noise level analysis shows that the City of Perris 45 dBA CNEL with windows closed interior noise standards can be satisfied using standard windows with a minimum STC rating of 27 for units adjacent to Ramona Expressway, Evans Road, and Redlands Avenue.

Lot	Noise Level at Façade <sup>1</sup>	Required Interior Noise Reduction <sup>2</sup>	Interior Noise Reduction <sup>3</sup>	Upgraded Windows⁴	Interior Noise Level <sup>5</sup>
177	60.2	15.2	25.0	No	35.2
182	60.2	15.2	25.0	No	35.2
1	62.9	17.9	25.0	No	37.9
11	62.7	17.7	25.0	No	37.7
172	59.6	14.6	25.0	No	34.6
46	58.6	13.6	25.0	No	33.6
168	59.2	14.2	25.0	No	34.2

TABLE 8-2: FIRST-FLOOR INTERIOR NOISE IMPACTS (CNEL)

<sup>1</sup> Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning).

<sup>2</sup> Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.

<sup>3</sup> Minimum interior noise reduction

<sup>4</sup> Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?

<sup>5</sup> Estimated interior noise level with minimum STC rating for all windows.

#### TABLE 8-3: SECOND-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Lot	Noise Level at Façade <sup>1</sup>	Required Interior Noise Reduction <sup>2</sup>	Interior Noise Reduction <sup>3</sup>	Upgraded Windows⁴	Interior Noise Level <sup>5</sup>
177	65.7	20.7	25.0	No	40.7
182	65.7	20.7	25.0	No	40.7
1	68.6	23.6	25.0	No	43.6
11	68.4	23.4	25.0	No	43.4
172	65.5	20.5	25.0	No	40.5
46	64.4	19.4	25.0	No	39.4
168	65.1	20.1	25.0	No	40.1

<sup>1</sup> Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning).

<sup>2</sup> Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.

<sup>3</sup> Minimum interior noise reduction

<sup>4</sup> Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?

<sup>5</sup> Estimated interior noise level with minimum STC rating for all windows.



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# 9 SENSITIVE RECEIVER LOCATIONS

To assess the potential short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

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

- R1: Location R1 represents the existing noise sensitive residence at 825 Amaya Drive, approximately 18 feet north of the Project site. Receiver R1 is placed at the private outdoor living area (backyard). A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R2: Location R2 represents the existing noise sensitive residence at 914 Arbor Ridge Road, approximately 930 feet south of the Project site. Receiver R2 is placed at the private outdoor living area (backyard). A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.
- R3: Location R3 represents the existing noise sensitive residence at 3899 Akina Avenue, approximately 951 feet southwest of the Project site. Receiver R3 is placed at the private outdoor living area (backyard). A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.







**EXHIBIT 9-A: SENSITIVE RECEIVER LOCATIONS** 

## Receiver Locations - Distance from receiver to Project site boundary (in feet) - Existing Barrier

**6'** Existing Barrier Height (in feet)



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# **10 PERRIS AUTO SPEEDWAY RACETRACK**

This section described the potential noise impacts resulting from the operation of the neighboring Perris Auto Speedway to help identify measures to mitigate exterior and interior noise exposure in accordance with Chapter 16.22 of the Municipal Code, provided in Appendix 3.1.

## **10.1 PERRIS AUTO SPEEDWAY**

According to the General Plan Noise Element, the Perris Auto Speedway is a privately operated auto and truck racing venue located inside the Lake Perris State Recreation Area. It is the only ½ mile clay track in the western United States and it operates from February through November, with racing competition on Saturday nights and open practice on Wednesdays. A variety of racing events are held, including stock cars, super stocks, dwarf cars, sprint cars, light trucks, cruisers, hornets, and midgets.

# **10.2** SPEEDWAY / TRACK NOISE IMPACTS

To assess the existing noise level environment during peak speedway/track activities, two noise level measurements were identified in the Steeplechase Tract 32707 Final Noise Study prepared by Urban Crossroads, Inc. approximately 200 feet from the racetrack. To identify the worst-case noise condition, exterior noise level measurements were previously collected during combined events at both racetracks in the Perris Auto Speedway.

The special event activities at two of the racetracks at the Perris Auto Speedway represented the primary noise source during the measurement period. Several heats with regular racing were observed throughout the measurement period. Measurements taken at lot 39 of Tract 32707 at five and 14 feet were taken to represent a first and second floor observer. Table 10-1 presents a summary of the first and second floor exterior noise level measurements. During peak events, the exterior noise levels ranged from 56.2 dBA  $L_{eq}$  at the first floor (five feet) to 61.0 dBA  $L_{eq}$  at the second floor (14 feet).

Lesstian	Noise Level (dBA L <sub>eq</sub> ) <sup>1</sup>			
Location	Average Hourly	Peak 10-Minute		
First Floor	54.5	56.2		
Second Floor	58.9	61.0		

### TABLE 10-1: PERRIS AUTO SPEEDWAY RACETRACK NOISE LEVELS

<sup>1</sup> Peak Speedway and Track activity at a distance of 200 feet.

 $^{\rm 2}$  Represents the energy average hourly Leq.

<sup>3</sup> Represent the peak 10-minute Leq.

The reference Perris Auto Speedway noise level measurements are generally consistent with the existing ambient noise levels measurements outlined in Section 5 that do not include any active racing events due to COVID-19. A review of the Auto Speedway Racetrack noise levels shows



that they are not expected to exceed the existing ambient energy average dBA  $L_{eq}$  noise levels at the Project site. In addition, the City of Perris municipal code Section 7.30.050 states that

It unlawful for any person to willfully make, cause or suffer, or permit to be made or caused, any loud excessive or offensive noises or sounds which unreasonably disturb the peace and quiet of any residential neighborhood or which are physically annoying to persons of ordinary sensitivity or which are so harsh, prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to the inhabitants of the city, or any section thereof...

While the noise levels associated with the Perris Auto Speedway are not expected during the noise sensitive nighttime hours between 7:00 a.m. and 10:00 p.m, it is likely that the residential lots facing the Perris Auto Speedway may perceive noise level impacts during peak noise events. Therefore, occupancy disclosure notices for all future owners of the residential units within the Project site are required.



# **11 CONSTRUCTION IMPACTS**

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 9. To prevent high levels of construction noise from impacting noise-sensitive land uses, City of Perris Municipal Code Section 7.34.060 limits construction activities to the hours of 7:00 a.m. to 7:00 p.m. on any day except Sundays and legal holidays (with the exception of Columbus Day and Washington's birthday).

## **11.1 CONSTRUCTION NOISE LEVELS**

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

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

## **11.2 CONSTRUCTION REFERENCE NOISE LEVELS**

To describe peak construction noise activities, this construction noise analysis was prepared using reference noise level measurements published in the *Update of Noise Database for Prediction of Noise on Construction and Open Sites* by the Department for Environment, Food and Rural Affairs (DEFRA). (24). The DEFRA database provides the most recent and comprehensive source of reference construction noise levels. Table 11-1 provides a summary of the DEFRA construction reference noise level measurements expressed in dBA  $L_{max}$  using the estimated FHWA Roadway Construction Noise Model (RCNM) usage factors (25) to describe the typical construction activities for each stage of Project construction.





EXHIBIT 11-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS

Construction Activity — Distance from receiver to construction activity (in feet) Receiver Locations Existing Barrier

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Construction Stage	Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>max</sub> ) <sup>1</sup>	Highest Reference Noise Level (dBA L <sub>max</sub> )	
	Crawler Tractors	81		
Site Prenaration	Hauling Trucks	75	81	
reputation	Rubber Tired Dozers	75		
	Graders	83		
Grading	Excavators	68	83	
	Compactors	74		
	Cranes	75		
Building	Tractors	76	76	
construction	Welders	69		
	Pavers	73		
Paving	Paving Equipment	72	76	
	Rollers	76		
	Cranes	75		
Architectural	Air Compressors 71		75	
Coating	Generator Sets	70		

TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

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

### **11.3 Typical Construction Noise Analysis**

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearest sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 10-2, the construction noise levels are expected to range from 56.0 to 76.8 dBA L<sub>max</sub>, and the highest construction levels are expected to range from 64.0 to 76.8 dBA L<sub>max</sub> at the nearest receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.



	Construction Noise Levels (dBA L <sub>max</sub> )						
Receiver Location <sup>1</sup>	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels <sup>2</sup>	
R1	74.8	76.8	69.8	69.8	68.8	76.8	
R2	63.0	65.0	58.0	58.0	57.0	65.0	
R3	62.0	64.0	57.0	57.0	56.0	64.0	

TABLE 11-2: TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

<sup>1</sup>Noise receiver locations are shown on Exhibit 11-A.

<sup>2</sup> Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 11.1.

### 11.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearby receiver locations, the City of Perris has identified a construction-related noise level threshold of 80 dBA L<sub>max</sub>. The construction noise analysis shows that the nearest receiver locations will satisfy the 80 dBA L<sub>max</sub> significance threshold during Project construction activities as shown on Table 11-3. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all receiver locations.

		Construct	on Noise Levels (dB	A L <sub>max</sub> )
Receiver Location <sup>1</sup>	Use	Highest Construction Noise Levels <sup>2</sup>	Threshold <sup>3</sup>	Threshold Exceeded? <sup>4</sup>
R1	Residential	76.8	80	No
R2	Residential	65.0	80	No
R3	Residential	64.0	80	No

TABLE 11-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

<sup>1</sup>Noise receiver locations are shown on Exhibit 11-A.

<sup>2</sup> Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 11-2.

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

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



## **11.5 CONSTRUCTION VIBRATION ANALYSIS**

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation:  $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$ 

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

### TABLE 11-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 11-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 18 to 951 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.000 to 0.146 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec) for older residential buildings, the typical Project construction vibration levels will satisfy the building damage thresholds at all receiver locations. In addition, the typical construction vibration levels at the nearest sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site boundaries.

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	Distance to	T	Typical Construction Vibration Levels PPV (in/sec) <sup>3</sup>					Throsholds
Receiver <sup>1</sup>	Const. Activity (Feet) <sup>2</sup>	Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level	PPV (in/sec)⁴	Exceeded? <sup>5</sup>
R1	18'	0.005	0.057	0.124	0.146	0.146	0.3	No
R2	930'	0.000	0.000	0.000	0.000	0.000	0.3	No
R3	951'	0.000	0.000	0.000	0.000	0.000	0.3	No

#### TABLE 11-5: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

<sup>1</sup> Receiver locations are shown on Exhibit 11-A.

<sup>2</sup> Distance from receiver location to Project construction boundary (Project site boundary).

<sup>3</sup> Based on the Vibration Source Levels of Construction Equipment (Table 11-4).

<sup>4</sup> Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.

<sup>5</sup> Does the peak vibration exceed the acceptable vibration thresholds?

"PPV" = Peak Particle Velocity



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# **13 CERTIFICATION**

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Stratford Ranch East 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.

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### EDUCATION

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

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## **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 PERRIS MUNICIPAL CODE



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Sec. 7.34.010. - Declaration of policy.

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

(Code 1972, § 7.34.010; Ord. No. 1082, § 2(part), 2000)

#### Sec. 7.34.020. - Definitions.

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

Ambient noise means the all-encompassing noise associated with a given environment usually being composed of sounds from many sources near and far. For the purpose of this chapter, ambient noise level is the level obtained when the noise level is averaged over a period of five minutes without inclusion of noise from isolated identifiable sources at the location and time of day near that at which a comparison is to be made.

*Decibel (dB)* means an intensity unit which denotes the ratio between two quantities which are proportional to power; the number of decibels corresponding to the ratio is ten times the common logarithm of this ratio.

Sound amplifying equipment means any machine or device for the amplification of the human voice, music or any other sound. The term "sound amplifying equipment" does not include standard vehicle radios when used and heard only by the occupants of the vehicle in which the vehicle radio is installed. The term "sound amplifying equipment," as used in this chapter, does not include warning devices on any vehicle used only for traffic safety purposes and shall not include communications equipment used by public or private utilities when restoring utility service following a public emergency or when doing work required to protect person or property from an imminent exposure to danger.

*Sound level* (noise level) in decibels is the value of a sound measurement using the "A" weighting network of a sound level meter. Slow response of the sound level meter needle shall be used except where the sound is impulsive or rapidly varying in nature, in which case, fast response shall be used.

*Sound level meter* means an instrument, including a microphone, an amplifier, an output meter and frequency weighting networks, for the measurement of sound levels, which satisfies the pertinent requirements in American National Standards Institute's specification S1.4-1971 or the most recent revision for type S-2A general purpose sound level meters.

(b) Supplementary definitions of technical terms. Definitions of technical terms not defined in this section shall be obtained from the American National Standards Institute's Acoustical Terminology S1-1971 or the most recent revision thereof.

(Code 1972, § 7.34.020; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.030. - Measurement methods.

(a) Sound shall be measured with a sound level meter as defined in section 7.34.020.

- (b) Unless otherwise provided, outdoor measurements shall be taken with the microphone located at any point on the property line of the noise source but no closer than five feet from any wall or vertical obstruction and three to five feet above ground level whenever possible.
- (c) Unless otherwise provided, indoor measurements shall be taken inside the structure with the microphone located at any point as follows:
  - (1) No less than three feet above floor level;
  - (2) No less than five feet from any wall or vertical obstruction; and
  - (3) Not under common possession and control with the building or portion of the building from which the sound is emanating.

(Code 1972, § 7.34.030; Ord. No. 1082, § 2(part), 2000)

#### Sec. 7.34.040. - Sound amplification.

No person shall amplify sound using sound amplifying equipment contrary to any of the following:

- (1) The only amplified sound permitted shall be either music or the human voice, or both.
- (2) The volume of amplified sound shall not exceed the noise levels set forth in this subsection when measured outdoors at or beyond the property line of the property from which the sound emanates.

Time Period	Maximum Noise Level
10:01 p.m.—7:00 a.m.	60 dBA
7:01 a.m.—10:00 p.m.	80 dBA

#### (Code 1972, § 7.34.040; Ord. No. 1082, § 2(part), 2000)

#### Sec. 7.34.050. - General prohibition.

- (a) It unlawful for any person to willfully make, cause or suffer, or permit to be made or caused, any loud excessive or offensive noises or sounds which unreasonably disturb the peace and quiet of any residential neighborhood or which are physically annoying to persons of ordinary sensitivity or which are so harsh, prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to the inhabitants of the city, or any section thereof. The standards for dBA noise level in <u>section 7.34.040</u> shall apply to this section. To the extent that the noise created causes the noise level at the property line to exceed the ambient noise level by more than 1.0 decibels, it shall be presumed that the noise being created also is in violation of this section.
- (b) The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists should include, but not be limited to, the following:
  - (1) The level of the noise;
  - (2) Whether the nature of the noise is usual or unusual;

- (3) Whether the origin of the noise is natural or unnatural;
- (4) The level of the ambient noise;
- (5) The proximity of the noise to sleeping facilities;
- (6) The nature and zoning of the area from which the noise emanates and the area where it is received;
- (7) The time of day or night the noise occurs;
- (8) The duration of the noise; and
- (9) Whether the noise is recurrent, intermittent or constant.

(Code 1972, § 7.34.050; Ord. No. 1082, § 2(part), 2000)

#### Sec. 7.34.060. - Construction noise.

It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA in residential zones in the city.

(Code 1972, § 7.34.060; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.070. - Refuse vehicles and parking lot sweepers.

No person shall operate or permit to be operated a refuse compacting, processing or collection vehicle or parking lot sweeper between the hours of 7:00 p.m. to 7:00 a.m. in any residential area unless a permit has been applied for and granted by the city.

(Code 1972, § 7.34.070; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.080. - Disturbing, excessive, offensive noises; declaration of certain acts constituting.

The following activities, among others, are declared to cause loud, disturbing, excessive or offensive noises in violation of this section and are unlawful, namely:

- (1) *Horns, signaling devices, etc.* Unnecessary use or operation of horns, signaling devices or other similar devices on automobiles, motorcycles or any other vehicle.
- (2) Radios, television sets, phonographs, loud speaking amplifiers and similar devices. The use or operation of any sound production or reproduction device, radio receiving set, musical instrument, drums, phonograph, television set, loudspeakers, sound amplifier, or other similar machine or device for the producing or reproducing of sound, in such a manner as to disturb the peace, quiet or comfort of any reasonable person of normal sensitivity in any area of the city is prohibited. This provision shall not apply to any participant in a licensed parade or to any person who has been otherwise duly authorized by the city to engage in such conduct.
- (3) Animals.
  - a. The keeping or maintenance, or the permitting to be kept or maintained, upon any premises owned, occupied or controlled by any person of any animal or animals which by any frequent or long-continued noise shall cause annoyance or discomfort to a reasonable person of normal sensitiveness

in the vicinity.

- b. The noise from any such animal or animals that disturbs two or more residents residing in separate residences adjacent to any part of the property on which the subject animal or animals are kept or maintained, or three or more residents residing in separate residences in close proximity to the property on which the subject animal or animals are kept or maintained, shall be prima facie evidence of a violation of this section.
- (4) Hospitals, schools, libraries, rest homes, long-term medical or mental care facilities. To make loud, disturbing, excessive noises adjacent to a hospital, school, library, rest home or long-term medical or mental care facility, which noise unreasonably interferes with the workings of such institutions or which disturbs or unduly annoys occupants in said institutions.
- (5) Playing of radios on buses and trolleys. The operation of any radio, phonograph or tape player on an urban transit bus or trolley so as to emit noise that is audible to any other person in the vehicle is prohibited.
- (6) Playing of radios, phonographs and other sound production or reproduction devices in public parks and public parking lots and streets adjacent thereto. The operation of any radio, phonograph, television set or any other sound production or reproduction device in any public park or any public parking lot, or street adjacent to such park or beach, without the prior written approval of the city manager or the administrator, in such a manner that such radio, phonograph, television set or sound production or reproduction device emits a sound level exceeding those found in the table in section 7.34.040.
- (7) Leaf blowers.
  - a. The term "leaf blower" means any portable, hand-held or backpack, engine-powered device with a nozzle that creates a directable airstream which is capable of and intended for moving leaves and light materials.
  - b. No person shall operate a leaf blower in any residential zoned area between the hours of 7:00 p.m. and 8:00 a.m. on weekdays and 5:00 p.m. and 9:00 a.m. on weekends or on legal holidays.
  - c. No person may operate any leaf blower at a sound level in excess of 80 decibels measured at a distance of 50 feet or greater from the point of noise origin.
  - d. Leaf blowers shall be equipped with functional mufflers and an approved sound limiting device required to ensure that the leaf blower is not capable of generating a sound level exceeding any limit prescribed in this section.

(Code 1972, § 7.34.080; Ord. No. 1082, § 2(part), 2000)

#### Sec. 7.34.090. - Burglar alarms.

- (a) Audible burglar alarms for structures or motor vehicles are prohibited unless the operation of such burglar alarm can be terminated within 20 minutes of being activated.
- (b) Notwithstanding the requirements of this provision, any member of the county sheriff's department, Perris Division, shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm installed in any building, dwelling or motor vehicle at any time during the period of its activation. On or after 30 days from the effective date of the ordinance codified in this chapter, any building, dwelling or motor vehicle upon which a burglar alarm has been installed shall prominently display the telephone number at which communication may be made with the owner of such building, dwelling or motor vehicle.

(Code 1972, § 7.34.090; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.100. - Motor vehicles.

- (a) Off-highway.
  - (1) Except as otherwise provided for in this chapter, it shall be unlawful to operate any motor vehicle of any type on any site, other than on a public street or highway as defined in the California Vehicle Code, in any manner so as to cause noise in excess of those noise levels permitted for on-highway motor vehicles as specified in the table for "45-mile-per-hour or less speed limits" contained in section 23130 of the California Vehicle Code and as corrected for distances set forth in subsection (a)(2) of this section.
  - (2) The maximum noise level as the on-highway vehicle passes may be measured at a distance of other than 50 feet from the centerline of travel, provided the measurement is further adjusted by adding algebraically the application correction as follows:

Distance (feet)	Correction (decibels)
25	-6
28	-5
32	-4
35	-3
40	-2
45	-1
50 (preferred distance)	0
56	+1
63	+2
70	+3
80	+4
90	+5

100

+6

(b) Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations including the blowing of sirens and/or horns.

(Code 1972, § 7.34.100; Ord. No. 1082, § 2(part), 2000)

#### CHAPTER 16.22. - CONSTRUCTION LOCATED NEAR ARTERIALS, RAILROADS AND AIRPORTS

Sec. 16.22.010. - Purpose.

The purpose of this chapter is to establish standards of insulation against noise for areas in the vicinity of arterials, railroads, and airports where the exterior community noise equivalent level (CNEL) exceeds 60 dB. Residential developments such as noise impacted areas shall be designed and constructed so as to isolate them appropriately from the interior noise exposures produced by arterial traffic, train pass-bys, and aircraft operations.

(Code 1972, § 16.22.010; Ord. No. 684, § 1(part), 1987)

#### Sec. 16.22.020. - Definitions.

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

*Ambient noise* means the composite noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

*A-weighted sound pressure level, db(A)* means the sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter deemphasizes the very low and very high frequency components of the sound in a manner similar to the response to the human ear and gives good correlation with subjective reactions to noise.

*Community noise equivalent level (CNEL)* means a measure of noise exposure which recognizes that a given level of noise may be more or less tolerable depending on the duration of exposure and the time of day during which the noise is experienced. This measure weights the average noise level for the evening hours (7:00 p.m. to 10:00 p.m.) by five dB, and the late evening and early morning hours (10:00 p.m. to 7:00 a.m.) by ten dB. The unweighted daytime noise levels are combined with these weighted levels and averaged to obtain a CNEL value.

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

*Maximum noise level* means the maximum instantaneous noise level that occurs during a specific time interval. In acoustics, the maximum sound pressure level is understood to be for single events unless some other kind of level is specified.

Noise means annoying, harmful, or unwanted sound.

*Noise contour* means a line drawn about a noise source indicating constant levels of noise exposure. CNEL is the metric utilized herein to describe community exposure to noise.

Noise impact area means a specific area exposed to significant levels of noise.

*Noise level reduction (NLR)* means the difference in noise level from outside to inside of the building. NLR is a difference, in decibels, between A-weighted sound level. It depends primarily on the nature of the wall, ceiling, windows, doors, and vents, and to a lesser extent on the amount of sound absorbing material in the room in which the sound is received. It shall be measured, if so required, in a completed and furnished building.

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#### Perris, CA Code of Ordinances

*Noise-sensitive land uses* include, but are not limited to, residences, schools, libraries, hospitals, churches, offices, hotels, motels, and outdoor recreational areas. Noise-sensitivity factors include interference with speech communication, subjective judgment of noise acceptability and relative noisiness, priced for freedom from noise intrusion, and sleep interference criteria.

*Qualified consultant* means a person who by reason of his training and experience in the science and technology of acoustical engineering is considered qualified to pass judgment on acoustical design, materials, and methods of construction for the attenuation of noise. The qualifications of the consultant relative to acoustical design must be submitted to and found to be acceptable by the city and the state office of noise control.

Sound absorption means the capacity of the materials and furnishings in a habitable room to absorb sound.

*Sound level* means, in decibels, the quantity measured by an instrument that satisfies American National Standards Specification for Sound Level Meters 51.4-1971 or the most recent revision thereof. Sound level is understood to be measured with the A-weighted filter and slow response of the instrument.

*Sound level meter* means a measurement instrument containing a microphone, an amplifier, an output meter, and one or more frequency weighting networks. It is used for the determination of sound levels.

*Sound transmission class (STC) of a partition* means a single-figure rating of the sound insulating properties of a partition which takes into account the relative importance of the sound transmission loss of the partition at different frequencies. The determination of the sound transmission class of a partition is described in "Determination of Sound Transmission Class," American Society for Testing and Materials Designation E413-73.

*Sound transmission loss of a partition* means a measure of the sound insulating properties of a wall, floor, ceiling, window, or door that is a characteristic of the partition itself and not the room of which it is a part. The determination of sound transmission loss of a partition of the field is described in "Measurement of Airborne Sound Insulation in Buildings," American Society for Testing and Materials Designation E336-77 or the latest revision thereof.

(Code 1972, § 16.22.020; Ord. No. 684, § 1(part), 1987)

Sec. 16.22.030. - Noise impacted projects.

Residential projects, or portions thereof, which are exposed to a community noise equivalent level (CNEL) of 60 dB or greater are considered to be impacted by excessive noise. Such projects shall be required to include noise isolation design and construction such that the exterior and interior noise standards of the city's noise element of its general plan are not exceeded. Year 2000 CNEL contour maps maintained by the city's planning department shall be used to identify those areas in proximity to arterials, railroads, and/or airfields that are impacted by a CNEL which is 60 dB or greater.

(Code 1972, § 16.22.030; Ord. No. 684, § 1(part), 1987)

Sec. 16.22.040. - Acceptable building construction.

Residential development will be considered acceptable by the city's building official for mitigating interior noise exposures if it incorporates the features described in <u>section 16.22.060</u>. Alternative materials and methods of construction may be permitted provided such alternatives are demonstrated to the satisfaction of the city's building official to be equivalent to those described in this chapter.

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(Code 1972, § 16.22.040; Ord. No. 684, § 1(part), 1987)

Sec. 16.22.050. - Acoustical analysis and design report.

An analysis and design report signed by and prepared under the supervision of a qualified architect or engineer shall be submitted with the application for building permits. The report shall comply with the requirements of <u>section</u> <u>16.22.070</u> and shall identify the noise sources and characteristics, provide the predicted noise spectra, indicate the basis for the prediction (measured or obtained from published data), and quantify the effectiveness of the proposed building construction to ensure that the CNEL standard of 45 dB is met within the interior living spaces. In the event that the analysis and design report includes a challenge of the AICUZ noise contours for March Air Force Base, it shall also comply with the requirements and procedures for a challenge study, as established by resolution of the city council.

(Code 1972, § 16.22.050; Ord. No. 684, § 1(part), 1987)

Sec. 16.22.060. - Prescription for the control of aircraft noise within residential construction.

- (a) All residential buildings located within a CNEL contour of 60 dB or greater shall be designed to cause isolation against exterior noise with at least a noise level reduction (NLR) that will reduce the exterior noise to an acceptable level. Residential buildings shall be constructed with sufficient sound insulation so that in any habitable room, furnished for normal use with doors and windows closed, the noise exposure due to exterior sources does not exceed a community noise equivalent level (CNEL) of 45 dB. The exterior CNEL at the project site shall be obtained from city approved noise contour maps.
- (b) The minimum NLR required at any residential unit shall be determined as follows:

Range of Exterior CNEL	Minimum NLR
60—65 dB	20 dB
66—70 dB	25 dB
71—75 dB	30 dB
76 + dB	Not permitted

(c) The following tables specify the construction standards necessary to meet the minimum NLRs indicated above and the interior noise standards specified in the noise element of the city's general plan.

#### TABLE 1. CONSTRUCTION STANDARDS TO ACHIEVE

A NOISE LEVEL REDUCTION (NLR) OF 20 dB

Assembly	Construction Standards
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Ventilation	Arrangements for any habitable room shall be such that any exterior door or window
	can be kept closed when the room is in use. A forced air circulation system shall be
	provided which will give a minimum of two complete air changes per hour, of which at
	least 20 percent is fresh air in accordance with the requirements of the Uniform
	Mechanical Code.
Glazing and	All windows and sliding glass doors shall be doors tightly fitted assemblies, and all
Doors	entry doors from exterior spaces shall be well weather-stripped. Air gaps and rattling
	shall not be permitted.

### TABLE 2. CONSTRUCTION STANDARDS TO ACHIEVE A NOISE LEVEL REDUCTION (NLR) OF 25 dB

Assembly	Construction
Exterior Walls	If wood construction is used, exterior walls shall be furnished on the outside with siding-on-sheathing, stucco, or brick veneer. The interior surface shall be at least one-half-inch gypsum board. Insulation having a minimum of R-11 shall be placed between the studs.
	Masonry walls, if used, shall have at least one surface of the wall plastered, painted, or covered with gypsum wallboard or approved materials.
	For mobile home construction, the interior surface shall have a minimum density of two psf and the exterior surface should have a minimum density of three psf. At least R-11 insulation shall be placed between the studs.
	There shall be no direct openings such as mail slots or ventilation units.
Glazing	All windows and sliding glass doors shall be well fitted, well weather-stripped assemblies and shall have a minimum STC of 32. Air gaps and rattling shall not be permitted.
	The total area of glass shall not exceed 20 percent of the floor area in any room.
Doors	All exterior doors shall be well weather-stripped solid core assemblies at least 1¾-inch thick.

Roof	Roof sheathing of wood construction shall be well fitted or caulked plywood of at least one-half inch thick. Ceilings shall be well fitted, well sealed gypsum board of at least one-half-inch thick.
	Insulation with at least a rating of R-19 shall be used in the attic space.
	For mobile home construction, the interior surface shall have a minimum density of two psf and the exterior surface shall have a minimum density of three psf. At least R- 11 insulation shall be placed between the studs. Skylights shall have a minimum STC of 32.
Floor	For mobile home construction, the skirt shall extend to the ground and shall be of the same construction as the exterior walls. Any access doors or windows shall be tightly fitted and weather-stripped.
Ventilation	Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use. A forced air circulation system shall be provided which will give a minimum of two complete air changes per hour, of which at least 20 percent is fresh air per requirements of the Uniform Mechanical Code. Any air duct or connection to an outdoor elevation must contain an interior sound absorbent lining which is at least acoustically equivalent to one-inch thick fiberglassed duct liner. The liner shall be five times greater in length than the diameter of the duct. All such ducts shall contain a bend which eliminates the line-of-sight to the outside. All fireplaces shall be provided with a well-fitted damper.
Furnishings	All rooms, when in use, are expected to contain furniture or other materials that absorb sound equivalent to the absorption provided by wall-to-wall carpeting over a conventional pad.

### TABLE 3. CONSTRUCTION STANDARDS TO ACHIEVE A NOISE LEVEL REDUCTION (NLR) OF 30 dB

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Assembly	Construction Standards	
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Exterior Walls	If wood construction is used, exterior walls shall be finished on the outside with siding-on-sheathing, stucco, or brick veneer. The interior surfaces shall be at least one-half inch gypsum board. Insulation having a minimum value of R-11 shall be placed between the studs.
	Masonry walls, if used, shall have at least one surface of the wall plastered, painted, or covered with gypsum wallboard or approved material.
	The surface weight of the wall should be at least 40 psf. For mobile home construction, the interior surface shall have a minimum density of two psf and the exterior surface shall have a minimum density of five psf. At least R-11 insulation shall be placed between the studs.
	There shall be no direct openings such as mail slots or ventilation units.
Glazing	All windows and sliding glass doors shall be well fitted, well weather-stripped assemblies and shall have a minimum STC of 38. Air gaps and rattling shall not be permitted. The total area of glass shall not exceed 20 percent of the floor area within any room.
Doors	All exterior doors shall be well weather-stripped solid core assemblies at least 1¾-inch thick.
Roof	Roof sheathing of wood construction shall be well fitted or caulked plywood at least one-half-inch thick. Ceiling shall be well fitted, well-sealed gypsum board of at least one-half-inch thick. For mobile home construction, the interior surface shall have a minimum density of five psf. At least R-11 insulation shall be placed between the studs. Insulation with at least a rating of R-19 shall be used in the attic space. Skylights shall have a minimum SW of 38.
Floor	The floor of the lowest occupied room shall be concrete slab or shall be well sealed against the noise intrusion. For mobile home construction, the skirt shall extend to the ground and shall be the same construction as the exterior walls. Any access doors or windows shall be tightly fitted and weather-stripped.

Ventilation	Arrangements for any habitable room shall be such that any exterior door or window
	can be kept closed when the room is in use. A forced air circulation system shall be
	provided which will give a minimum of two complete air changes per hour, of which at
	least 20 percent is fresh air in accordance with the requirements of the Uniform
	Mechanical Code. Any air duct or connection to an outdoor elevation must contain an
	interior sound absorbent lining which is at least acoustically equivalent to one-inch
	thick fiberglass duct liner. The liner shall be five times greater in length than the
	diameter of the duct. All such ducts shall contain a bend which eliminates the line-of-
	sight to the outside. Fireplaces shall not be permitted.
Furnishings	All rooms, when in use, are expected to contain furniture or other materials that
	absorb sound equivalent to the absorption provided by wall-to-wall carpeting over a
	conventional pad.

(Code 1972, § 16.22.060; Ord. No. 684, § 1(part), 1987)

Sec. 16.22.070. - Requirements for acoustical analysis reports.

- (a) Acoustical analysis reports shall be prepared for all residential projects for approval by the city's planning department. Such reports shall describe the exterior noise environment in detail and, as necessary, propose measures to satisfy both interior and exterior noise level criteria. The acoustical consultant shall uniquely identify each acoustical report by a report number and certify that the report is true and accurate. Each report shall include the following:
  - (1) A city-issued project identification number (e.g., use permit, site plan, tentative tract, parcel map, etc.);
  - (2) A street address if one has been assigned;
  - (3) A vicinity map clearly showing the site for the development;
  - (4) The conditions of approval applied to the project by the city, in their entirety. (This will notify the consultant if any special modifications were made in the standard conditions of the approval);
  - (5) A legible plot plan and floor plan at a scale not less than one inch equals 40 feet, folded in an 8½-inch by 11-inch format. The scale is to ensure that distance can be accurately determined and that the exhibit is legible.
- (b) The acoustical report shall also state the methodology used for measurement or prediction of motor vehicular noise levels. The procedures in FHWA-RD-77-108, as modified for CNEL, shall be used for traffic noise prediction, with all variables identified and justified where appropriate (e.g., absorptive (soft) or reflective (hard); gradient; stop-and-go conditions; number and width of travel lanes and medians, etc.).
  - (1) Vehicle speeds, ADTs and traffic mix, per level of service "C," shall be stated and source of information identified.
  - (2) Equivalent distance, per the FHWA model for calculations of noise impact shall be used.

- (3) The centerline of the roadway shall be used for reference distance to observer, structure, etc., not the cente near travel lane for reference.
- (4) No credit shall be given for future quieting of motor vehicle noise sources.
- (5) CNEL shall be used.
- (6) On-site measurement data, if used to validate the predicted noise levels for an acoustical analysis, shall be adjusted to reflect the annualized ADT for the site prior to determination of existing noise impact levels. The dates, times and exact locations of the measurements shall be stated.
- (c) Where applicable a detailed barrier analysis shall be submitted with the report, including:
  - (1) Locations of barriers, usable outdoor living area, etc.;
  - (2) Worst-case section view of site, including elevations, either scaled or dimensioned;
  - (3) Barrier geometry (NOTE: Five-foot observer height above datum and source heights per the FHWA model shall be used.);
  - (4) Discussion of the structural details required to maintain acoustical integrity of the barrier, including treatment of penetrations, gates, etc.
- (d) If railroad or aircraft noise affects the site, measurement of noise impact or the method of prediction shall be stated. Where city developed or approved CNEL contour maps are available, their use may be required by the city. If railroad or aircraft noise does not affect the site, so state.
- (e) Each report shall further:
  - (1) Indicate in tabular form the required sound transmission loss of windows, along with typical thickness and configuration, required to satisfy thickness and configuration, required to satisfy city standards for interior noise levels. When specifying windows of greater than 3/16 -inch thickness, list one or more products by manufacturer's name and model number that will satisfy the acoustical requirements.
  - (2) Include a summary section on colored paper in which specifications and location of all sound attenuating design features or products shall be listed, preferably in a tabular form.
  - (3) Include worksheets for composite wall analyses including transmission loss assumptions, unless the prescriptive A-weighted insertion losses of 20 dB (windows closed) or 12 dB (windows open) are used.
  - (4) Specify in text of report which residential structures and units, if any, require closed windows to meet interior noise standards and in such cases, include the following paragraph:

Where windows are required to be openable or kept closed in order to meet the interior noise standards, mechanical ventilation and cooling, if necessary, shall be provided to maintain a habitable environment. The system shall supply two air changes per hour to each habitable room including 20 percent fresh make-up air obtained directly from the outdoors. The fresh air inlet duct shall be of sound attenuating construction and shall consist of a minimum of ten feet plus one sharp 90-degree bend.

- (5) State the requirements for maintaining building shell acoustical integrity and enumerate items of a critical nature: e.g., tight-fit chimney damper, exhaust fan backdraft damper, no mail slot, full skirting for mobile home coaches, air-conditioning intake and exhaust ducting, etc. A through-the-wall air-conditioner shall be treated as a separate component when calculating composite wall attenuation values.
- (f) The following CNEL data shall be provided as appropriate:
  - (1) Existing and future CNEL, before mitigation;

- (2) Worst case outdoor living area CNEL, before mitigation;
- (3) Worst-case CNEL incident upon structure prior to mitigation; and
- (4) Worst-case interior CNEL after mitigation by building components and/or exterior barriers.

(Code 1972, § 16.22.070; Ord. No. 684, § 1(part), 1987)

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APPENDIX 5.1:

**STUDY AREA PHOTOS** 





## JN: 13780 Study Area Photos



L1\_E 33, 51' 2.270000", 117, 12' 26.410000"



L1\_N 33, 51' 2.320000", 117, 12' 26.410000"



L1\_S 33, 51' 2.260000", 117, 12' 26.440000"



L1\_W 33, 51' 2.270000", 117, 12' 26.470000"



L2\_E 33, 50' 56.400000", 117, 12' 15.810000"



L2\_N 33, 50' 56.380000", 117, 12' 15.700000"

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L3\_S 33, 50' 53.440000", 117, 12' 9.820000"

L3\_W 33, 50' 53.070000", 117, 12' 9.630000"



L3\_N 33, 50' 52.950000", 117, 12' 9.990000"



L3\_E 33, 50' 53.550000", 117, 12' 9.930000"





L2\_S 33, 50' 56.420000", 117, 12' 15.780000"



L2\_W 33, 50' 56.370000", 117, 12' 15.780000"

### JN: 13780 Study Area Photos



L4\_E 33, 50' 29.320000", 117, 12' 24.570000"



L4\_N 33, 50' 29.340000", 117, 12' 24.570000"



L4\_S 33, 50' 29.300000", 117, 12' 24.520000"



L4\_W 33, 50' 29.270000", 117, 12' 24.540000"



L5\_E 33, 50' 39.600000", 117, 12' 42.510000"



L5\_N 33, 50' 39.600000", 117, 12' 42.510000"

# JN: 13780 Study Area Photos



L5\_S 33, 50' 39.590000", 117, 12' 42.510000"



L5\_W 33, 50' 39.570000", 117, 12' 42.510000"

APPENDIX 5.2:

**NOISE LEVEL MEASUREMENT WORKSHEETS** 





Date: Project:	Date: Thursday, March 25, 2021       Location:       L1 - Located north of the Project site on Amaya Drive near existing single-family residential home at 4316 Miraluna       Meter: Piccolo II       JN: 13780         Project: Stratford Ranch East       Drive.       Image dBA Readings (unadjusted)       Meter: Piccolo II       Analyst: P. Mara															
85.0 80.0 <b>( 8</b> 9 75.0 70.0																
65.0 60.0 <b>1</b> 60.0 55.0 50.0 40.0 40.0	2	45.2	20.9	49.1 53.0	57.1	55.9 52.5	22.0	55.3 55.8 55.8	60.4	57.3	56.7 56.6	23.6	55.4 53.5	22.3	<mark>49.5</mark> 53.5	21.8
35.0	) + + + + + + + + + + + + + + + + + + +	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 Be	eginning							
Timeframe	Hour	L <sub>eq</sub>	L max	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
	0	48.1	58.1	41.5	57.7	57.3	54.9 50.2	52.4 48.6	46.9 45.4	44.4 43.5	42.3	42.0	41.6	48.1 45.2	10.0	58.1
	2	43.3	52.3	39.2	51.7	50.6	47.4	45.9	43.3	41.9	40.0	39.7	39.3	43.3	10.0	53.3
Night	3	50.9	62.6	42.4	62.1	61.6	58.2	54.7	48.0	45.1	43.2	42.9	42.5	50.9	10.0	60.9
	4	49.1	57.2	45.3	56.9	56.3	54.0	52.0	48.7	47.5	45.9	45.7	45.4	49.1	10.0	59.1
	5	53.0	63.8	46.9	63.5	62.9	60.3	57.3	50.3	49.1	47.6	47.3	47.0	53.0	10.0	63.0
	7	57.1	63.6	51.0	63.2	62.7	60.9	59.6	56.2	55.5	52.2	51.5	51.3	55.9	0.0	55.9
	8	52.5	61.2	47.3	60.9	60.5	58.4	56.1	51.9	50.2	48.3	48.0	47.5	52.5	0.0	52.5
	9	55.0	63.2	49.7	63.0	62.4	60.2	58.2	54.6	53.2	51.1	50.6	50.0	55.0	0.0	55.0
	10	55.3	63.4	50.2	63.0	62.4	60.3	58.8	55.3	53.6	51.6	51.1	50.5	55.3	0.0	55.3
	11	55.8	63.8	50.7	63.3	62.7	60.7	59.2	55.7	54.1	52.0	51.6	51.0	55.8	0.0	55.8
Day	12	60.4 56.4	64.4	52.1	67.4 64.0	63.2	65.8 61.0	59.1 59.5	56.6	58.0 54.9	53.2	52.8	52.3	60.4 56.4	0.0	56.4
	13	57.3	65.2	50.7	64.6	63.9	62.2	61.1	57.8	55.5	52.6	51.8	51.0	57.3	0.0	57.3
	15	56.7	65.3	51.0	64.8	63.9	61.6	60.3	56.6	54.7	52.4	51.9	51.3	56.7	0.0	56.7
	16	56.6	65.3	51.2	65.0	64.5	62.2	60.7	56.2	54.3	52.0	51.7	51.3	56.6	0.0	56.6
	17	57.6	67.4	51.1	66.8	66.1	63.5	61.4	57.0	54.7	52.1	51.7	51.2	57.6	0.0	57.6
	18	55.4	65.3	49.7	64.8	63.9	61.0 59.6	58.8	54.8	52.9	50.8	50.4	49.9	55.4	0.0	55.4
Evening	20	52.3	63.5	40.0	62.9	62.2	59.5	56.6	50.2	48.0	47.5	47.2	45.0	52.3	5.0	57.3
- 0	21	49.5	60.2	42.3	59.7	59.0	56.2	54.0	48.0	45.7	43.2	42.8	42.4	49.5	5.0	54.5
Night	22	53.5	67.2	44.1	66.5	65.5	60.0	56.2	48.9	47.1	44.9	44.6	44.2	53.5	10.0	63.5
	23	51.8	61.6	43.7	60.9	60.1	58.8	57.8	48.7	46.4	44.5	44.2	43.8	51.8	10.0	61.8
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub> 47.3	60 9	60 5	L5%	<b>L8%</b>	51 9	L50%	L90%	L95%	L99%		L <sub>eq</sub> (aBA)	
Day	Max	60.4	68.0	52.1	67.4	66.8	65.8	65.1	61.6	58.0	53.2	52.8	52.3	24-Hour	Daytime	Nighttime
Energy	Average	56.6	Ave	erage:	64.2	63.6	61.5	59.9	56.2	54.2	51.7	51.3	50.7	<b>E</b> / 0	56.0	E1 0
Evening	Min	49.5	60.2	42.3	59.7	59.0	56.2	54.0	48.0	45.7	43.2	42.8	42.4	54.3	50.0	51.3
Fnorr	Max	53.5	63.7	46.6	63.2	62.4	59.6	57.6	53.0	50.3	47.5	47.2	46.7	24-	Hour CNEL (a	iBA)
Energy	Min	43.3	52.3	29.2	51.7	50.6	58.4 47 A	45.9	50.4 43.3	48.0	45.5	45.1	44.7			
Night	Max	57.1	67.3	50.8	67.0	66.5	64.2	61.2	55.1	53.5	51.8	51.5	51.0		59.4	
Energy	Average	51.9	Ave	erage:	59.8	59.2	56.4	54.0	48.4	46.5	44.6	44.3	43.9			



	24-Hour Noise Level Measurement Summary															
Date:	Thursday, N	1arch 25, 202	21		Location:	L2 - Located	l by the easte	ern boundary	y of the Proje	ect site on	Meter:	Piccolo II			JN:	13780
Project:	Stratford Ra	inch East				Lake Perris	Drive.								Analyst:	P. Mara
							Hourly L <sub>eq</sub> (	dBA Readings	(unadjusted)							
85 (	n															
<b>₹</b> 80.0																
<b>B</b> 70.0	ğ — — —											_		_		
،دە <del>،</del> 60.0 <b>ت</b>											<b>~ ~ ~</b>					
<u>א</u> 55.0 ב 50.0		- m - in		8.5	0.1	<mark>60.9</mark>	20.4	62.( 61.5	<u> </u>	4.00 20.3	63.5	<b>61.2</b>		<mark>6;</mark>	<mark>ں</mark> ون	6
<b>P</b> 45.0 40.0	<b>23.</b>	53.3	26	- <sup>2</sup>										<u> </u>	<mark>54.</mark>	<u> </u>
35.0	Ď ┿ <b>─</b> ─┿											=				
	0	1 2	3	4 5	6	7 8	9 2	10 11 Hour Be	12 1 eginning	.3 14	15 16	17	18 19	20	21 22	23
Timeframe	Hour	Lag	L may	Lmin	L1%	L2%	15%	L8%	L25%	L50%	L90%	195%	199%	Lag	Adi.	Adi. L
	0	53.2	59.5	48.3	59.1	58.5	57.1	56.5	54.2	51.8	49.4	48.9	48.5	53.2	10.0	63.2
	1	53.3	60.4	48.4	59.9	59.4	57.7	56.3	53.8	52.1	49.6	49.0	48.6	53.3	10.0	63.3
NI -let	2	52.6	57.6	48.1	57.2	56.8	55.9	55.2	53.6	51.9	49.1	48.7	48.2	52.6	10.0	62.6
Night	3	56.3 57.5	62.6 61.7	51.5 54 3	62.3 61.4	61.9	60.6 60.0	60.0 59.5	56.7	54.9 57.0	52.5	52.1 54.9	51.7	56.3 57.5	10.0 10.0	66.3 67.5
	5	58.5	63.5	54.9	63.1	62.7	61.6	60.9	59.2	57.9	55.9	55.5	55.1	58.5	10.0	68.5
	6	60.1	68.1	55.6	67.6	66.8	64.5	63.2	60.2	58.6	56.4	56.2	55.8	60.1	10.0	70.1
	7	60.9	69.2	56.5	68.7	67.9	65.8	64.4	60.8	58.7	57.2	56.9	56.6	60.9	0.0	60.9
	8	57.8 60.4	65.7 68 5	53.5	65.1 68.0	64.4 67.1	62.1 64.8	60.7	58.0 60.8	56.2	54.3 56 5	54.0 56.1	53.6	57.8 60.4	0.0	57.8 60.4
	10	62.0	69.2	57.3	68.5	67.7	65.8	64.8	62.5	61.0	58.7	58.2	57.6	62.0	0.0	62.0
	11	61.5	69.7	55.9	69.1	68.2	66.1	64.8	61.8	59.9	57.2	56.7	56.1	61.5	0.0	61.5
Dav	12	65.7	74.7	55.2	74.1	73.0	71.5	70.7	67.4	59.9	56.4	55.9	55.4	65.7	0.0	65.7
	13	60.4	68.4	54.0	67.8	67.1	65.5	64.4	61.0	58.3	55.2	54.7	54.2	60.4	0.0	60.4
	14 15	60.3 63.7	69.6 73.9	54.3 55.6	68.9 73 3	67.9 72 9	65.8 71 /	64.4 69.2	60.2 61.1	57.9	55.5 56.4	54.9 56.1	54.4	60.3 63.7	0.0	60.3 63.7
	16	60.5	68.4	55.9	67.9	67.1	65.1	63.8	60.4	58.9	56.8	56.5	56.0	60.5	0.0	60.5
	17	61.2	68.8	56.3	68.3	67.6	65.9	64.7	61.7	59.7	57.3	56.9	56.4	61.2	0.0	61.2
	18	59.7	67.4	55.3	66.9	66.1	63.9	62.6	59.9	58.4	56.3	55.9	55.4	59.7	0.0	59.7
Evening	19	59.0	66.2	54.5	65.7 62 7	65.0 62.0	63.0 61.0	62.1 50.0	59.7	57.6	55.4	55.1	54.7	59.0 56.0	5.0	64.0 61.0
Lvening	20	54.5	61.9	49.7	61.5	60.9	59.1	58.0	54.8	52.9	50.7	50.2	49.8	54.5	5.0	59.5
Night	22	55.9	63.3	51.7	62.8	62.0	59.8	58.5	56.3	54.8	52.7	52.3	51.8	55.9	10.0	65.9
Night	23	55.9	62.7	51.5	62.4	61.9	60.3	59.0	56.2	54.7	52.5	52.1	51.7	55.9	10.0	65.9
Timeframe	Hour			L <sub>min</sub>	65 1	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%		L <sub>eq</sub> (dBA)	
Day	Max	65.7	74.7	57.3	74.1	73.0	71.5	70.7	67.4	61.0	54.5	54.0	55.6	24-Hour	Daytime	Nighttime
Energy	Average	61.6	Ave	erage:	68.9	68.1	66.1	64.8	61.3	58.8	56.5	56.1	55.6	E0 9	61 0	566
Evening	Min	54.5	61.9	49.7	61.5	60.9	59.1	58.0	54.8	52.9	50.7	50.2	49.8	53.0	01.0	50.0
Energy	Max	59.0	66.2	54.5	65.7	65.0	63.0	62.1	59.7	57.6	55.4	55.1	54.7	24-	Hour CNEL (d	ВАЈ
chergy	Min	52.6	57.6	48.1	57.2	56.8	55.9	55.2	53.6	51.8	49.1	48.7	48.2			
Night	Max	60.1	68.1	55.6	67.6	66.8	64.5	63.2	60.2	58.6	56.4	56.2	55.8		<b>b4.2</b>	
Energy	Average	56.6	Ave	erage:	61.8	61.2	59.7	58.8	56.5	54.8	52.6	52.2	51.7			



Hourly L <sub>n</sub> dtA Recology (unodjutted)           Totop	Date: Project:	Thursday, N Stratford Ra	Aarch 25, 202 anch East	21		Location:	<b>24-Ho</b> L3 - Located Speedway a	ur Noise Lo l east of the at 18700 Lake	evel Meas Project site b Perris Drive	urement So by the Perris A	<b>ummary</b> Auto	Meter:	Piccolo II			JN: Analyst:	13780 P. Mara
Non-         Improve the set of the set o								Hourly L <sub>eq</sub> (	dBA Readings	(unadjusted)							
Nept:         0 <th0< th="">         0         0         0</th0<>	85.0	)															
Night         No.         Lin         Lin <thlin< th=""> <thlin< td="" th<=""><td>₹ 80.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thlin<></thlin<>	₹ 80.0																
Image: Solution         Image: So	<b>B</b> 70.0																
y y y y y y y y y y y y y y y y y y y	- 60.0																
2         35.0 ±         3         4         5         6         7         8         9         10         11         12         13         14         15         16         17         18         19         20         21         22         23           Time/rome         Los         Los <thlos< th="">         Los         <thlos< th=""> <thlos< th=""> <thlos< th=""></thlos<></thlos<></thlos<></thlos<>	<b>2</b> 55.0 <b>5</b> 50.0		6 0		0		.1	<b>7.6</b>	8.1 9.0	61	0.0 0.2	9.1		7.0 8.3 8.3	<u></u>	<mark>م</mark> ه	
35.0       0       1       2       3       4       5       6       7       8       9       10       11       12       13       14       15       16       17       18       19       20       21       22       23         Timfrom       How       Log       Low       L1%       12%       L2%       L5%	우 45.0 40.0	21.0	50.6	24	22	- is								_ <mark>0</mark> [0	2 <mark>7</mark>	2 <mark>23</mark>	24
0         1         2         3         4         5         6         7         8         9         10         11         12         13         14         15         16         17         18         19         20         21         22         23           Tingform         Hour         Leg         Leg         Leg         Leg         Leg         Leg         Kall         Line         Line         Kall         Leg         Adj	35.0	) + +				-		-									
Indefand         Hour         Law         Law         L1%         L2%         L5%         L5%         L5%         L9%         L9%         Ly         Adj.         Adj.           0         51.0         56.7         45.8         55.3         55.1         54.5         52.0         49.8         47.0         46.5         46.0         51.0         10.0         61.0           2         50.6         55.7         45.5         55.4         55.1         54.5         53.0         53.7         49.6         46.6         46.0         45.6         50.6         10.0         60.0         64.7           4         56.0         59.7         52.0         59.5         59.3         58.8         58.4         57.0         53.1         52.6         52.1         56.0         10.0         60.7         60.0         65.7         53.3         52.6         52.1         56.1         00.8         53.2         66.5         54.2         53.8         50.9         55.1         50.0         0.0         67.0           7         57.5         61.2         53.3         61.0         60.1         56.7         53.3         54.9         54.4         57.0         55.1         55.1		0	1 2	3	4 5	6	7 8	9 2	10 11 Hour Br	12 1 aginning	3 14	15 16	5 17	18 19	20	21 22	23
Initighting         Hold         Lag         Lag <thlag< th=""> <t< td=""><td>Timoframo</td><td>Hour</td><td>,</td><td>,</td><td>,</td><td>110/</td><td>1.2%</td><td>15%</td><td></td><td>125%</td><td>150%</td><td>100%</td><td>105%</td><td>100%</td><td>,</td><td>4 di</td><td>Adi I</td></t<></thlag<>	Timoframo	Hour	,	,	,	110/	1.2%	15%		125%	150%	100%	105%	100%	,	4 di	Adi I
1         50.9         56.6         46.2         55.2         55.8         54.2         51.2         51.8         49.7         47.2         46.8         46.4         50.9         10.0         60.9           Night         3         54.7         60.3         55.1         55.4         55.1         55.1         55.5         53.3         55.7         53.3         55.7         53.3         55.6         50.3         50.3         50.5         53.3         55.5         53.3         52.6         52.1         56.0         10.0         66.0           5         55.8         59.8         59.4         50.6         55.7         53.3         50.5         53.3         50.5         55.5         54.2         55.8         10.0         65.8           6         57.0         60.8         53.2         60.0         50.7         58.9         58.1         54.4         57.5         0.0         57.5           8         56.1         60.3         52.3         60.0         59.7         58.8         33.3         52.9         54.4         57.7         50.0         54.4         57.7         50.0         54.4         57.6         0.0         55.7         54.1         53.1	Timejrame	nour	<b>L</b> eq	<b>L</b> max	45.8	56.3	55.9	<b>L5%</b>	<b>L8%</b>	52.0	<b>150%</b>	47.0	46 5	46.0	<b>L</b> eq	Аај. 10.0	61.0
Night         2         50.6         55.7         45.5         55.4         5		1	50.9	56.6	46.2	56.2	55.8	54.9	54.2	51.8	49.7	47.2	46.8	46.4	50.9	10.0	60.9
Night         3         54.7         60.5         49.6         60.2         59.8         58.9         58.2         55.4         53.6         50.3         49.8         54.7         10.0         66.7           5         55.8         53.8         53.4         55.7         53.1         52.6         52.2         55.8         10.0         66.0           6         57.0         60.8         53.2         60.4         60.2         59.7         59.3         58.6         55.7         53.1         52.6         52.2         55.8         10.0         66.7           6         57.0         60.3         52.3         60.0         59.7         58.3         56.9         55.1         54.7         54.4         55.1         0.0         57.5           9         57.6         63.2         52.3         60.0         69.7         58.4         57.0         55.3         54.4         53.1         52.4         56.1         0.0         57.5           10         58.1         62.7         54.0         66.1         60.4         58.9         57.6         55.3         54.4         61.7         0.0         58.7           11         59.0         65.4		2	50.6	55.7	45.5	55.4	55.1	54.5	53.9	51.7	49.6	46.6	46.0	45.6	50.6	10.0	60.6
4         56.0         59.7         52.0         59.5         59.3         58.8         58.4         57.0         55.7         53.1         52.6         52.2         55.8         10.0         66.0           6         57.0         60.8         53.2         60.4         60.2         59.7         59.3         58.0         56.5         53.2         53.4         53.4         57.0         10.0         67.0           7         57.5         65.1         63.2         53.3         62.6         61.2         63.3         62.4         61.1         63.3         52.4         55.1         53.3         52.4         56.1         0.0         67.0           9         57.6         63.2         53.3         62.6         61.9         61.0         60.5         58.3         56.9         54.4         53.7         57.4         56.1         0.0         57.6           10         58.1         62.7         54.0         64.7         64.2         62.7         62.0         59.7         57.9         55.5         55.4         44.4         57.0         0.0         58.1           Day         11         59.0         65.7         54.0         63.2         62.6	Night	3	54.7	60.5	49.6	60.2	59.8	58.9	58.2	55.4	53.6	50.8	50.3	49.8	54.7	10.0	64.7
6         570         608         532         604         602         597         593         580         565         542         538         5324         570         600           7         575         6.12         543         60.4         60.2         697         593         58.0         56.5         55.1         542         53.8         53.4         57.0         0.0         67.0           9         57.6         61.2         54.3         61.0         60.7         60.1         59.7         58.3         56.9         55.1         54.4         53.8         53.4         57.6         0.0         57.6           9         57.6         63.2         53.5         62.6         61.9         60.9         60.4         58.3         56.9         54.1         53.7         57.6         0.0         58.1           10         58.1         62.7         54.0         64.7         64.2         62.7         62.0         59.7         57.9         55.3         54.4         54.2         59.0         0.0         58.5           11         59.0         65.7         54.3         69.4         65.9         61.8         59.7         55.5         55.1 <td rowspan="2"></td> <td>4 F</td> <td>56.0</td> <td>59.7</td> <td>52.0</td> <td>59.5</td> <td>59.3</td> <td>58.8</td> <td>58.4</td> <td>57.0</td> <td>55.7</td> <td>53.1</td> <td>52.6</td> <td>52.1</td> <td>56.0</td> <td>10.0</td> <td>66.0</td>		4 F	56.0	59.7	52.0	59.5	59.3	58.8	58.4	57.0	55.7	53.1	52.6	52.1	56.0	10.0	66.0
7         57.5         61.2         54.3         61.0         60.7         60.1         59.7         58.3         56.9         55.1         54.7         54.4         57.5         0.0         57.5           9         57.6         63.2         53.5         62.6         61.9         60.0         58.8         56.9         55.1         54.1         53.7         57.6         0.0         57.5           10         58.1         62.7         54.3         62.3         61.9         60.9         60.4         58.9         57.6         55.3         54.9         54.4         58.1         0.0         58.1           10         58.1         62.7         54.3         61.9         60.9         60.4         58.9         57.6         55.3         54.7         54.4         58.1         0.0         58.1           11         550         65.4         63.2         62.6         61.5         60.9         51.8         59.7         55.5         55.0         54.4         61.7         0.0         58.5           13         58.5         63.4         55.0         64.4         63.0         62.0         59.0         56.4         55.6         55.2         54.7		6	57.0	60.8	53.2	60.4	60.2	59.7	59.3	58.0	56.5	54.2	52.0	53.4	55.8	10.0	67.0
8         56.1         60.3         52.3         60.0         59.7         58.9         58.4         57.0         55.8         53.3         52.9         52.4         56.1         0.0         56.1           9         57.6         63.2         53.5         62.6         61.9         60.9         60.4         58.9         57.6         53.3         54.9         54.4         55.1         0.0         58.1           11         59.0         65.7         54.3         64.4         64.2         62.7         62.0         59.7         57.9         55.3         54.4         56.1         0.0         58.1           12         61.7         69.9         54.3         69.4         69.2         67.4         66.9         59.4         58.0         55.2         54.7         54.1         58.5         0.0         59.2           13         58.5         63.8         55.0         64.5         64.0         63.0         62.0         59.9         58.4         56.0         55.6         55.1         59.2         0.0         59.2           14         59.2         65.7         55.9         65.4         64.8         63.0         62.2         59.0         56.6		7	57.5	61.2	54.3	61.0	60.7	60.1	59.7	58.3	56.9	55.1	54.7	54.4	57.5	0.0	57.5
9         57.6         63.2         53.5         62.6         61.9         61.0         60.5         58.3         56.9         54.5         54.1         53.7         57.6         0.0         58.1           11         59.0         65.7         54.0         64.7         64.2         62.7         62.0         59.7         57.9         55.3         54.9         54.4         58.1         0.0         58.1           11         59.0         65.7         54.0         64.7         64.2         62.7         62.0         59.7         57.9         55.3         54.4         61.7         0.0         58.1           14         59.2         65.2         55.0         64.5         64.0         63.0         62.0         59.9         58.4         56.0         55.4         59.2         0.0         59.2           15         59.1         63.4         55.8         63.1         62.6         61.5         61.1         59.8         56.4         55.2         56.4         58.9         59.7         0.0         59.7           16         59.8         65.7         55.9         65.4         65.9         65.1         58.0         55.2         54.7         58.3		8	56.1	60.3	52.3	60.0	59.7	58.9	58.4	57.0	55.8	53.3	52.9	52.4	56.1	0.0	56.1
10         58.1         62.7         54.3         62.3         61.9         60.9         60.4         58.9         57.6         55.3         54.4         58.1         0.0         58.1           Day         12         61.7         69.9         54.3         69.4         69.2         67.4         65.9         61.8         59.7         55.5         55.0         54.4         61.7         0.0         61.7           13         58.5         63.8         54.0         63.2         62.6         61.5         60.9         59.4         58.0         55.2         54.7         54.1         58.2         0.0         59.2           14         59.2         65.2         55.0         64.4         65.4         64.0         63.0         62.5         60.2         59.9         58.8         56.4         55.9         59.1         0.0         59.1           16         59.8         65.7         55.9         65.4         64.8         63.0         62.5         60.2         59.0         56.8         55.9         59.1         0.0         59.3           18         58.3         62.2         54.6         61.9         61.6         60.2         59.7         57.9		9	57.6	63.2	53.5	62.6	61.9	61.0	60.5	58.3	56.9	54.5	54.1	53.7	57.6	0.0	57.6
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		10 11	58.1	62.7 65.7	54.3 54.0	62.3 64.7	61.9 64.2	60.9 62.7	60.4 62.0	58.9	57.6 57.0	55.3	54.9 54.7	54.4 54.2	58.1 59.0	0.0	58.1
Day         13         S8.5         63.8         54.0         63.2         62.6         61.5         60.9         59.4         58.0         55.2         54.7         54.1         58.5         0.0         59.2           14         59.2         65.2         55.0         64.5         64.0         63.0         62.0         59.9         58.4         56.0         55.6         55.1         59.2         0.0         59.2           15         59.1         63.4         55.8         63.1         62.6         61.5         61.1         59.8         58.7         56.8         56.5         56.0         59.8         0.0         59.8           16         59.8         65.7         55.9         64.4         55.8         64.1         63.7         62.8         62.3         60.6         59.0         56.7         56.3         59.7         59.7         0.0         59.7           19         57.0         61.7         52.9         61.4         61.0         60.2         59.7         57.9         56.3         53.4         53.0         57.0         5.0         62.0           20         54.3         58.9         57.7         58.5         58.1         57.5		11	61.7	69.9	54.3	69.4	69.2	67.4	65.9	61.8	59.7	55.5	55.0	54.2	61.7	0.0	61.7
14       59.2       65.2       55.0       64.5       64.0       63.0       62.0       59.9       58.4       56.0       55.6       55.1       59.2       0.0       59.2         15       59.1       63.4       55.8       63.1       62.6       61.5       61.1       59.8       58.7       56.8       56.4       55.9       59.1       0.0       59.1         17       59.7       64.4       55.8       64.1       63.7       62.8       62.3       60.6       59.0       56.7       55.2       54.7       58.3       0.0       59.7         18       58.3       62.2       54.6       61.9       61.6       60.9       60.4       59.1       58.0       55.6       55.2       54.7       58.3       0.0       58.3         19       57.0       61.7       52.9       61.4       61.0       60.2       59.7       57.9       56.3       53.8       53.3       53.4       53.0       54.3       50.0       59.3       59.3       59.3       53.1       53.7       51.6       51.3       53.1       50.0       54.3       50.0       59.3       59.1       53.1       57.5       55.8       54.3       51.0	Day	13	58.5	63.8	54.0	63.2	62.6	61.5	60.9	59.4	58.0	55.2	54.7	54.1	58.5	0.0	58.5
15       59.1       63.4       55.8       63.1       62.6       61.5       61.1       59.8       58.7       56.8       56.4       55.9       59.1       0.0       59.1         16       59.8       65.7       55.9       65.4       64.8       63.0       62.5       60.2       59.0       56.8       56.5       56.0       59.8       0.0       59.8         17       59.7       64.4       58.8       64.1       63.7       62.8       60.6       59.0       56.7       55.3       59.7       0.0       59.8         18       58.3       62.2       54.6       61.9       61.6       60.9       60.4       59.1       58.0       55.6       55.2       54.7       58.3       0.0       58.3         19       57.0       61.7       52.9       61.4       61.0       60.2       59.7       57.9       56.3       53.8       53.4       53.0       57.0       50.0       50.0       50.9       50.0       50.3       53.8       53.4       53.0       57.0       56.0       56.0       54.0       52.4       49.9       49.4       49.0       53.2       5.0       58.2       50.0       58.2       50.0		14	59.2	65.2	55.0	64.5	64.0	63.0	62.0	59.9	58.4	56.0	55.6	55.1	59.2	0.0	59.2
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		15	59.1	63.4	55.8	63.1	62.6	61.5	61.1	59.8	58.7	56.8	56.4	55.9	59.1	0.0	59.1
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		16 17	59.8 59.7	65.7 64.4	55.9	65.4 64.1	64.8 63.7	63.0 62.8	62.5 62.3	60.2 60.6	59.0 59.0	56.8 56.7	56.5 56.3	56.0 55.9	59.8 59.7	0.0	59.8 59.7
19         57.0         61.7         52.9         61.4         61.0         60.2         59.7         57.9         56.3         53.8         53.4         53.0         57.0         5.0         62.0           20         54.3         58.9         50.7         58.5         58.1         57.4         56.9         55.1         53.7         51.6         51.3         50.9         54.3         5.0         59.3           Night         22         54.9         59.9         50.6         59.5         59.1         58.1         57.5         55.6         54.3         51.6         51.3         50.9         53.2         5.0         58.2           Night         22         54.9         59.9         50.6         59.5         59.1         58.1         57.5         55.8         54.3         51.9         51.0         54.8         10.0         64.9           Timeframe         Hour         Leq         Law         L2%         L8%         L25%         L50%         L90%         L93%         L99%         54.8         10.0         64.9           Day         Min         56.1         60.3         52.3         60.0         59.7         58.9         58.4         57		18	58.3	62.2	54.6	61.9	61.6	60.9	60.4	59.1	58.0	55.6	55.2	54.7	58.3	0.0	58.3
Evening         20         54.3         58.9         50.7         58.5         58.1         57.4         56.9         55.1         53.7         51.6         51.3         50.9         54.3         5.0         59.3           21         53.2         58.1         48.9         57.8         57.5         56.6         56.0         54.0         52.4         49.9         49.4         49.0         53.2         5.0         58.2           Night         22         54.9         59.9         50.6         59.5         59.1         58.1         57.5         55.8         54.3         51.8         51.2         50.7         54.9         10.0         64.9           30         54.8         59.2         50.9         58.9         58.5         57.8         57.3         55.8         54.3         51.9         51.5         51.0         54.8         10.0         64.9           Timeframe         Hour         Lea         Lmax         Lmin         L1%         L2%         L8%         L50%         L90%         L9%         Leg (BBA)           Day         Min         56.1         66.1         69.9         55.9         69.4         69.2         67.4         65.9		19	57.0	61.7	52.9	61.4	61.0	60.2	59.7	57.9	56.3	53.8	53.4	53.0	57.0	5.0	62.0
21       53.2       58.1       48.9       57.8       57.5       56.6       56.0       54.0       52.4       49.9       49.4       49.0       53.2       5.0       58.2         Night       22       54.9       59.9       50.6       59.5       59.1       58.1       57.5       55.8       54.3       51.8       51.2       50.7       54.9       10.0       64.9         Zimeframe       Hour       Lea       Lmin       L1%       L2%       L5%       L5%       L5%       L90%       L99%       L95%       L99%       Lea       Lage       Night       Min       56.1       60.0       59.7       58.9       58.4       57.0       55.8       53.3       55.5       55.1       Lage       Lage       Lage       Lage       Night         Day       Min       56.1       60.3       52.3       63.1       62.0       61.3       59.7       55.8       53.3       55.5       55.1       54.6       57.3       58.4<	Evening	20	54.3	58.9	50.7	58.5	58.1	57.4	56.9	55.1	53.7	51.6	51.3	50.9	54.3	5.0	59.3
Night       22       34.3       35.4       35.3       35.1       35.1       35.1       37.3       35.5       34.3       31.2       30.7       34.9       10.0       64.9         Z3       54.8       59.2       50.9       58.9       58.5       57.8       57.3       55.8       54.3       51.5       51.5       51.5       54.8       10.0       64.8         Timeframe       Hour       Lea       Lmax       Lmax       L1%       L2%       L5%       L8%       L25%       L50%       L90%       L95%       L99%       Lead       Lead       Lead       Lead       Lead       Lead       Lead       Lead       Lead       Law       L2%       L8%       L2%       L5%       L8%       L25%       L90%       L95%       L99%       Lead       Lead </td <td></td> <td>21</td> <td>53.2</td> <td>58.1</td> <td>48.9</td> <td>57.8</td> <td>57.5</td> <td>56.6</td> <td>56.0</td> <td>54.0</td> <td>52.4</td> <td>49.9</td> <td>49.4</td> <td>49.0</td> <td>53.2</td> <td>5.0</td> <td>58.2</td>		21	53.2	58.1	48.9	57.8	57.5	56.6	56.0	54.0	52.4	49.9	49.4	49.0	53.2	5.0	58.2
Timeframe         Hour         Leq         Lmax         Lmin         L1%         L2%         L5%         L8%         L25%         L50%         L90%         L95%         L99%         Leq         (dBA)           Day         Min         56.1         60.3         52.3         60.0         59.7         58.9         58.4         57.0         55.8         53.3         52.9         52.4         24-Hour         Day         Day         Max         61.7         69.9         55.9         69.4         69.2         67.4         65.9         61.8         59.7         56.8         56.5         56.0         24-Hour         Daytime         Nighttim           Energy Average         58.9         Average:         63.5         63.1         62.0         61.3         59.4         58.0         55.5         55.1         54.6         57.3         58.4         54.5           Evening         Min         53.2         58.1         48.9         57.8         57.5         56.6         56.0         54.0         52.4         49.9         49.0         57.3         58.4         54.5         55.7         55.1         54.6         57.3         58.4         54.5         55.7         55.7         51.4 </td <td>Night</td> <td>22</td> <td>54.9</td> <td>59.9</td> <td>50.8</td> <td>59.5</td> <td>58.5</td> <td>57.8</td> <td>57.5</td> <td>55.8</td> <td>54.3 54.3</td> <td>51.8</td> <td>51.2</td> <td>51.0</td> <td>54.9 54.8</td> <td>10.0</td> <td>64.9</td>	Night	22	54.9	59.9	50.8	59.5	58.5	57.8	57.5	55.8	54.3 54.3	51.8	51.2	51.0	54.9 54.8	10.0	64.9
Day       Min       56.1       60.3       52.3       60.0       59.7       58.9       58.4       57.0       55.8       53.3       52.9       52.4       24-Hour       Daytime       Nightime         Max       61.7       69.9       55.9       69.4       69.2       67.4       65.9       61.8       59.7       56.8       56.5       56.0	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>eg</sub> (dBA)	
Max       61.7       69.9       55.9       69.4       69.2       67.4       65.9       61.8       59.7       56.8       56.5       56.0         Energy Average       58.9       Average:       63.5       63.1       62.0       61.3       59.4       58.0       55.5       55.1       54.6       57.3       58.4       58.4       58.4       56.6       56.0       55.1       54.6       57.3       58.4       58.4       54.5       54.6         Evening       Min       53.2       58.1       48.9       57.8       57.5       56.6       56.0       54.0       52.4       49.9       49.4       49.0       57.3       58.4       58.4       54.5         Evening       Min       53.2       55.1       48.9       57.5       56.6       56.0       54.0       52.4       49.9       49.4       49.0       57.3       58.4       54.5       55.7       54.1       51.7       51.4       51.0       57.4       51.1       66.2       59.7       55.7       54.1       51.7       51.4       51.0       54.5       53.9       51.7       49.6       46.6       46.6       46.0       45.6       62.0       62.0       62.0	Dav	Min	56.1	60.3	52.3	60.0	59.7	58.9	58.4	57.0	55.8	53.3	52.9	52.4	24-Hour	Daytime	Nighttime
Energy Average       58.9       Average:       63.5       63.1       62.0       61.3       59.4       58.0       55.5       55.1       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       54.6       55.1       54.6       55.1       54.6       56.6       56.0       54.0       52.4       49.9       49.9       49.0       49.0       57.3       58.4       58.4       54.5       54.1       53.2       49.9       49.4       49.0       57.3       58.4       54.5       54.1       51.7       51.4       53.0       57.3       58.4       54.5       54.1       51.7       51.4       51.0       57.3       58.4       54.5       53.9       51.7       54.1       51.7       51.4       51.0       54.4       54.5       53.9       51.7       54.1       51.7       51.4       51.0       54.6       54.5       53.9       51.7       54.1       51.7       51.4       51.0       54.5       53.9       51.7       54.1       51.7       51.4       51.0       54.5       53.9       53.2       50.6       50.1       49.0       6	· · ·	Max	61.7	69.9	55.9	69.4	69.2	67.4	65.9	61.8	59.7	56.8	56.5	56.0			
Evening         Max         57.0         61.7         52.9         61.4         61.0         60.2         59.7         57.9         56.3         53.8         53.4         53.0         24-Hour CNEL (dBA)           Energy Average         55.1         Average:         59.2         58.9         58.1         57.5         55.7         54.1         51.7         51.4         51.0           Night         Min         50.6         55.7         45.5         55.1         54.5         53.9         51.7         49.6         46.6         46.0         45.6         46.0         45.6         62.0         <	Energy	Min	58.9	58.1	48.9	57.8	57.5	56.6	56.0	59.4	58.0	49.9	49.4	49.0	57.3	58.4	54.5
Energy Average         55.1         Average:         59.2         58.9         58.1         57.5         55.7         54.1         51.7         51.4         51.0           Night         Min         50.6         55.7         45.5         55.4         55.1         54.5         53.9         51.7         49.6         46.6         46.0         45.6           Max         57.0         60.8         53.2         60.4         60.2         59.7         59.3         58.0         56.5         54.2         53.8         53.4           Energy Average         54.5         Average:         58.4         58.1         57.4         56.8         54.9         53.2         50.6         50.1         49.7	Evening	Max	57.0	61.7	52.9	<u>61.</u> 4	61.0	60.2	59.7	57.9	56.3	53.8	53.4	53.0	24-	Hour CNEL (a	IBA)
Min         50.6         55.7         45.5         55.4         55.1         54.5         53.9         51.7         49.6         46.6         46.0         45.6           Max         57.0         60.8         53.2         60.4         60.2         59.7         59.3         58.0         56.5         54.2         53.8         53.4           Energy Average         54.5         58.4         58.1         57.4         56.8         54.9         53.2         50.6         50.1         49.7	Energy	Average	55.1	Ave	erage:	59.2	58.9	58.1	57.5	55.7	54.1	51.7	51.4	51.0			
Widx         57.0         b0.8         53.2         b0.4         b0.2         59.7         59.3         58.0         56.5         54.2         53.8         53.4           Energy Average         54.5         Average         58.4         58.1         57.4         56.8         54.9         53.2         50.6         50.1         40.7	Night	Min	50.6	55.7	45.5	55.4	55.1	54.5	53.9	51.7	49.6	46.6	46.0	45.6		62.0	
	Energy	Average	57.0	60.8 Ave	erage:	58.4	58.1	59.7	59.3	58.0	56.5	54.2	53.8	53.4 49.7	1	~~.~	



Date: Project:	Date:       Thursday, March 25, 2021       Location:       L4 - Located south of the Project site on Cameron Glen Road near existing single-family residential home at 3847 Cameron       Meter:       Piccolo II       JN:       13780         Project:       Stratford Ranch East       Glen Road.       Glen Road.       Meter:       Piccolo II       Analyst:       P. Mara															
							Hourly L <sub>eq</sub>	dBA Readings	(unadjusted)							
85.0	)															
	i															
<b>1 10</b> 75.0																
g 65.0	( <del>     </del>															
00.0								<b>m</b> - 10 -		<b>1</b> - 4 -	- <mark> 1</mark>			- IO -	_	
<b>50.0</b>	) <u> </u>	4 8			6.1	59.	27.3	58.	<b>6</b>	2 <mark>.59.</mark>	2 <mark>3. 60</mark>	<u> </u>		8	<u>σ</u> . ∞	<u>.</u>
± 40.0	§	45 45		24 23	<u> </u>										- 23 - 23	- 20
35.0	) ++	1 2	2	4 5				10 11	12 1	2 11	15 16	47	10 10	20	24 22	22
	0	1 2	3	4 5	6	/ 8	9	10 11 Hour Br	12 1. aginning	3 14	15 16	17	18 19	20	21 22	23
<b>-</b> :	11				140/	120/	1 50/			150%	100%	105%	1000/		a .1:	
Timeframe	Hour				L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%		Adj.	Aaj. L <sub>eq</sub>
	1	47.0	58.1	38.5	57.7	57.1	54.0 40.4	52.0	46.6	43.1	39.5	39.0 40.1	38.0	47.0	10.0	57.0 57.0
	2	44.4	57.6	38.0	57.2	56.4	52.8	48.8	43.7	40.5	38.6	38.4	38.1	44.4	10.0	55.8
Night	3	47.1	56.0	41.7	55.7	55.1	52.9	50.8	46.9	44.5	42.4	42.1	41.8	47.1	10.0	57.1
U	4	53.1	65.0	44.0	64.5	63.7	60.5	57.2	50.5	47.7	44.8	44.5	44.1	53.1	10.0	63.1
	5	54.0	64.0	44.9	63.5	62.8	60.5	58.8	53.7	49.5	45.8	45.4	45.0	54.0	10.0	64.0
	6	56.1	66.6	46.3	66.1	65.3	62.7	61.2	54.3	51.0	47.4	46.9	46.4	56.1	10.0	66.1
	7	57.5	68.0	49.5	67.6	67.0	64.1	61.7	55.9	53.5	50.3	49.9	49.6	57.5	0.0	57.5
	8	59.7	73.1	45.8	72.6	71.4	67.4	63.2	54.6	51.0	47.3	46.6	46.0	59.7	0.0	59.7
	9 10	57.3	68.9	46.9	68.6 66.9	67.8	65.1	62.4	54.6	51.3	48.2	4/./	47.1	57.3 E0 2	0.0	57.3 EQ 2
	10	57.6	66.9	49.7 50.0	66 5	65.9	63.1	61.4	57.9	55.1	51.2	50.7	50.0	57.6	0.0	57.6
	12	62.1	69.9	49.7	69.4	68.8	67.7	66.9	64.3	55.2	51.3	50.7	49.9	62.1	0.0	62.1
Day	13	64.6	77.6	51.2	76.8	75.6	73.4	69.3	59.0	55.8	52.6	52.0	51.4	64.6	0.0	64.6
	14	59.4	68.4	50.6	67.8	67.0	65.1	63.3	60.0	56.5	52.4	51.7	50.9	59.4	0.0	59.4
	15	60.5	71.7	51.8	71.3	70.7	67.4	64.3	58.7	56.6	53.4	52.8	52.1	60.5	0.0	60.5
	16	59.1	67.3	52.4	66.8	66.2	64.2	62.7	59.2	57.1	54.2	53.5	52.7	59.1	0.0	59.1
	17	60.4	68.7	51.9	68.1	67.5	66.0	64.9	61.2	57.4	53.6	52.9	52.1	60.4	0.0	60.4
	18	65.0	76.8	50.9	76.2	75.5	/3.0	/0./	62.1	57.1	52.4	51.8	51.1	65.0	0.0	65.0
Evening	20	58.5	70.3	49.0	71.4 69.8	68.9	66 1	64.1	55.0	53.9	50.4 /18.2	49.7 47 5	49.2	58 5	5.0	63.5
Lvening	20	53.9	64.6	43.5	64.3	63.7	61.2	58.8	52.0	49.0	45.1	44.5	43.7	53.9	5.0	58.9
Nisht	22	52.8	63.4	43.9	63.0	62.5	59.7	57.4	51.6	48.3	44.9	44.4	44.0	52.8	10.0	62.8
Night	23	50.7	60.5	44.8	60.2	59.5	56.7	54.3	50.0	47.8	45.5	45.2	44.9	50.7	10.0	60.7
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	57.3	66.9	45.8	66.5	65.9	63.1	61.4	54.6	51.0	47.3	46.6	46.0	24-Hour	Daytime	Nighttime
Eporgy	Max	65.0	//.6	52.4	/6.8	/5.6	/3.4	70.7	64.3	57.4	54.2	53.5	52.7			
Lifergy	Min	53.9	64.6	43 5	64.3	63.7	61.2	58.8	52.0	49.0	45.1	44 5	43.7	58.8	60.5	51.7
Evening	Max	60.3	71.7	49.0	71.4	71.0	68.2	65.5	58.0	53.9	50.4	49.7	49.2	24-	Hour CNEL (d	BA)
Energy	Average	58.3	Av	erage:	68.5	67.8	65.2	62.8	55.0	51.5	47.9	47.2	46.6			
Night	Min	44.4	51.3	38.0	50.9	50.4	49.4	48.8	43.7	40.5	38.6	38.4	38.1		61 6	
-	Max	56.1	66.6	46.3	66.1	65.3	62.7	61.2	54.3	51.0	47.4	46.9	46.4		01.0	
Energy	Average	51.7	Av	erage:	59.9	59.2	56.6	54.5	49.1	46.1	43.3	42.9	42.5			



						24-Ho	ur Noise Le	evel Measu	urement S	ummary						
Date:	Thursday, N	/larch 25, 202	21		Location:	L5 - Located	l southwest o	of the Project	t site on Ram	iona	Meter:	Piccolo II			JN:	13780
Project:	Stratford Ra	anch East				Expressway	and Akina A	venue near e	existing single	e-family					Analyst:	P. Mara
						residential i	Hourly L eq (	BARINA AVEN	ue. (unadjusted)							
85 (	ו															
<b>a</b> 80.0																
<b>e</b> 70.0				0 4		<b>m m</b>	<u>ດ</u>				- <del></del>	ດຸ	<b>0</b>	<b>∞</b>	<b>m</b>	
	58.5 88.5	7.0		71.(	13	73	2	70. <mark>7</mark>	71		<mark>.2.</mark>	2	2 - <mark>2</mark> - 2	<mark></mark>	<mark>70.8</mark>	- 02
<b>j</b> 55.0		9 9			$\square$		$\mp$ $\mp$									
<b>H</b> 45.0							$\mp$ $\mp$									
35.0	0	1 2	3	4 5	6	7 8	9 1	0 11	12 1	3 14	15 16	5 17	18 19	20	21 22	23
	U		J		Ū	, 0	5	Hour Be	eginning	5 11	10 10	, 1,	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	68.5	78.1	48.8	77.7	77.1	75.2	73.6	69.1	63.7	52.0	50.5	49.1	68.5	10.0	78.5
	1	67.0	77.2	47.8	76.9	76.4	74.4	72.4	66.8	60.3	50.3	49.0 40.5	48.0	67.0	10.0	77.0
Night	2	68.6	77.5	48.3 53.6	77.2	76.8	74.4	72.4	69.5	65.1	50.7	49.5 55.0	48.5 53.8	68.6	10.0	78.6
	4	71.0	78.7	56.7	78.4	78.0	76.4	75.4	72.1	68.8	60.9	58.7	57.0	71.0	10.0	81.0
	5	72.4	81.6	60.4	81.1	80.6	78.1	76.4	73.0	69.8	63.8	62.0	60.6	72.4	10.0	82.4
	6	73.1	81.0	61.8	80.7	80.3	78.6	77.4	74.2	70.8	64.5	63.2	62.0	73.1	10.0	83.1
	7	73.3	81.5	59.7	81.1	80.7	79.1	77.9	74.1	70.6	63.8	61.9	60.0	0         73.1         10.0           0         73.3         0.0           1         72.3         0.0	73.3	
	8 Q	72.3	80.1 82.6	58.8 56.5	79.8 82.0	79.4 81.5	77.9	76.8 78.5	73.4	69.9 68.1	62.3 59.9	58.4	59.1	72.3	0.0	72.3 72.9
	10	70.1	78.3	55.4	77.9	77.3	75.8	74.7	71.3	67.3	59.3	57.8	55.9	70.1	0.0	70.1
	11	70.4	78.9	55.3	78.5	78.1	76.3	75.1	71.5	67.4	59.1	57.1	55.6	70.4	0.0	70.4
Dav	12	71.1	79.8	55.1	79.4	79.0	77.1	75.7	72.2	67.7	59.0	57.1	55.3	71.1	0.0	71.1
Duy	13	70.2	79.1	57.0	78.6	77.9	75.5	74.3	71.2	67.9	60.3	58.7	57.3	70.2	0.0	70.2
	14 15	75.4	88.6 81.0	58.2	88.1	87.3	82.8	78.0	71.6	68.5 60.1	61.8	60.1	58.6	75.4	0.0	75.4
	15	72.4	82.3	59.3	80.4 81.6	80.6	78.3	76.3	72.1	70.1	62.8	60.8	59.5	72.4	0.0	72.4
	17	72.9	81.9	60.2	81.5	81.1	78.8	77.0	73.5	70.5	63.2	61.7	60.4	72.9	0.0	72.9
	18	72.2	79.2	59.2	78.8	78.3	76.8	76.1	73.6	70.6	62.8	61.0	59.5	72.2	0.0	72.2
	19	72.9	82.3	58.5	81.8	81.0	78.7	77.4	73.7	69.9	62.1	60.4	58.7	72.9	5.0	77.9
Evening	20	72.8	82.9	56.0	82.2	81.5	79.5	77.7	73.1	69.4	60.2	58.1	56.3	72.8	5.0	77.8
	21	70.8	79.6	54.6	79.2	/8./	75.5	75.5	71.7	66.6	58.3	56.2	54.9	70.8	5.0	75.8
Night	22	70.1	80.7	52.2	80.3	79.5	76.4	74.5	70.3	65.8	55.6	54.0	52.5	70.1	10.0	80.1
Timeframe	Hour	L <sub>eq</sub>	L max	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%		L <sub>eq</sub> (dBA)	
Day	Min	70.1	78.3	55.1	77.9	77.3	75.5	74.3	71.2	67.3	59.0	57.1	55.3	24-Hour	Daytime	Nighttime
, Eporgy	Max	75.4	88.6	60.2	88.1	87.3	82.8	78.5	74.1	70.6	63.8	61.9	60.4 E 9 1			
Energy	Min	72.3	79.6	54.6	79.2	78.7	76.8	75.5	72.5	67.6	58.3	59.0	54.9	71.6	72.3	70.2
Evening	Max	72.9	82.9	58.5	82.2	81.5	79.5	77.7	73.7	69.9	62.1	60.4	58.7	24-	Hour CNEL (d	BA)
Energy	Average	72.3	Ave	rage:	81.1	80.4	78.3	76.8	72.8	69.0	60.2	58.3	56.7			
Night	Min	67.0	77.2	47.8	76.9	76.4	74.4	72.4	66.5	60.3	50.3	49.0	48.0		77 <u>4</u>	
Energy	Max Average	73.1	81.6	61.8	81.1	80.6	78.6	77.4	74.2	70.8	64.5 56.8	63.2 55.2	62.0 53.8	4	//···	
Lifergy	Average	70.2	AVE	age.	78.0	70.1	70.0	74.4	70.2	05.7	50.0	35.2	55.0			





APPENDIX 7.1:

**OFF-SITE TRAFFIC NOISE CONTOURS** 





	FH	WA-RD-77-10	8 HIGHV	VAY NO	DISE P	REDICTIC	N MOD	EL			
Scenar Road Nan Road Segme	io: Existing ne: Redlands / nt: s/o Ramon	Av. a Exwy.				Project N Job Nu	lame: S nber: 1	tratfor 3780	d Ranch E	last	
SITE	SPECIFIC II	NPUT DATA				NC	DISE M	ODEL	L INPUTS	5	
Highway Data				S	ite Con	nditions (H	lard = 1	0, So	ft = 15)		
Average Daily	Traffic (Adt):	1,720 vehicle	es				Α	utos:	15		
Peak Hour	Percentage:	8.08%			Me	edium Truc	ks (2 A)	(les):	15		
Peak H	lour Volume:	139 vehicle	es		He	avy Truck	s (3+ A)	(les):	15		
Ve	hicle Speed:	40 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	56 feet			Veh	icleType	Ľ	Day	Evening	Night	Daily
Site Data						AL	itos: 7	7.5%	12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet			М	edium Tru	cks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			1	Heavy Tru	cks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	47.0 feet		N	oise So	ource Ele	vations	(in fe	et)		
Centerline Dist.	to Observer:	47.0 feet				Autos:	0.00	00			
Barrier Distance	arrier Distance to Observer: 0.0 feet					m Trucks:	2.29	97			
Observer Height	server Height (Above Pad): 5.0 feet					vy Trucks:	8.00	06	Grade Adj	ustment	: 0.0
P	ad Elevation:		_								
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent L	Distance	e (in f	eet)		
	Road Grade:	0.0%				Autos:	38.0	79			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	37.8	46			
	Right View:	90.0 degre	es		Heav	vy Trucks:	37.8	69			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el L	Barrier Atte	en Ber	m Atten
Autos:	66.51	-10.01		1.67		-1.20		4.63	0.0	00	0.000
Medium Trucks:	77.72	-27.25	;	1.71		-1.20		4.87	0.0	00	0.000
Heavy Trucks:	82.99	-31.20	)	1.71		-1.20	-	5.46	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y I	Leq Eve	ening	Leq N	ight		Ldn	C	NEL
Autos:	57	7.0	56.0		54.2		48.2		56.8	3	57.4
Medium Trucks:	51	1.0	50.4		44.0		42.5		51.0	)	51.2
Heavy Trucks:	Heavy Trucks: 52.3 51.8						44.0		52.4		52.5
Vehicle Noise:	59	9.0	58.2		54.9		50.4		58.9	)	59.3
Centerline Distan	ce to Noise C	ontour (in fee	t)								
				70 dE	ЗA	65 dl	ЗA	6	0 dBA	55	dBA
			Ldn:	9		18			40		85
		C	NEL:	9		20			42	1	92

Scenario	o: Existina					Proiect	Name	Stratfo	rd Ranch I	East	
Road Name	e: Evans Rd.					Job N	lumber	13780			
Road Segmen	t: s/o Ramon	a Exwy.									
SITE S	SPECIFIC IN	IPUT DATA				N	IOISE	MODE	L INPUT	S	
Highway Data					Site Con	ditions	(Hard	= 10, Se	oft = 15)		
Average Daily 1	Traffic (Adt):	19,069 vehicle	s					Autos:	15		
Peak Hour I	Percentage:	8.08%			Me	dium Tr	ucks (2	Axles):	15		
Peak Ho	our Volume:	1,541 vehicle	s		He	avy Tru	cks (3+	Axles):	15		
Veh	nicle Speed:	45 mph		ľ	Vehicle I	Mix					
Near/Far Lan	e Distance:	80 feet		Ī	Veh	icleType	;	Day	Evening	Night	Daily
Site Data							Autos:	77.5%	12.9%	9.6%	97.42
Ban	rier Height:	0.0 feet			M	edium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa	all, 1-Berm):	0.0			/	Heavy T	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Dis	t. to Barrier:	64.0 feet		ľ	Noise So	ource E	levatio	ns (in f	eet)		
Centerline Dist. t	o Observer:	64.0 feet		ľ		Auto	s: (	000.			
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Truck	s: 2	2.297			
Observer Height (A	Above Pad):	5.0 feet			Heav	y Truck	's: 8	8.006	Grade Ad	ljustment	: 0.0
Pa	d Elevation:	-	Lano Ea	uivalon	t Dicta	nco (in	foot				
Roa	u Elevation.	0.0 1661		F	Lune Ly	Auto	e' 50	210	1001		
	Left View	-90.0 degree	00		Mediu	m Truck	s 50	033			
	Right View:	90.0 degre	es		Heav	y Truck	s: 50	0.050			
EHWA Noise Mode	I Calculation	•									
VehicleType	REMEL	Traffic Flow	Di	stance	Finite	Road	Free	inel	Barrier Att	en Ber	m Atten
Autos:	68.46	-0.07		-0.1	3	-1.20		-4.70	0.0	000	0.00
Medium Trucks:	79.45	-17.31		-0.1	1	-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	84.25	-21.27		-0.1	1	-1.20		-5.31	0.0	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barri	ier atter	nuation)						
VehicleType	Leq Peak Hou	r Leq Day	/	Leq E	vening	Leq	Night		Ldn	C	NEL
Autos:	67	.1	66.1		64.3		58	.3	66.	9	67.
Medium Trucks:	60	.8	60.2		53.9		52	.3	60.	8	61.
Heavy Trucks:	Heavy Trucks: 61.7 61.2						53	.4	61.	7	61.
Vehicle Noise:	68	.9	68.1		64.9		60	.3	68.	8	69.
Centerline Distanc	e to Noise Co	ontour (in feet	)	70	dD A	65	dD A		C dBA	55	dD A
			I dn'	10	33	1	15	1	247	55	32
	Lun.				57	1	23		241	i F	71
		0					20		200		

	FH\	NA-RD-77-108	HIGHWA	AY N	OISE PI	REDICT	ION MC	DEL				l
Scenar Road Narr Road Segme	<i>io:</i> Existing ne: Evans Rd. nt: n/o Street A	Ą				Project Job N	t Name: lumber:	Stratfo 13780	ord Ranch	n Eas	t	
SITE	SPECIFIC IN	IPUT DATA				N	IOISE I	NODE	EL INPU	TS		
Highway Data				S	ite Con	ditions	(Hard =	10, S	oft = 15)			
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	25,664 vehicles 8.08% 2,074 vehicles			Me He	dium Tr avy Tru	ucks (2 ) cks (3+ )	Autos Axles) Axles)	15 15 15			
Ve	hicle Speed:	45 mph		v	ehicle l	Mix						
Near/Far La	ne Distance:	80 feet			Veh	icleType		Day	Evening	a Ni	ght	Daily
Site Data							Autos:	77.5%	6 12.99	6	9.6%	97.42%
Ba	rrier Height	0.0 feet			M	edium T	rucks:	84.8%	6 4.99	6 1	0.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy T	rucks:	86.5%	6 2.79	6 1	0.8%	0.74%
Centerline Di	st. to Barrier:	64.0 feet		N	oise So	ource E	levation	s (in f	eet)			
Centerline Dist.	to Observer:	64.0 feet		-		Auto	e' 0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	·c· 2	207				
Observer Height	(Above Pad):	5.0 feet			Heav	v Truck	S. 2.	006	Grade A	diust	ment	0.0
Pi	Pad Elevation: 0.0 feet							000				
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Distan	ce (in	feet)			
	Road Grade:	0.0%				Auto	s: 50.	210				
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 50.	033				
	Right View:	90.0 degree	s		Heav	ry Truck	s: 50.	050				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresr	nel	Barrier A	Atten	Ber	m Atten
Autos:	68.46	1.22		-0.13		-1.20		-4.70	(	0.000		0.00
Medium Trucks:	79.45	-16.02		-0.11		-1.20		-4.88	(	0.000		0.00
Heavy Trucks:	84.25	-19.98		-0.11		-1.20		-5.31	(	0.000		0.00
Unmitigated Noise	e Levels (with	out Topo and b	arrier a	ttenu	ation)							
VehicleType	Leq Peak Hou	ur Leq Day	Le	q Ev	ening	Leq	Night		Ldn		CI	VEL
Autos:	68	1.3 6	7.4		65.6		59.0	6	6	8.2		68.
Medium Trucks:	62	2.1 6	1.5		55.2		53.0	6	6	2.1		62.
Heavy Trucks:	Heavy Trucks: 63.0 62.5						54.	7	6	3.0		63.
Vehicle Noise:	70	0.2 6	9.4		66.2		61.	5	7	D.1		70.
Centerline Distant	ce to Noise Co	ontour (in feet)						-				
					BA	65	dBA		60 dBA		55	dBA
		L	.dn:	65		1	40		301		6	49
	CNEL:					1	50		323		6	96

	FH	WA-RD-77-10	8 HIGH	IWAT N	UISE PI	REDICI		- L			
Scena	rio: Existing					Project	Name: Str	atfor	d Ranch E	East	
Road Nar	ne: Ramona E	xwy.				Job N	umber: 13	780			
Road Segme	ent: w/o Redlar	nds Av.									
SITE	SPECIFIC I			N	IOISE MO	DEL		s			
Highway Data				S	ite Con	ditions	(Hard = 10	), Soi	ft = 15)		
Average Daily	Traffic (Adt):	32,445 vehicle	es				Au	tos:	15		
Peak Hou	Percentage:	8.08%			Me	dium Tri	ucks (2 Axl	es):	15		
Peak I	Hour Volume:	2,622 vehicle	es		He	avy Tru	cks (3+ Axl	es):	15		
Ve	ehicle Speed:	55 mph		1	/ehicle	Mix					
Near/Far La	ane Distance:	102 feet			Veh	icleTvpe	Da	av	Evenina	Night	Dailv
Site Data							Autos: 77	.5%	12.9%	9.6%	97.42%
Ba	rrier Height	0.0 feet			Me	edium Ti	rucks: 84	.8%	4.9%	10.3%	1.84%
Barrier Type (0-V	Vall. 1-Berm):	0.0			ŀ	leavy Ti	rucks: 86	6.5%	2.7%	10.8%	0.74%
Centerline D	ist. to Barrier:	92.0 feet			loico Se	urco El	ovations (	in fo	of		
Centerline Dist.	to Observer:	92.0 feet		-	10/36 30	Auto		0	eŋ		-
Barrier Distance	to Observer:	0.0 feet			Modiu	n Truck	s. 0.00	7			
Observer Height	(Above Pad):	5.0 feet			Heav	v Truck	s. 2.25 s' 8.00	, 6	Grade Ad	iustmen	t: 0.0
P	ad Elevation:	0.0 feet				,	0.00				
Ro	ad Elevation:	0.0 feet		1	ane Eq	uivalent	Distance	(in fe	eet)		
	Road Grade:	0.0%				Auto	s: 76.73	3			
	Left View:	-90.0 degre	ees		Mediui	n Truck	s: 76.61	8			
	Right View:	90.0 degre	ees		Heav	у тиск	s: 76.62	9			
FHWA Noise Mod	lel Calculatior	IS									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fresnel	E	Barrier Atte	en Bei	rm Atten
Autos:	71.78	1.30	3	-2.89	)	-1.20	-4	.76	0.0	000	0.000
Medium Trucks:	82.40	-15.8	3	-2.88	3	-1.20	-4	.88	0.0	000	0.000
Heavy Trucks	86.40	-19.83	3	-2.88	3	-1.20	-5	.18	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	l barrie	er atteni	uation)						
VehicleType	Leq Peak Ho	ur Leq Da	iy 🛛	Leq Ev	ening	Leq	Night		Ldn	С	NEL
Autos:	69	ə.1	68.1		66.3		60.3		68.9	9	69.5
Medium Trucks:	6	2.4	61.9		55.5		54.0		62.4	4	62.6
Heavy Trucks	6	2.5	62.0		52.9		54.2		62.6	3	62.7
Vehicle Noise:	70	0.6	69.8		66.8		62.0		70.5	5	71.0
Centerline Distan	ce to Noise C	ontour (in fee	et)								
-				70 d	BA	65	dBA	60	) dBA	55	i dBA
			Ldn:	10	0	2	15		462	9	996
		0	ONEL:	10	7	2	31		497	1	,072

Thursday, May 6, 2021

Thursday, May 6, 2021

	FH	WA-RD-77-108	HIGHW	AY NO	DISE P	REDICTIO	ом мо	DEL			
Scenar Road Nan Road Segme	rio: Existing ne: Ramona E ent: w/o Evans	xwy. Rd.				Project N Job Nu	lame: mber:	Stratfo 13780	ord Ranch	East	
SITE	SPECIFIC II	NPUT DATA				N	DISE N	NODE	L INPUT	s	
Highway Data				S	ite Cor	nditions (l	Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	37,395 vehicle	s					Autos	15		
Peak Hour	Percentage:	8.08%			Me	edium Truc	cks (2 /	Axles).	15		
Peak H	lour Volume:	3,022 vehicle	s		He	eavy Truck	(3+ A	Axles).	15		
Ve	ehicle Speed:	55 mph		V	ehicle	Mix					
Near/Far La	ane Distance:	102 feet		-	Veh	nicleType		Day	Evening	Nigh	t Daily
Site Data						A	utos:	77.5%	6 12.9%	9.6	% 97.42%
Ba	rrier Height:	0.0 feet			М	ledium Tru	icks:	84.8%	4.9%	10.3	% 1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			,	Heavy Tru	icks:	86.5%	5 2.7%	10.8	% 0.74%
Centerline D	ist. to Barrier:	92.0 feet		N	oise S	ource Ele	vation	s (in f	eet)		
Centerline Dist.	to Observer:	92.0 feet				Autos:	0.	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	2.	297			
Observer Height	(Above Pad):			Hea	vv Trucks	8.	006	Grade Ad	ljustme	ent: 0.0	
P	ad Elevation:		-						-		
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent l	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos:	76.	733			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	76.	618			
	Right View:	90.0 degre	es		Hea	vy Trucks:	76.	629			
FHWA Noise Mod	lel Calculation	IS		_							
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresh	el	Barrier At	ten E	erm Atten
Autos:	71.78	1.98		-2.89		-1.20		-4.76	0.	000	0.000
Medium Trucks:	82.40	-15.26		-2.88		-1.20		-4.88	0.	000	0.000
Heavy Trucks:	86.40	-19.21		-2.88		-1.20		-5.18	0.	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	' Le	eq Eve	ening	Leq N	light		Ldn		CNEL
Autos:	69	9.7	68.7		66.9		60.9	)	69.	5	70.1
Medium Trucks:	63	3.1	62.5		56.1		54.6	6	63.	0	63.3
Heavy Trucks:	63	3.1	62.6		53.6		54.8	3	63.	2	63.3
Vehicle Noise:	71	1.2	70.4		67.5	i	62.6	6	71.	1	71.6
Centerline Distan	ce to Noise C	ontour (in feet	)								-
				70 dE	BA	65 d	BA		60 dBA		55 dBA
			Ldn:	110	)	23	6		508		1,095
		C	VEL:	118	3	25	4		547		1,178

	FHV	VA-RD-77-108	HIGHW	ATN	UISE PI	REDICTION		JEL			
Scenar	io: E + P					Project I	Vame: S	Stratfo	d Ranch I	East	
Road Nam	e: Redlands A	v.				Job Nu	mber: 1	3780			
Road Segme	nt: s/o Ramona	a Exwy.									
SITE	SPECIFIC IN	IPUT DATA				N	DISE M	ODE	L INPUT	S	
Highway Data				S	Site Con	ditions (	Hard = :	10, So	ft = 15)		
Average Daily	Traffic (Adt):	1,720 vehicle	s				A	lutos:	15		
Peak Hour	Percentage:	8.08%			Me	dium Tru	cks (2 A	xles):	15		
Peak H	lour Volume:	139 vehicle	s		He	avy Truci	ks (3+ A	xles):	15		
Ve	hicle Speed:	40 mph		v	/ehicle I	Mix					
Near/Far La	ne Distance:	56 feet		F	Vehi	icleType	1	Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet			Me	edium Tru	icks: {	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tru	icks: 8	36.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	47.0 feet			loise Sc	urco Ele	vations	(in fe	ofi		
Centerline Dist.	to Observer:	47.0 feet		Ê		Autos	. 0.0	00			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks	. 22	97			
Observer Height (	(Above Pad):	5.0 feet			Heav	v Trucks	. 80	06	Grade Ad	iustment	0.0
Pa	ad Elevation:	0.0 feet			mour	) maone	0.0			,	
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distanc	e (in f	eet)		
1	Road Grade:	0.0%				Autos	38.0	79			
	Left View:	-90.0 degre	es		Mediur	n Trucks	: 37.8	46			
	Right View:	90.0 degre	es		Heav	y Trucks	: 37.8	69			
FHWA Noise Mode	el Calculation:	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	el i	Barrier Att	en Ber	m Atten
Autos:	66.51	-10.01		1.67	,	-1.20	-	4.63	0.0	000	0.000
Medium Trucks:	77.72	-27.25		1.71		-1.20	-	4.87	0.0	000	0.000
Heavy Trucks:	82.99	-31.20		1.71		-1.20	-	5.46	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenı	uation)						
VehicleType	Leq Peak Hou	r Leq Da	/ L	eq Ev	ening	Leq N	light		Ldn	CI	NEL
Autos:	57	.0	56.0		54.2		48.2		56.	8	57.4
Medium Trucks:	51	.0	50.4		44.0		42.5		51.0		51.2
Heavy Trucks:	52	.3	51.8		42.8		44.0		52.4	4	52.5
Vehicle Noise:	59	.0	58.2		54.9		50.4		58.9	9	59.3
a	ce to Noise Co	ontour (in fee	)								
Centerline Distant			1	70 d	KA	65 d	BA	6	u dBA	55	aBA
Centerline Distant			느		571				10		05
Centerline Distand			Ldn:	9	271	18	3		40		85

	FH\	WA-RD-77-108	HIGHW	AY N	OISE PI	REDICT	ION MC	DEL				
Scenar Road Narr Road Segme	io: Existing ne: Ramona Ex nt: e/o Evans I	xwy. Rd.				Project Job N	Name: lumber:	Stratfo 13780	ord Rar )	nch Ei	ast	
SITE	SPECIFIC IN	IPUT DATA				N	IOISE	MOD	EL INF	PUTS	6	
Highway Data				S	ite Con	ditions	(Hard =	= 10, S	oft = 1	5)		
Average Daily Peak Hour	Traffic (Adt):	25,899 vehicles 8.08%	5		Me	dium Tr	ucks (2	Autos Axles)	: 15 : 15			
Peak H	lour volume:	2,093 vehicles	5		не	avy iru	CKS (3+	Axies)	: 15			
Ve Near/Far I a	nicle Speed: ne Distance:	55 mpn 102 feet		v	'ehicle l	Mix				- 1		
0%- D-t-	no Biotanoo.	102 1001			Veh	icleType		Day	Even	ning	Night	Daily
Site Data					14	i adium T	AULOS:	11.5%	6 12. 6 4	.9%	9.0%	97.42%
Ba.	rrier Height:	0.0 feet			IVI F	Heavy T	rucks:	86.5%	0 4. 6 2	7%	10.3%	0.74%
Centerline Di	st to Barrier	0.0 92.0 feet						00.07			10.070	0.117
Centerline Dist	to Observer:	92.0 feet		N	oise So	burce E	levation	ns (in i	eet)			
Barrier Distance	to Observer:	0.0 feet				Auto	s: 0	.000				
Observer Height	(Above Pad):	5.0 feet			Mediu	m Truck	s: 2	.297				
P	Pad Elevation: 0.0 feet						's: 8	.006	Grad	e Aajı	ustment	0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Distan	ce (in	feet)			
	Road Grade:	0.0%				Auto	s: 76	.733				
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 76	.618				
	Right View:	90.0 degree	s		Heav	y Truck	s: 76	.629				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fres	nel	Barrie	er Atte	n Ber	m Atten
Autos:	71.78	0.38		-2.89		-1.20		-4.76		0.00	00	0.00
Medium Trucks:	82.40	-16.85		-2.88		-1.20		-4.88		0.00	00	0.00
Heavy Trucks:	86.40	-20.81		-2.88		-1.20		-5.18		0.00	00	0.00
Unmitigated Noise	e Levels (with	out Topo and I	barrier a	ttenu	ation)							-
VehicleType	Leq Peak Hou	ır Leq Day	Le	q Ev	ening	Leq	Night		Ldn		CI	VEL
Autos:	68	3.1 (	57.1		65.3		59.	3		67.9		68.
Medium Trucks:	61	.5 (	50.9		54.5		53.	0		61.4		61.
Heavy Trucks:	Heavy Trucks: 61.5 61.0				52.0		53.	2		61.6		61.
Vehicle Noise:	Vehicle Noise: 69.7 68.8						61.	0		69.5		70.
Centerline Distant	ce to Noise Co	ontour (in feet)										
						65	dBA		60 dBA	1	55	dBA
				86		1	85		398		8	57
	CNEL:					1	99		428		9	22

FH	WA-RD-77-108	HIGHWA	Y NOISE P	REDICTIC	N MOE	EL			
Scenario: E + P Road Name: Evans Rd. Road Segment: n/o Street	A			Project N Job Nur	lame: S nber: 1	tratfor 3780	d Ranch E	ast	
SITE SPECIFIC I	NPUT DATA			NC	ISE M	ODE	L INPUT	5	
Highway Data			Site Cor	nditions (H	lard = 1	0, So	ft = 15)		
Average Daily Traffic (Adt):	26,036 vehicles	s			A	utos:	15		
Peak Hour Percentage:	8.08%		Me	edium Truc	ks (2 A	(les):	15		
Peak Hour Volume:	2,104 vehicles	s	He	avy Truck	s (3+ A	kles):	15		
Vehicle Speed:	45 mph		Vehicle	Mix					
Near/Far Lane Distance:	80 feet		Vet	icleTvpe	Ĺ	Dav	Evenina	Niaht	Dailv
Site Data				Au	tos: 7	7.5%	12.9%	9.69	6 97.42%
Barrier Height:	0 0 feet		M	edium Tru	cks: 8	4.8%	4.9%	10.39	6 1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Tru	cks: 8	6.5%	2.7%	10.89	6 0.74%
Centerline Dist. to Barrier:	64.0 feet		Noise S	ource Elev	ations	(in fo	of		
Centerline Dist. to Observer:	64.0 feet		10130 0	Autos:	0.0	00	00		
Barrier Distance to Observer:	0.0 feet		Modiu	m Trucks:	2.0	00			
Observer Height (Above Pad):	5.0 feet		Hea	vv Trucks:	2.2	06 06	Grade Ad	iustmer	nt: 0.0
Pad Elevation:	0.0 feet			<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>	0.0	00			
Road Elevation:	0.0 feet		Lane Eq	uivalent L	Distance	e (in f	eet)		
Road Grade:	0.0%			Autos:	50.2	10			
Left View:	-90.0 degree	es	Mediu	m Trucks:	50.0	33			
Right View:	90.0 degree	es	Hea	vy Trucks:	50.0	50			
FHWA Noise Model Calculation	าร								
VehicleType REMEL	Traffic Flow	Distance	e Finite	Road	Fresne	e/ 1	Barrier Att	en Be	erm Atten
Autos: 68.46	i 1.28	-(	).13	-1.20	-	4.70	0.0	000	0.000
Medium Trucks: 79.45	-15.96	-(	).11	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks: 84.25	-19.92	-(	).11	-1.20	-	5.31	0.0	000	0.000
Unmitigated Noise Levels (with	nout Topo and	barrier att	enuation)						
VehicleType Leq Peak Ho	ur Leq Day	/ Leq	Evening	Leq N	ight		Ldn	(	CNEL
Autos: 6	8.4	67.4	65.7		59.6		68.2	2	68.8
Medium Trucks: 6	2.2	61.6	55.2		53.7		62.2	2	62.4
Heavy Trucks: 6	Heavy Trucks: 63.0 62.5						63.1		63.2
Vehicle Noise: 7	venicle Noise: 70.3 69.4						70.4		70.6
Centerline Distance to Noise C	ontour (in feet	)						-	
		7	U dBA	65 dE	5A	6	0 dBA	5	o dBA
	0	Lun: MEL:	70	141			304		702

Thursday, May 6, 2021

Thursday, May 6, 2021

	FH	WA-RD-77-10	BHIGH	WAY NO	DISE P	REDICT	ION MC	DEL			
Scenar Road Nan Road Segme	io: E + P ne: Evans Rd. nt: s/o Ramor	a Exwy.				Project Job N	Name: lumber:	Stratfo 13780	ord Ranch E	last	
SITE	SPECIFIC II	NPUT DATA				N	IOISE I	NODE	L INPUT	5	
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	19,441 vehicle	s					Autos	15		
Peak Hour	Percentage:	8.08%			Me	dium Tr	ucks (2	Axles).	15		
Peak F	lour Volume:	1,571 vehicle	s		He	avy Tru	cks (3+ )	Axles).	15		
Ve	hicle Speed:	45 mph		V	ohiclo	Mix					
Near/Far La	ne Distance:	80 feet		-	Veh	icleType		Dav	Evenina	Night	Daily
Site Data						, ,	Autos:	77.5%	6 12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet			М	edium T	rucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	64.0 feet		N	oise S	ource El	evation	s (in f	eet)		
Centerline Dist.	to Observer:	64.0 feet		-		Auto	s: 0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2	297			
Observer Height	(Above Pad):		Hea	v Truck	s: 8.	006	Grade Adj	ustmen	t: 0.0		
P	ad Elevation:	-									
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	s: 50.	210			
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 50.	033			
	Right View:	90.0 degre	es		Hea	vy Truck	s: 50.	050			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresr	nel	Barrier Atte	en Bei	rm Atten
Autos:	68.46	0.01		-0.13		-1.20		-4.70	0.0	00	0.000
Medium Trucks:	79.45	-17.23		-0.11		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	84.25	-21.18		-0.11		-1.20		-5.31	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y	Leq Eve	ening	Leq	Night		Ldn	С	NEL
Autos:	67	7.1	66.2		64.4		58.3	3	67.0	)	67.6
Medium Trucks:	60	0.9	60.3		54.0		52.4	4	60.9	)	61.1
Heavy Trucks:	6	1.8	61.3		52.2		53.	5	61.8	3	62.0
Vehicle Noise:	69	9.0	68.2		65.0		60.3	3	68.9	)	69.3
Centerline Distan	ce to Noise C	ontour (in fee	t)					1			
			L	70 dE	BA	65	dBA		60 dBA	55	dBA
			Lan:	54		1	16		250		539
		C	58		1	25		268	1	578	

	FHV	VA-RD-77-108	HIGHWA		JISE PI			'EL			
Scenario	D: E + P					Project N	<i>lame:</i> S	tratfo	rd Ranch I	ast	
Road Name	e: Ramona Ex	wy.				Job Nu	mber: 1	3780			
Road Segmen	t: w/o Evans F	Rd.									
SITE S	SPECIFIC IN	PUT DATA				N	DISE M	ODE	L INPUT	S	
Highway Data				S	ite Con	ditions (l	Hard = 1	10, So	oft = 15)		
Average Daily 1	Traffic (Adt): 3	88,233 vehicles	6				A	utos:	15		
Peak Hour I	Percentage:	8.08%			Me	dium Tru	cks (2 A	(les):	15		
Peak Ho	our Volume:	3,089 vehicles	6		He	avy Truck	(3+ A)	kles):	15		
Veh	nicle Speed:	55 mph		V	ehicle I	Nix					
Near/Far Lan	e Distance:	102 feet		-	Vehi	cleType	Ĺ	Day	Evening	Night	Daily
Site Data						A	itos: 7	7.5%	12.9%	9.6%	97.42%
Bar	rier Heiaht:	0.0 feet			Me	edium Tru	icks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	leavy Tru	icks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Dis	t. to Barrier:	92.0 feet		N	oise Sc	wrce Fle	vations	(in fe	pef)		
Centerline Dist. t	o Observer:	92.0 feet			0.00 00	Autos	0.0	00			
Barrier Distance t	o Observer:	0.0 feet			Mediur	n Trucks	2.0	00 07			
Observer Height (A	Above Pad):	5.0 feet			Heav	v Trucks	8.0	06	Grade Ad	iustment	0.0
Pa	d Elevation:	0.0 feet			mour	,	0.0			,	
Roa	d Elevation:	0.0 feet		L	ane Equ	uivalent	Distance	e (in f	feet)		
F	Road Grade:	0.0%				Autos:	76.7	33			
	Left View:	-90.0 degree	es		Mediur	n Trucks.	76.6	18			
	Right View:	90.0 degree	es		Heav	y Trucks.	76.6	29			
FHWA Noise Mode	I Calculation:	5									
VehicleType	REMEL	Traffic Flow	Distan	ice	Finite	Road	Fresne	e/ .	Barrier Att	en Ber	m Atten
Autos:	71.78	2.08		-2.89		-1.20	-	4.76	0.0	000	0.000
Medium Trucks:	82.40	-15.16		-2.88		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	86.40	-19.12		-2.88		-1.20	-	5.18	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Eve	ening	Leq N	light		Ldn	CI	NEL
Autos:	69	.8	68.8		67.0		61.0		69.6	5	70.3
Medium Trucks:	63	.2	62.6		56.2		54.7		63.	1	63.4
Heavy Trucks:	63	.2	62.7		53.7		54.9		63.3	3	63.4
Vahiala Maiaa	71	.3	70.5		67.6		62.7		71.3	2	71.3
venicie noise.											
Centerline Distanc	e to Noise Co	ntour (in feet					т			1	
Centerline Distanc	e to Noise Co	ntour (in feet		70 dE	BA	65 d	BA	6	0 dBA	55	dBA
Centerline Distance	e to Noise Co	ntour (in feet	Ldn:	70 dE 111	BA I	65 d 23	BA Ə	6	0 dBA 516	55 1,	dBA 112

	FH	WA-RD-77-108	HIGHW	AY NO		REDICTIC	N MOD	EL			_
Scenari Road Nam Road Segmer	io: E + P le: Ramona E nt: w/o Redlar	xwy. nds Av.				Project N Job Nur	ame: S nber: 1	tratfoi 3780	rd Ranch E	ast	
SITE	SPECIFIC II	NPUT DATA				NO	ISE M	ODE	L INPUTS	5	
Highway Data				S	ite Con	ditions (H	lard = 1	0, So	ft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	33,283 vehicle 8.08%	s		Me	dium Truc	A ks (2 A)	utos: (les):	15 15		
Peak H	our volume:	2,689 Venicle	s		пе	avy muck	S (3+ A)	des).	15		
Neer/Fer Le	nicie Speeu.	55 mpn 102 feet		V	ehicle l	Mix					
Neal/Fai Lai	ne Distance.	102 leet			Veh	icleType	E	Day	Evening	Night	Daily
Site Data						Au	tos: 7	7.5%	12.9%	9.6%	97.42%
Bai	rrier Height:	0.0 feet			M	edium Tru	cks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	Heavy Tru	cks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	92.0 feet		N	oise So	ource Elev	ations	(in fe	et)		
Centerline Dist.	to Observer:	92.0 feet				Autos:	0.00	00	.,		
Barrier Distance	arrier Distance to Observer: 0.0 feet					m Trucks	2.20	97			
Observer Height (	server Height (Above Pad): 5.0 feet				Heav	v Trucks:	8.00	06	Grade Adi	ustment	0.0
Pa	Pad Elevation: 0.0 feet										
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent L	Distance	e (in f	eet)		
1	Road Grade:	0.0%				Autos:	76.7	33			
	Left View:	-90.0 degre	es		Mediui	m Trucks:	76.6	18			
	Right View:	90.0 degre	es		Heav	vy Trucks:	76.6	29			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresne	1	Barrier Atte	en Ber	m Atten
Autos:	71.78	1.47		-2.89		-1.20	-1	4.76	0.0	00	0.000
Medium Trucks:	82.40	-15.76		-2.88		-1.20		4.88	0.0	00	0.000
Heavy Trucks:	86.40	-19.72		-2.88		-1.20	-1	5.18	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Daj	/ Le	eq Eve	ening	Leq N	ight		Ldn	CI	VEL
Autos:	69	9.2	68.2		66.4		60.4		69.0	)	69.6
Medium Trucks:	62	2.6	62.0		55.6		54.1		62.5	5	62.8
Heavy Trucks:	Heavy Trucks: 62.6 62.1						54.3		62.7	'	62.8
Vehicle Noise:	70	0.7	69.9		66.9		62.1		70.6	6	71.1
Centerline Distance	e to Noise C	ontour (in fee	)								
				70 dl	BA	65 dE	BA	6	0 dBA	55	dBA
			Ldn:	101		218			470	1,	013
		С	NEL:	109	9	235	5		506	1,	090

	FH	WA-RD-77-108	BHIGH	WAY N	OISE PF	REDICTIO	ON MO	DEL				
Scenar	<i>io:</i> E + P					Project N	Vame: \$	Stratfo	ord Ranch	East		
Road Nan	ne: Ramona E	xwy.				Job Nu	mber: ·	13780				
Road Segme	nt: e/o Evans	Rd.										
SITE	SPECIFIC IN	IPUT DATA				N	DISE N	IODE	L INPUT	s		
Highway Data				S	Site Con	ditions (l	Hard =	10, S	oft = 15)	-		
Average Daily	Traffic (Adt):	26,179 vehicle	s				,	Autos:	15			
Peak Hour	Percentage:	8.08%			Me	dium Tru	cks (2 A	(xles):	15			
Peak H	lour Volume:	2,115 vehicle	s		He	avy Truck	(3+ A	(xles):	15			
Ve	ehicle Speed:	55 mph		V	/ehicle I	Mix						
Near/Far La	ne Distance:	102 feet		F	Vehi	icleTvpe		Dav	Evenina	Nia	ht	Dailv
Site Data						A	utos:	77.5%	6 12.9%	9.	.6%	97.42%
Ba	rrier Heiaht:	0 0 feet			Me	edium Tru	icks:	84.8%	6 4.9%	10.	.3%	1.84%
Barrier Type (0-W	Vall, 1-Berm):	0.0			F	leavy Tru	icks:	86.5%	6 2.7%	10.	8%	0.74%
Centerline Di	ist. to Barrier:	92.0 feet			laise Sc	urco Elo	vation	: (in f	oof)			
Centerline Dist.	to Observer:	92.0 feet		-	10/30 00	Autos	0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Modiu	n Trucks		007				
Observer Height	(Above Pad):	5.0 feet			Heav	n Trucks. v Trucks	2.4	106	Grade Ac	liustm	ent <sup>.</sup>	0.0
P	ad Elevation:	0.0 feet			neav	y macks.	0.0	000	0/000/10	jaoun	•	0.0
Ro	ad Elevation:	0.0 feet		L	.ane Equ	uivalent	Distand	e (in	feet)			
	Road Grade:	0.0%				Autos:	76.	733				
	Left View:	-90.0 degre	es		Mediur	n Trucks.	76.0	618				
	Right View:	90.0 degre	es		Heav	y Trucks.	76.	629				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresn	el	Barrier At	ten	Berr	n Atten
Autos:	71.78	0.43		-2.89	)	-1.20		-4.76	0.	000		0.000
Medium Trucks:	82.40	-16.81		-2.88	3	-1.20		-4.88	0.	000		0.000
Heavy Trucks:	86.40	-20.76		-2.88	3	-1.20		-5.18	0.	000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	r attenu	uation)							
VehicleType	Leq Peak Hou	ur Leq Da	V	Leq Ev	ening	Leq N	light		Ldn		CN	EL
Autos:	68	3.1	67.1		65.4		59.3		67.	9		68.6
Medium Trucks:	61	.5	60.9		54.6		53.0		61.	5		61.7
Heavy Trucks:	61	.5	61.1		52.0		53.3		61.	6		61.7
Vehicle Noise:	69	9.7	68.9		65.9		61.0	)	69.	6		70.1
Centerline Distan	ce to Noise C	ontour (in fee	t)							-		
				70 d	IBA 🛛	65 d	BA	(	60 dBA		55 c	3BA
			Ldn:	86	3	18	6		401		86	64
		С	NEL:	93	3	20	0		431		92	29

Thursday, May 6, 2021

Thursday, May 6, 2021

	FH	WA-RD-77-108	BHIGHV	VAY NO	DISE P	REDICTI	он мо	DEL			
Scenar Road Nan Road Segme	io: EAC ne: Redlands / nt: s/o Ramor	Av. Ia Exwy.				Project Job Ni	Name: : umber: :	Stratfo 13780	ord Ranch E	East	
SITE	SPECIFIC II	NPUT DATA				N	OISE N	IODE	L INPUT	S	
Highway Data				Si	ite Cor	ditions (	Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	5,540 vehicle	s					Autos:	15		
Peak Hour	Percentage:	8.08%			Me	edium Tru	icks (2 A	(xles)	15		
Peak F	lour Volume:	448 vehicle	s		He	avy Truc	ks (3+ A	(xles)	15		
Ve	hicle Speed:	40 mph		V	ohiclo	Mix					
Near/Far La	ne Distance:	56 feet			Veh	icleType		Dav	Evenina	Niaht	Daily
Site Data						A	utos:	77.5%	5 12.9%	9.69	6 97.42%
Ba	rrier Heiaht:	0.0 feet			М	edium Tr	ucks:	84.8%	6 4.9%	10.39	6 1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tr	ucks:	86.5%	5 2.7%	10.89	6 0.74%
Centerline Di	st. to Barrier:	47.0 feet		N	oise S	ource Ele	evation	s (in f	eet)		
Centerline Dist.	to Observer:	47.0 feet				Autos	: 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	2.1	297			
Observer Height	(Above Pad):	5.0 feet			Hea	v Trucks	: 8.0	006	Grade Adj	iustmer	nt: 0.0
P	ad Elevation:	0.0 feet		_							
Ro	ad Elevation:	0.0 feet		La	ane Eq	uivalent	Distand	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 38.	079			
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 37.	846			
	Right View:	90.0 degre	es		Hea	vy Trucks	: 37.	869			
FHWA Noise Mod	el Calculatior	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Atte	en Be	erm Atten
Autos:	66.51	-4.93		1.67		-1.20		-4.63	0.0	000	0.000
Medium Trucks:	77.72	-22.17		1.71		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	82.99	-26.12		1.71		-1.20		-5.46	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	V 1	Leq Eve	ening	Leq I	Vight		Ldn	(	CNEL
Autos:	62	2.1	61.1		59.3		53.3	5	61.9	9	62.5
Medium Trucks:	56	5.1	55.5		49.1		47.6	;	56.0	)	56.3
Heavy Trucks:	57	7.4	56.9		47.8		49.1		57.4	1	57.6
Venicle Noise:	64	4.1	63.3		60.0		55.4	•	64.0	)	64.4
Centerline Distan	ce to Noise C	ontour (in fee	9	70 de	24	65.0	ID A		60 dBA	5	5 dBA
			I dn'	10 02	274		1	I'	87	5	186
		С	NEL:	20		4	3		93		200
							-				

	FHV	VA-RD-77-108	HIGHWA	AT NO	ISE PR	EDICITI		JEL			
Scenari	io: EAC					Project I	Vame: S	Stratfo	d Ranch I	East	
Road Nam	e: Evans Rd.					Job Nu	mber: 1	3780			
Road Segme	nt: s/o Ramona	a Exwy.									
SITE	SPECIFIC IN	PUT DATA				N	DISE M	ODE	L INPUT	S	
Highway Data				Sit	e Cond	litions (	Hard = 1	10, So	ft = 15)		
Average Daily	Traffic (Adt): 4	8,459 vehicles					A	lutos:	15		
Peak Hour	Percentage:	8.08%			Med	lium Tru	cks (2 A.	xles):	15		
Peak H	lour Volume:	3,915 vehicles			Hea	vy Truci	ks (3+ A.	xles):	15		
Ve	hicle Speed:	45 mph		Ve	hicle N	lix					-
Near/Far La	ne Distance:	80 feet			Vehi	cleType	Ĺ	Day	Evening	Night	Daily
Site Data						A	utos: 7	77.5%	12.9%	9.6%	97.42%
Bai	rrier Height:	0.0 feet			Me	dium Tru	icks: 8	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			н	leavy Tru	icks: 8	36.5%	2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	64.0 feet		No	ise So	urce Ele	vations	(in fe	ef)		
Centerline Dist.	to Observer:	64.0 feet			100 00	Autos	. 0.0	00			
Barrier Distance	to Observer:	0.0 feet			Madiun	n Trucks	. 0.0	07			
Observer Height (	Above Pad):	5.0 feet			Heav	/ Trucks	· 80	06	Grade Ad	iustment	0.0
Pa	ad Elevation:	0.0 feet			, nour,		0.0	00		,	
Roa	ad Elevation:	0.0 feet		La	ne Equ	ivalent	Distanc	e (in f	eet)		
1	Road Grade:	0.0%				Autos	50.2	10			
	Left View:	-90.0 degree	s		Mediun	n Trucks	: 50.0	133			
	Right View:	90.0 degree	s		Heavy	/ Trucks	: 50.0	150			
FHWA Noise Mode	el Calculations	5									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite I	Road	Fresne	e/	Barrier Att	en Ber	m Atten
Autos:	68.46	3.98		-0.13		-1.20	-	4.70	0.0	000	0.000
Medium Trucks:	79.45	-13.26		-0.11		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	84.25	-17.22		-0.11		-1.20	-	5.31	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and I	oarrier a	ttenua	tion)						
VehicleType	Leq Peak Hou	r Leq Day	Le	q Eve	ning	Leq N	light		Ldn	C	NEL
Autos:	71	.1 7	0.1		68.4		62.3		70.9	9	71.
	64	.9 6	64.3		57.9		56.4		64.9	9	65.1
Medium Trucks:	01				56.2		57.4		65.0	3	65.9
Medium Trucks: Heavy Trucks:	65	.7 6	5.2		00.2		-				
Medium Trucks: Heavy Trucks: Vehicle Noise:	65. 72	.9	72.1		69.0		64.3		72.	8	73.3
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	65 72 ce to Noise Co	7 ( 9 : Intour (in feet)	72.1		69.0		64.3		72.	8	73.3
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	65 72 ce to Noise Co	7 (0 9 : Intour (in feet)	72.1	70 dB,	69.0	65 d	64.3 BA	6	72.1 0 dBA	55	73.3 dBA
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	65 72 ce to Noise Co	7 (in feet)	.dn:	70 dB. 99	69.0 A	65 d 21	64.3 BA 3	6	72.1 0 dBA 460	55	73.3 <i>dBA</i> 191

	FH	WA-RD-77-108	HIGH	WAY N	OISE PI	REDICTI	он мо	DEL				
Scenai Road Nan Road Segme	rio: EAC ne: Evans Rd. ent: n/o Street /	A				Project Job Ni	Name: umber:	Stratf 13780	ord Ranch )	Eas	t	
SITE	SPECIFIC II	NPUT DATA				N	OISE I	NOD	EL INPU	TS		
Highway Data				S	ite Con	ditions (	Hard =	10, S	oft = 15)			
Average Daily Peak Hour Peak F Veak F	Traffic (Adt): Percentage: Hour Volume:	41,436 vehicle 8.08% 3,348 vehicle 45 mph	s		Me He	dium Tru avy Truc	icks (2 ) ks (3+ )	Autos Axles) Axles)	: 15 : 15 : 15			
Near/Far La	ane Distance:	80 feet		V	ehicle I	Mix		_			1	
Site Data					ven	icie i ype A	utos:	Day 77.5%	Evening % 12.9%		gnt 9.6%	97.42%
Ba	rrier Height	0.0 feet			Me	edium Tr	ucks:	84.89	6 4.9%	5 1	0.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	Heavy Tr	ucks:	86.59	6 2.7%	5 1	0.8%	0.74%
Centerline D	ist. to Barrier:	64.0 feet		N	oise Sc	ource Ele	evation	s (in i	feet)			-
Centerline Dist.	to Observer:	64.0 feet				Autos	. 0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	. 0.	207				
Observer Height	(Above Pad):	5.0 feet			Heav	y Trucks	. 8.	006	Grade A	djust	ment:	0.0
P	ad Elevation:	0.0 feet			ono Er	uivalant	Distan		feet			
Ro	ad Elevation:	0.0 feet		-	ane Equ	avalent	Distan	ce (m	Teel)			
	Road Grade:	0.0%			Madiu	Autos	50. 50.	210				
	Right View:	-90.0 degre 90.0 degre	es es		Heav	ry Trucks	: 50. : 50.	050				
FHWA Noise Mod	lel Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresr	nel	Barrier A	tten	Beri	m Atten
Autos:	68.46	3.30		-0.13		-1.20		-4.70	(	.000		0.000
Medium Trucks:	79.45	-13.94		-0.11		-1.20		-4.88	0	.000		0.000
Heavy Trucks:	84.25	-17.90		-0.11		-1.20		-5.31	C	.000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	r attenu	ation)							-
VehicleType	Leq Peak Ho	ur Leq Daj	/	Leq Ev	ening	Leq I	Vight		Ldn		CN	JEL
Autos:	70	0.4	69.5		67.7		61.6	6	70	0.3		70.9
Medium Trucks:	64	1.2	63.6		57.3		55.1	7	64	.2		64.4
Heavy Trucks:	65	5.0	64.5		55.5		56.8	5	65	0.1		65.2
venicie ivoise:	14	2.3	/1.5		68.3		63.6	0	14	Z		72.0
Centerline Distan	ce to Noise C	ontour (in fee	9	70 4	RA	65 /	IR A	1	60 dB4		55	dB∆
			I dn'	, U U I	DA	10	12	1	414		35	03
		C	NEI ·	96		20	,∠ )6		414		9	57
		0		50		20					5	

	FH	WA-RD-77-108	HIGHV	VAY NO	DISE P	REDICTI	он мо	DEL				
Scenari	o: EAC					Project	Name:	Stratfo	ord Ranch	East		
Road Nam	e: Ramona E	xwy.				Job Ni	umber:	13780	)			
Road Segmer	nt: w/o Redlar	nds Av.										
SITE	SPECIFIC II	NPUT DATA				N	OISE N	NODE	EL INPU	rs		
Highway Data				Si	ite Cor	nditions (	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	84,487 vehicle	s					Autos	: 15			
Peak Hour	Percentage:	8.08%			Me	edium Tru	icks (2 A	Axles)	: 15			
Peak H	our Volume:	6,827 vehicle	s		He	eavy Truc	ks (3+ A	Axles)	: 15			
Vei	hicle Speed:	55 mph		V	ehicle	Mix						
Near/Far La	ne Distance:	102 feet		-	Veh	icleType		Day	Evening	Nic	ht	Daily
Site Data						A	utos:	77.5%	6 12.9%	9	.6%	97.42%
Bar	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	84.8%	6 4.9%	10	.3%	1.84%
Barrier Type (0-W	all, 1-Berm):	0.0				Heavy Tr	ucks:	86.5%	6 2.7%	10	.8%	0.74%
Centerline Dis	st. to Barrier:	92.0 feet		N	oise S	ource Ele	evation	s (in f	eet)			-
Centerline Dist.	to Observer:	92.0 feet				Autos	: 0.0	000	1			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	. 21	297				
Observer Height (	Above Pad):	5.0 feet			Heat	vy Trucks		006	Grade A	diustr	nent:	0.0
Pa	ad Elevation:	0.0 feet				,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. 0.1	000		.,		
Roa	ad Elevation:	0.0 feet		Lá	ane Eq	uivalent	Distan	ce (in	feet)			
F	Road Grade:	0.0%				Autos	76.	733				
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 76.	618				
	Right View:	90.0 degre	es		Hea	vy Trucks	: 76.	629				
FHWA Noise Mode	el Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier A	tten	Bern	n Atten
Autos:	71.78	5.52		-2.89		-1.20		-4.76	0	000		0.000
Medium Trucks:	82.40	-11.72		-2.88		-1.20		-4.88	0	.000		0.000
Heavy Trucks:	86.40	-15.67		-2.88		-1.20		-5.18	0	.000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)							
VehicleType	Leq Peak Ho	ur Leq Da	/ 1	eq Eve	ening	Leq I	Vight	1	Ldn		CN	IEL
Autos:	73	3.2	72.2		70.5		64.4	l.	73	.0		73.6
Medium Trucks:	66	5.6	66.0		59.7		58.1		66	.6		66.8
Heavy Trucks:	66	5.6	66.1		57.1		58.4	ļ.	66	.7		66.8
Vehicle Noise:	74	4.8	74.0		71.0		66.1	I	74	.7		75.2
Centerline Distance	e to Noise C	ontour (in fee	)									
				70 dE	BA	65 0	1BA		60 dBA		55 0	JBA
			Ldn:	189	) _	40	)6		875		1,8	86
		С	NEL:	203		43	37		942		2,0	)29

Thursday, May 6, 2021

Thursday, May 6, 2021

	FH	WA-RD-77-108	HIGHW	AY NO	DISE P	REDICTIO	ом ис	DEL			
Scena Road Nan Road Segme	rio: EAC ne: Ramona E ent: w/o Evans	xwy. Rd.				Project N Job Nu	Vame: mber:	Stratfo 13780	rd Ranch I	East	
SITE	SPECIFIC I	NPUT DATA				N	DISE N	IODE	L INPUT	S	
Highway Data				S	ite Con	ditions (l	Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	91,578 vehicle	s				,	Autos:	15		
Peak Hour	Percentage:	8.08%			Me	edium Truc	cks (2 A	(xles	15		
Peak H	our Volume:	7,400 vehicle	s		He	avy Truck	ks (3+ A	(xles	15		
Ve	ehicle Speed:	55 mph		V	ehicle	Mix					
Near/Far La	ane Distance:	102 feet		-	Veh	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	6 97.42%
Ba	rrier Height:	0.0 feet			М	edium Tru	icks:	84.8%	4.9%	10.3%	6 1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			1	Heavy Tru	icks:	86.5%	2.7%	10.8%	6 0.74%
Centerline D	ist. to Barrier:	92.0 feet		N	oise So	ource Ele	vation	s (in f	eet)		
Centerline Dist.	to Observer:	92.0 feet				Autos:	: 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2.2	297			
Observer Height	(Above Pad):	5.0 feet			Heav	vy Trucks:	: 8.0	006	Grade Ad	ljustmer	nt: 0.0
P	ad Elevation:	0.0 feet		-							
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent l	Distand	ce (In	feet)		
	Road Grade:	0.0%				Autos:	76.	733			
	Left View:	-90.0 degre	es		Meaiu	m Trucks.	76.	618			
	Right view:	90.0 degre	es		nea	ry mucks.	/0.	029			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Att	en Be	erm Atten
Autos:	71.78	5.87		-2.89		-1.20		-4.76	0.0	000	0.000
Medium Trucks:	82.40	-11.37		-2.88		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-15.32		-2.88		-1.20		-5.18	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	/ L	eq Eve	ening	Leq N	light		Ldn	C	ONEL
Autos:	73	3.6	72.6		70.8		64.8	5	73.4	4	74.0
Medium Trucks:	67	·.0	66.4		60.0		58.5		66.	9	67.2
Heavy Trucks:	67	<sup>7</sup> .0	66.5		57.5		58.7		67.	1	67.2
Vehicle Noise:	75	5.1	74.3		71.3		66.5	•	75.	0	75.5
Centerline Distan	ce to Noise C	ontour (in feet	)								
			ட	70 dE	SA	65 d	ВА		ou dBA	5	5 dBA
			Ldn:	199	,	42	9		924	1	,990
		C	VEL:	214	ł	46	1		994	2	2,141

Scenario	: EAPC					Project	Name:	Stratfo	rd Ranch I	ast	
Road Name	: Redlands A	w.				Job N	umber:	13780			
Road Segmen	t: s/o Ramon	a Exwy.									
SITE S	PECIFIC IN	IPUT DATA				Ν	IOISE I	NODE	L INPUT	S	
Highway Data					Site Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily 1	raffic (Adt):	5,540 vehicle	s					Autos:	15		
Peak Hour I	Percentage:	8.08%			Me	dium Tr	ucks (2 )	Axles):	15		
Peak Ho	our Volume:	448 vehicle	s		He	avy Tru	cks (3+ )	Axles):	15		
Veh	icle Speed:	40 mph		ŀ	Vehicle I	Nix					
Near/Far Lan	e Distance:	56 feet			Veh	cleType		Day	Evening	Night	Daily
Site Data						,	Autos:	77.5%	12.9%	9.6%	97.42%
Ban	rier Height:	0.0 feet			Me	edium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	leavy T	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis	t. to Barrier:	47.0 feet		ŀ	Noise So	urce E	evation	s (in fe	eet)		
Centerline Dist. t	o Observer:	47.0 feet		ŀ		Auto	s: 0.	000	.,		
Barrier Distance t	o Observer:	0.0 feet			Mediui	n Truck	s: 2.	297			
Observer Height (#	bove Pad):	5.0 feet			Heav	y Truck	s: 8.	006	Grade Ad	justment	: 0.0
Pa	Pad Elevation: 0.0 feet					ui velen	Distan	oo (in	fact)		
Roa	a Elevation:	0.0 feet		ł	Lane Eq	Auto	Distan	070	ieel)		
F	loft View	0.0%			Modiu	AULO n Truck	5. JO. c <sup>.</sup> 37	079 946			
	Right View:	-90.0 degree	25		Heav	v Truck	s. 37. s <sup>.</sup> 37	869			
	rugin view.	50.0 degree			mour	,	J. J.	000			
FHWA Noise Mode	Calculation	s								-	
VehicleType	REMEL	Traffic Flow	Di	stance	Finite	Road	Fresr	nel	Barrier Att	en Ber	m Atten
Autos:	66.51	-4.93		1.6	7	-1.20		-4.63	0.0	000	0.00
Meaium Trucks:	77.72	-22.17		1.7	1	-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	82.99	-20.12		1.7	1	-1.20		-5.40	0.0	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barri	ier atter	nuation)			-		Т	
VehicleType	Leq Peak Hou	Ir Leq Day	/	Leq E	vening	Leq	Night		Ldn	C	NEL
Autos:	62	.1	61.1		59.3		53.3	3	61.9	9	62.
Meaium Trucks:	56	.1	55.5		49.1		47.6	5	56.0		56.
Vehicle Noise	5/	.4	00.9 62.2		47.8		49. 55	1	5/.4	+ 1	57.
venicie Noise:	64	,1	03.3		60.0		55.4	+	64.0	J	64.
Centerline Distanc	e to Noise Co	ontour (in feet	)	70	dB A	65	ADA	6	OdBA	55	dBA
			I dn'	70	0 0	00	0		87	1 00	UDM 186
		~	NEL ·		20	,	2		02		200
		0.		4		-			55	4	.00

	FH	WA-RD-77-108	HIGHV	VAY NC	ISE P	REDICT	ION MO	DEL				
Scenai Road Nan Road Segme	rio: EAC ne: Ramona E nt: e/o Evans	xwy. Rd.				Projec Job I	t Name: S Number:	Stratfo 13780	ord Ranch	East		
SITE	SPECIFIC II	NPUT DATA				I	NOISE N	IODE	EL INPUT	S		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: Iour Volume:	80,223 vehicle 8.08% 6,482 vehicle	s		Me He	edium Tr eavy Tru	rucks (2 Å Icks (3+ Å	Autos (xles) (xles)	15 15 15			
Ve	ehicle Speed:	55 mph		Ve	hicle	Mix						
Near/Far La	ne Distance:	102 feet			Veh	nicleType	9	Dav	Evenina	Nic	tht	Daily
Site Data							Autos:	77.5%	6 12.9%	9	.6%	97.42%
Ba	rrier Height	0.0 feet			М	ledium T	rucks:	84.8%	6 4.9%	10	.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0				Heavy 1	rucks:	86.5%	6 2.7%	10	.8%	0.74%
Centerline D	ist. to Barrier:	92.0 feet		No	oise S	ource E	levation	s (in f	eet)			
Centerline Dist.	to Observer:	92.0 feet				Auto	os: 0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.	97				
Observer Height	(Above Pad):	5.0 feet			Hear	vy Truck	(S: 8.(	006	Grade Ad	djustn	nent: (	0.0
P	ad Elevation:	0.0 feet		-								
Ro	ad Elevation:	0.0 feet		La	ine Eq	uivalen	t Distand	e (in	teet)			
	Road Grade:	0.0%				Auto	os: 76.	733				
	Left View:	-90.0 degree	es		Meaiu	m Truck	(S: 76.)	518				
	rtight view.	90.0 degree	55		neu	vy macr		525				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier At	ten	Berm	Atten
Autos:	71.78	5.29		-2.89		-1.20		-4.76	0.	000		0.000
Medium Trucks:	82.40	-11.94		-2.88		-1.20		-4.88	0.	000		0.000
Heavy Trucks:	86.40	-15.90		-2.88		-1.20		-5.18	0.	000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenua	ation)							
VehicleType	Leq Peak Ho	ur Leq Day		Leq Eve	ning	Leq	Night		Ldn		CNE	=L
Autos:	73	5.0	12.0		70.2		64.2		72.	ö.		/3.4
Medium Trucks:	66	5.4	65.8		59.4		57.8		66.	.3		66.6
Vehicle Noise:	74	1.6	73.7		50.9 70.8	1	58.1 65.9	1	06. 74.	.5		74.9
Centerline Distan	ce to Noise C	ontour (in feet	)									
				70 dB	A	65	dBA		60 dBA		55 d	BA
			Ldn:	182		3	92		846		1,82	22
		CI	NEL:	196		4	22		910		1,96	50

	FH\	WA-RD-77-108	HIGHW	AY NO	OISE PF	REDICTIC		DEL			
Scenar	rio: EAPC					Project N	Vame: S	tratfo	rd Ranch I	East	
Road Nan	ne: Evans Rd.					Job Nu	mber: 1	3780			
Road Segme	nt: n/o Street A	4									
SITE	SPECIFIC IN	IPUT DATA				NC	DISE M	ODE	L INPUT	s	
Highway Data				S	ite Con	ditions (l	Hard = :	10, So	oft = 15)		
Average Daily	Traffic (Adt):	41,844 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	8.08%			Me	dium Truc	cks (2 A	xles):	15		
Peak H	lour Volume:	3,381 vehicle	s		He	avy Truck	ks (3+ A	xles):	15		
Ve	ehicle Speed:	45 mph		v	ehicle I	Nix					
Near/Far La	ane Distance:	80 feet		Ē	Vehi	cleType	1	Day	Evening	Night	Daily
Site Data						AL	utos:	7.5%	12.9%	9.6%	97.42%
Ba	rrier Height:	0.0 feet			Me	edium Tru	icks: 8	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	leavy Tru	icks: 8	86.5%	2.7%	10.8%	0.74%
Centerline D	ist. to Barrier:	64.0 feet		N	loise Sc	urce Ele	vations	(in fe	et)		
Centerline Dist.	to Observer:	64.0 feet				Autos:	0.0	00	.,		
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2.2	97			
Observer Height	(Above Pad):	5.0 feet			Heav	y Trucks:	8.0	06	Grade Ad	ljustmen	t: 0.0
P	ad Elevation:	0.0 feet		-							
Ro	ad Elevation:	0.0 feet		L	ane Equ	livalent I	Distanc	e (IN 1	eet)		
	Road Grade:	0.0%				Autos:	50.2	10			
	Left View:	-90.0 degre	es		Mediur	n Trucks:	50.0	33			
	Right View:	90.0 degre	es		Heav	y Trucks:	50.0	50			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresne	e/ .	Barrier Att	ten Be	rm Atten
Autos:	68.46	3.34		-0.13		-1.20	-	4.70	0.0	000	0.000
Medium Trucks:	79.45	-13.90		-0.11		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	84.25	-17.85		-0.11		-1.20	-	5.31	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	nttenu	ation)						
VehicleType	Leq Peak Hou	ur Leq Day	' Le	eq Eve	ening	Leq N	light		Ldn	C	NEL
Autos:	70	).5	69.5		67.7		61.7		70.	3	70.9
Medium Trucks:	64	.2	63.7		57.3		55.8		64.	2	64.4
Heavy Trucks:	65	i.1	64.6		55.6		56.8		65.	2	65.3
Vehicle Noise:	72	2.3	71.5		68.3		63.7		72.	2	72.7
Centerline Distan	ce to Noise Co	ontour (in feet	)								
				70 dl	BA	65 di	BA	6	i0 dBA	55	5 dBA
			Ldn:	90		194	4		417	1	898
		C	NEL:	96		208	В		447	1	964

Thursday, May 6, 2021

Thursday, May 6, 2021

	FH	WA-RD-77-108	BHIGHV	VAY NO	DISE PI	REDICTIC		DEL			
Scenar Road Narr Road Segme	io: EAPC ne: Evans Rd. nt: s/o Ramor	a Exwy.				Project N Job Nu	lame: S mber: 1	stratfo 3780	rd Ranch E	East	
SITE	SPECIFIC II	NPUT DATA				NC	DISE M	ODE	L INPUT	S	
Highway Data				S	ite Con	ditions (H	Hard = 1	10, So	oft = 15)		
Average Daily	Traffic (Adt):	48,867 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	8.08%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	3,948 vehicle	s		He	avy Truck	is (3+ A	xles):	15		
Ve	hicle Speed:	45 mph		V	ohiclo I	Mix					
Near/Far La	ne Distance:	80 feet			Veh	icleType	1	Dav	Evenina	Niaht	Daily
Site Data						AL	itos: 1	77.5%	12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet			M	edium Tru	cks: 8	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tru	icks: 8	36.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	64.0 feet		N	oise So	ource Ele	vations	(in fe	eet)		
Centerline Dist.	to Observer:	64.0 feet				Autos:	0.0	00	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2.2	97			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks:	8.0	06	Grade Ad	iustmen	t: 0.0
Pi	ad Elevation:	0.0 feet		-							
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent L	Distanc	e (in i	feet)		
	Road Grade:	0.0%				Autos:	50.2	10			
	Left View:	-90.0 degre	es		Mediui	m Trucks:	50.0	33			
	Right View:	90.0 degre	es		Heav	y Trucks:	50.0	50			
FHWA Noise Mod	el Calculatior	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	e/	Barrier Att	en Be	rm Atten
Autos:	68.46	4.01		-0.13		-1.20	-	4.70	0.0	000	0.000
Medium Trucks:	79.45	-13.23		-0.11		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	84.25	-17.18		-0.11		-1.20	-	5.31	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	V L	leq Eve	ening	Leq N	light		Ldn	C	NEL
Autos:	71	1.1	70.2		68.4		62.3		71.0	)	71.6
Medium Trucks:	64	4.9	64.3		58.0		56.4		64.9	9	65.1
Heavy Trucks:	6	5.8	65.3		56.2		57.5		65.8	3	66.0
Vehicle Noise:	73	3.0	72.2		69.0		64.3		72.9	9	73.3
Centerline Distant	ce to Noise C	ontour (in fee	9	70.0							
				70 dE	3A	65 dl	BA -	6	DU dBA	55	a BA
		~	Lan:	100	,	215	2		402		990
		C	NEL:	107		230	J		496	1	,069

Scenario	o FAPC					Project N	lame <sup>,</sup> S	tratfo	rd Ranch	ast	
Road Nam	e: Ramona Ex	wv				Job Nu	mber: 1	3780	u realion i		
Road Segmen	t: w/o Evans F	Rd.				000 110	noci. I	5700			
SITE S	SPECIFIC IN	PUT DATA				N	DISE M	ODE		s	
Highway Data				s	ite Con	ditions (I	lard = 1	0, So	ft = 15)		
Average Daily	Traffic (Adt): 9	2,498 vehicles	5				A	utos:	15		
Peak Hour	Percentage:	8.08%			Me	dium Truc	ks (2 A)	(les):	15		
Peak He	our Volume:	7,474 vehicles	3		He	avy Truck	s (3+ A)	des):	15		
Vel	nicle Speed:	55 mph		v	ehicle I	Nix					
Near/Far Lar	ne Distance:	102 feet		-	Vehi	cleType	Ľ	Day	Evening	Night	Daily
Site Data						AL	itos: 7	7.5%	12.9%	9.6%	97.42%
Bar	rier Height:	0.0 feet			Me	edium Tru	cks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	leavy Tru	cks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Dis	t. to Barrier:	92.0 feet		A	loise Sc	urce Ele	vations	(in fe	et)		
Centerline Dist. t	to Observer:	92.0 feet		-		Autos:	0.0	20	- 1		
Barrier Distance t	to Observer:	0.0 feet			Mediur	n Trucks:	2.2	97			
Observer Height (/	Above Pad):	5.0 feet			Heav	y Trucks:	8.0	06	Grade Ad	justment	: 0.0
Pa	d Elevation:	0.0 feet			ono Fa	uivelent l	Viotono	. <i>(in 1</i>	in a fi		
Roa	a Elevation:	0.0 feet		-	ane Ly	Autor	76.7	22	eeŋ		
r	Left View:	-90.0 degree	e.		Mediur	n Trucks	76.6	18			
	Right View:	90.0 degree	is		Heav	y Trucks:	76.6	29			
	5					-					
FHWA Noise Mode	Calculation:	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	1 70	Barrier Att	en Ber	m Atten
Autos: Medium Trucks:	/1./8	5.91		-2.89		-1.20		4.70 199	0.0	000	0.000
Heavy Trucks:	86.40	-15.28		-2.00		-1.20		4.00 5.18	0.0	000	0.000
				2.00		1.20		0.70	0.0		0.000
Unmitigated Noise	Levels (with	but Topo and	barrier a	attenu	ation)	Log	iaht		l dn	0	
Autos	23 Ley Feak 1100	6 Ley Day	72.6	ey Lv	70.9	Ley N	64.8		73.	1 0/	74 (
Medium Trucks:	67	0	6.4		60.1		58.5		67.0	, D	67.2
Heavy Trucks:	67	.0	6.5		57.5		58.7		67.	1	67.2
Vehicle Noise:	75	.2	74.3		71.4		66.5		75.	1	75.5
Centerline Distanc	e to Noise Co	ontour (in feet)	1								
				70 di	BA	65 di	BA	6	0 dBA	55	dBA
			l de l	201	<u> </u>	42'			030	2	003
			Lun.	201	J	434	-		550	2,	000

FF	IWA-RD-77-108 HIGI	HWAY N	NOISE PI	REDICTIO	N MODEL		
Scenario: EAPC				Project N	ame: Stratfo	ord Ranch E	ast
Road Name: Ramona B	xwy.			Job Nur	nber: 13780		
Road Segment: w/o Redla	nds Av.						
SITE SPECIFIC I	NPUT DATA			NO	ISE MODE	L INPUTS	3
Highway Data			Site Con	ditions (H	lard = 10, S	oft = 15)	
Average Daily Traffic (Adt):	85,407 vehicles				Autos:	15	
Peak Hour Percentage:	8.08%		Me	dium Truc	ks (2 Axles):	15	
Peak Hour Volume:	6,901 vehicles		He	avy Trucks	s (3+ Axles):	15	
Vehicle Speed:	55 mph	-	Vehicle	Mix			
Near/Far Lane Distance:	102 feet	-	Veh	icleType	Day	Evening	Night Daily
Site Data				Au	tos: 77.5%	6 12.9%	9.6% 97.42%
Barrier Height:	0.0 feet		М	edium Truc	cks: 84.8%	4.9%	10.3% 1.84%
Barrier Type (0-Wall, 1-Berm):	0.0		1	Heavy Truc	cks: 86.5%	5 2.7%	10.8% 0.74%
Centerline Dist. to Barrier:	92.0 feet	t,	Noise Se	ource Elev	ations (in f	eet)	
Centerline Dist. to Observer:	92.0 feet	-		Autos:	0.000		
Barrier Distance to Observer:	0.0 feet		Mediu	m Trucks:	2.297		
Observer Height (Above Pad):	5.0 feet		Heav	v Trucks:	8.006	Grade Adj	ustment: 0.0
Pad Elevation:	0.0 feet	-					
Road Elevation:	0.0 feet	4	Lane Eq	uivalent D	istance (in	feet)	
Road Grade:	0.0%			Autos:	76.733		
Left View:	-90.0 degrees		Mediu	m Trucks:	76.618		
Right View:	90.0 degrees		Heav	y Trucks:	76.629		
FHWA Noise Model Calculatio	ns						
VehicleType REMEL	Traffic Flow Di	stance	Finite	Road	Fresnel	Barrier Atte	en Berm Atten
Autos: 71.7	8 5.57	-2.8	9	-1.20	-4.76	0.0	00 0.000
Medium Trucks: 82.4	0 -11.67	-2.8	8	-1.20	-4.88	0.0	00 0.000
Heavy Trucks: 86.4	0 -15.63	-2.8	8	-1.20	-5.18	0.0	00 0.000
Unmitigated Noise Levels (with	hout Topo and barri	ier atten	uation)				
VehicleType Leq Peak Ho	our Leq Day	Leq E	vening	Leq Ni	ght	Ldn	CNEL
Autos: 7	3.3 72.3		70.5		64.5	73.1	73.7
Medium Trucks: 6	6.6 66.1		59.7		58.2	66.6	66.9
Heavy Trucks: 6	6.7 66.2		57.2		58.4	66.8	66.9
Vehicle Noise: 7	4.8 74.0		71.0		66.2	74.7	75.2
Centerline Distance to Noise C	Contour (in feet)			1			1
	l	70 (	dBA	65 dE	BA	60 dBA	55 dBA
	Ldn:	19	90	409		882	1,899
	CNEL:	20	)4	440		948	2,043

	FH\	WA-RD-77-108	B HIGH	WAY N	OISE PI	REDICTI		DEL				
Scenario: EAPC					Project Name: Stratford Banch East							
Road Nam	e: Ramona E	xwy.			Job Number: 13780							
Road Segme	nt: e/o Evans	Rd.										
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUT	s		
Highway Data	Highway Data						(Hard =	10, S	oft = 15)		-	
Average Daily	Traffic (Adt):	80,531 vehicle	s					Autos	: 15			
Peak Hour	Peak Hour Percentage: 8.08%					dium Tru	icks (2 A	(xles)	: 15			
Peak H	lour Volume:	6,507 vehicle	s		He	avy Truc	ks (3+ A	xles)	: 15			
Ve	hicle Speed:	55 mph		L.	/ohiclo l	Mix						
Near/Far La	ne Distance:	102 feet		-	Veh	icleType		Dav	Evenina	Nie	aht	Daily
Site Data					V OI II	A	utos:	77.5%	6 12.9%		9.6%	97.42%
Ba	rrier Heiaht <sup>.</sup>	0.0 feet			Me	edium Tr	ucks:	84.8%	6 4.9%	10	).3%	1.84%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	Heavy Tr	ucks:	86.5%	6 2.7%	10	).8%	0.74%
Centerline Di	st. to Barrier:	92.0 feet			loise Sc	ource El	avation	in f	oot)			
Centerline Dist.	to Observer:	92.0 feet		-	10/36 30			000	eeŋ			
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucks	. 0.0	000				
Observer Height (	(Above Pad):	5.0 feet			Heav	n Trucks	· 2.2	106	Grade Ad	diusti	ment <sup>.</sup>	0.0
Pa	ad Elevation:	0.0 feet			near	y mucha	. 0.0	000	0/000/10	ŋuon	non.	0.0
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distanc	e (in	feet)			
	Road Grade:	0.0%			Autos: 76.733							
	Left View:	-90.0 degre	es		Medium Trucks: 76.618							
	Right View:	90.0 degre	es		Heav	y Trucks	: 76.6	629				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresn	el	Barrier At	ten	Bern	n Atten
Autos:	71.78	5.31		-2.89	9	-1.20		-4.76	0.	.000	-	0.000
Medium Trucks:	82.40	-11.93		-2.88	3	-1.20		-4.88	0.	.000		0.000
Heavy Trucks:	86.40	-15.88		-2.88	3	-1.20		-5.18	0.	.000		0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	r attenu	uation)							
VehicleType	Leq Peak Hou	ur Leq Da	V	Leq Ev	ening	Leq I	Vight		Ldn	Τ	CN	IEL
Autos:	73	3.0	72.0		70.3		64.2		72	.8		73.4
Medium Trucks:	66	6.4	65.8		59.4		57.9		66	.4		66.6
Heavy Trucks:	66	6.4	65.9		56.9		58.1		66	.5		66.6
Vehicle Noise:	74	1.6	73.7		70.8		65.9		74	.5		74.9
Centerline Distant	ce to Noise C	ontour (in fee	t)									
				70 d	BA	65 0	1BA		60 dBA		55 c	JBA
			Ldn:	18	3	39	)3		848		1,8	26
		С	NEL:	19	6	42	23		912		1,9	65

Thursday, May 6, 2021

Thursday, May 6, 2021

APPENDIX 8.1:

**ON-SITE TRAFFIC NOISE CALCULATIONS** 





Scenario: Backyard No Wall Road Name: Ramona Expressway Lot No: 177 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE SPECIFIC I	NPUT DATA			1	NOISE MOD	EL INPUTS	5				
Highway Data			Site Cor	nditions	(Hard = 10, S	oft = 15)					
Average Daily Traffic (Adt):	49,000 vehicles	;			Autos	: 15					
Peak Hour Percentage:	10%		Me	edium Tr	rucks (2 Axles)	): 15					
Peak Hour Volume:	4,900 vehicles	;	He	eavy Tru	icks (3+ Axles)	): 15					
Vehicle Speed:	55 mph		Vehicle	Mix							
Near/Far Lane Distance:	102 feet		Veł	nicleType	e Day	Evening	Night	Daily			
Site Data					Autos: 77.5°	% 12.9%	9.6%	97.42%			
Barrier Height:	0.0 feet		N	ledium T	<i>rucks:</i> 84.89	% 4.9%	10.3%	1.84%			
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy T	<i>rucks:</i> 86.5 <sup>4</sup>	% 2.7%	10.8%	0.74%			
Centerline Dist. to Barrier:	220.0 feet		Noiso S	ourco E	lovations (in	faat)					
Centerline Dist. to Observer:	230.0 feet		NUISE 3			ieel)					
Barrier Distance to Observer:	10.0 feet		Madiu	AUIC m Truck	3.000						
Observer Height (Above Pad):	Observer Height (Above Pad): 5.0 feet			M Truck	(S. 2.297	Grade Adii	ustment	0.0			
Pad Elevation:	0.0 feet		nea	vy much		Orade Auj	usunoni.	0.0			
Road Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (in	feet)					
Barrier Elevation: 0.0 feet			Autos: 224.330								
Road Grade: 0.0%			Medium Trucks: 224.291								
			Hea	vy Truck	ks: 224.295						
FHWA Noise Model Calculation	ns										
VehicleType REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atte	n Ber	m Atten			
Autos: 72.73	3 4.08	-9.	88	-1.20	-1.10	0.0	00	0.000			
Medium Trucks: 79.8	5 -13.16	-9.	88	-1.20	-1.15	0.0	00	0.000			
Heavy Trucks: 83.8 <sup>-</sup>	1 -17.11	-9.	88	-1.20	-1.28	0.0	00	0.000			
Unmitigated Noise Levels (wit	hout Topo and I	harrier atte	nuation)								
VehicleType Leg Peak Ho	our Leg Day	Leg	Evening	Leg	Night	Ldn	Cl	VEL			
Autos: 6	5.7 6	, 53.8	62.1		56.0	64.6		65.2			
Medium Trucks: 5	5.6 5	54.1	47.7		46.2	54.7		54.9			
Heavy Trucks: 5	5.6 5	54.2	45.2		46.4	54.8		54.9			
Vehicle Noise: 6	6.5 6	64.7	62.3		56.8	65.4		66.0			
Mitigated Noise Levels (with T	opo and barrier	attenuatio	n)								
VehicleType Leq Peak Ho	our Leq Day	Leq	Evening	Leq	Night	Ldn	Cl	VEL			
Autos: 6	5.7 6	63.8	62.1		56.0	64.6		65.2			
Medium Trucks: 5	5.6 5	54.1	47.7		46.2	54.7		54.9			
Heavy Trucks: 5	5.6 5	54.2	45.2		46.4	54.8		54.9			
Vehicle Noise: 6	6.5 6	64.7	62.3		56.8	65.4		66.0			

Scenario: Backyard No Wall Road Name: Ramona Expressway Lot No: 182 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE SPECIFIC I	NPUT DATA			1	NOISE MOD	EL INPUTS	5				
Highway Data			Site Cor	nditions	(Hard = 10, S	oft = 15)					
Average Daily Traffic (Adt):	49,000 vehicles	;			Autos	: 15					
Peak Hour Percentage:	10%		Me	edium Tr	rucks (2 Axles)	): 15					
Peak Hour Volume:	4,900 vehicles	;	He	eavy Tru	icks (3+ Axles)	): 15					
Vehicle Speed:	55 mph		Vehicle	Mix							
Near/Far Lane Distance:	102 feet		Veł	nicleType	e Day	Evening	Night	Daily			
Site Data					Autos: 77.5°	% 12.9%	9.6%	97.42%			
Barrier Height:	0.0 feet		N	ledium T	<i>rucks:</i> 84.89	% 4.9%	10.3%	1.84%			
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy T	<i>rucks:</i> 86.5 <sup>4</sup>	% 2.7%	10.8%	0.74%			
Centerline Dist. to Barrier:	220.0 feet		Noiso S	ourco E	lovations (in	faat)					
Centerline Dist. to Observer:	230.0 feet		NUISE 3			ieel)					
Barrier Distance to Observer:	10.0 feet		Madiu	AUIC m Truck	3.000						
Observer Height (Above Pad):	Observer Height (Above Pad): 5.0 feet			M Truck	(S. 2.297	Grade Adii	ustment	0.0			
Pad Elevation:	0.0 feet		nea	vy much		Orade Auj	usunoni.	0.0			
Road Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (in	feet)					
Barrier Elevation: 0.0 feet			Autos: 224.330								
Road Grade: 0.0%			Medium Trucks: 224.291								
			Hea	vy Truck	ks: 224.295						
FHWA Noise Model Calculation	ns										
VehicleType REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atte	n Ber	m Atten			
Autos: 72.73	3 4.08	-9.	88	-1.20	-1.10	0.0	00	0.000			
Medium Trucks: 79.8	5 -13.16	-9.	88	-1.20	-1.15	0.0	00	0.000			
Heavy Trucks: 83.8 <sup>-</sup>	1 -17.11	-9.	88	-1.20	-1.28	0.0	00	0.000			
Unmitigated Noise Levels (wit	hout Topo and I	harrier atte	nuation)								
VehicleType Leg Peak Ho	our Leg Day	Leg	Evening	Leg	Night	Ldn	Cl	VEL			
Autos: 6	5.7 6	, 53.8	62.1		56.0	64.6		65.2			
Medium Trucks: 5	5.6 5	54.1	47.7		46.2	54.7		54.9			
Heavy Trucks: 5	5.6 5	54.2	45.2		46.4	54.8		54.9			
Vehicle Noise: 6	6.5 6	64.7	62.3		56.8	65.4		66.0			
Mitigated Noise Levels (with T	opo and barrier	attenuatio	n)								
VehicleType Leq Peak Ho	our Leq Day	Leq	Evening	Leq	Night	Ldn	Cl	VEL			
Autos: 6	5.7 6	63.8	62.1		56.0	64.6		65.2			
Medium Trucks: 5	5.6 5	54.1	47.7		46.2	54.7		54.9			
Heavy Trucks: 5	5.6 5	54.2	45.2		46.4	54.8		54.9			
Vehicle Noise: 6	6.5 6	64.7	62.3		56.8	65.4		66.0			

Scenario: Backyard No Wall Road Name: Evans Road Lot No: 1 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE	SPECIFIC II	NPUT DATA				NOISE MOD	EL INPUTS	;	
Highway Data				Site Co	nditions	(Hard = 10, S	Soft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	5			Autos	s: 15		
Peak Hour	Percentage:	10%		M	edium Ti	rucks (2 Axles	): 15		
Peak H	Hour Volume:	2,870 vehicles	S	H	eavy Tru	icks (3+ Axles	): 15		
Ve	ehicle Speed:	45 mph		Vehicle	Mix				
Near/Far La	ane Distance:	80 feet		Ve	hicleTvp	e Dav	Evenina	Niaht	Dailv
Site Data						Autos: 77.5	% 12.9%	9.6%	97.42%
Ba	rrier Height	0.0 feet		٨	Aedium T	Trucks: 84.8	% 4.9%	10.3%	1.84%
Barrier Type (0-V	Vall. 1-Berm):	0.0			Heavy 7	<i>Trucks:</i> 86.5	% 2.7%	10.8%	0.74%
Centerline Di	ist. to Barrier:	63.0 feet		Noice C		lovetione (in	fa a 4)		
Centerline Dist.	to Observer:	73.0 feet		Noise S	ource E		reet)		
Barrier Distance	to Observer:	10.0 feet		Marti		DS: 0.000			
Observer Height	(Above Pad):	5.0 feet		Mean	IM Truck	KS: 2.297	Grada Adiu	ustmont.	0.0
P	ad Elevation:	0.0 feet		nea	vy much			Journeriu.	0.0
Ro	ad Elevation:	0.0 feet		Lane Ed	quivalen	t Distance (in	n feet)		
Barr	rier Elevation:	0.0 feet			Auto	os: 61.270			
Road Grade: 0.0%		0.0%		Mediu	ım Trucl	ks: 61.125			
				Hea	vy Truck	ks: 61.139			
FHWA Noise Mod	lel Calculation	19							
VehicleType	REMEL	Traffic Flow	Distance	ə Finite	e Road	Fresnel	Barrier Atte	n Bern	n Atten
Autos:	69.34	2.63	-1	.43	-1.20	-0.99	9 0.0	00	0.000
Medium Trucks:	77.62	-14.61	-1	.41	-1.20	-1.15	5 0.0	00	0.000
Heavy Trucks:	82.14	-18.57	-1	.41	-1.20	-1.59	9 0.0	00	0.000
Unmitigated Nois	e l evels (with	out Topo and	harrier att	enuation)					
VehicleType	Leg Peak Ho	ur Leg Day	Leq	Evening	Leg	Night	Ldn	CN	EL
Autos:	69	9.3	67.4	65.7	7	59.6	68.2		68.9
Medium Trucks:	60	0.4	58.9	52.5	5	51.0	59.4		59.7
Heavy Trucks:	6	1.0	59.5	50.5	5	51.8	60.1		60.2
Vehicle Noise:	70	).4	68.6	66.0	)	60.8	69.3		69.9
Mitigated Noise L	evels (with To	ppo and barrie	r attenuati	on)					
VehicleType	Leq Peak Ho	ur Leq Day	' Leq	Evening	Leq	Night	Ldn	CN	EL
Autos:	69	9.3	67.4	65.7	7	59.6	68.2		68.9
Medium Trucks:	60	0.4	58.9	52.5	5	51.0	59.4		59.7
Heavy Trucks:	6	1.0	59.5	50.5	5	51.8	60.1		60.2
Vehicle Noise:	70	0.4	68.6	66.0	)	60.8	69.3		69.9

Scenario: Backyard No Wall Road Name: Evans Road Lot No: 11 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE	SPECIFIC I	NPUT DATA				1	OISE	MODE		S	
Highway Data				S	Site Con	ditions	(Hard	= 10, Se	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tr	ucks (2	Axles):	15		
Peak H	our Volume:	2,870 vehicles	s		He	avy Tru	cks (3+	Axles):	15		
Ve	ehicle Speed:	45 mph		V	ahicla	Mix					
Near/Far La	ane Distance:	80 feet		ŀ	Veh	icleTvn	Ģ	Dav	Evenina	Niaht	Daily
Site Data					1011	lololypy	Autos:	77 5%	6 12.9%	9.6%	97 42%
Ba	wier Heicht.				М	edium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-M	Vall 1-Borm):					Heavy 7	rucks:	86.5%	6 2.7%	10.8%	0.74%
Conterline D	ist to Barriar:	0.0 65.0 foot									
Centerline Dist	to Observer:	75 0 feet		Ν	loise So	ource E	levatio	ns (in f	eet)		
Barrier Distance	to Observer:	10.0 feet				Auto	os:	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediu	m Truck	ís:	2.297			
P	ad Elevation:	0.0 feet			Heav	/y Truck	ís:	8.006	Grade Ad	justment.	: 0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Dista	nce (in	feet)		
Barr	ier Elevation:	0.0 feet			-	Auto	os: 6	3.640	<b>`</b>		
Road Grade:		0.0%			Mediu	m Truck	(s: 6	3.500			
					Heav	y Truck	(s: 6	3.514			
FHWA Noise Mod	el Calculatio	ns			I						-
Vehicle I ype	REMEL	I raffic Flow	Dista	ince	Finite	Road	Fres	snel	Barrier Att	en Ber	m Atten
Autos:	69.34	4 2.63		-1.67		-1.20		-0.99	0.0	000	0.000
Medium Trucks:	77.62	2 -14.61		-1.66	;	-1.20		-1.15	0.0	000	0.000
Heavy Trucks:	82.14	-18.57		-1.66		-1.20		-1.58	0.0	000	0.000
Unmitigated Nois	e Levels (witl	hout Topo and	barrier	attenu	uation)						
VehicleType	Leq Peak Ho	our Leq Day	/ L	Leq Ev	ening	Leq	Night		Ldn	Cl	VEL
Autos:	6	9.1	67.2		65.4		59	.4	68.0	)	68.6
Medium Trucks:	6	0.2	58.6		52.3		50	.7	59.2	2	59.4
Heavy Trucks:	6	0.7	59.3		50.3		51	.5	59.9	9	60.0
Vehicle Noise:	7	0.1	68.3		65.8		60	.5	69.1	1	69.6
Mitigated Noise L	evels (with T	opo and barrie	r attenu	ation)							
VehicleType	Leq Peak Ho	our Leq Day	/ L	Leq Ev	ening	Leq	Night		Ldn	Cl	VEL
Autos:	6	9.1	67.2		65.4		59	.4	68.0	) _	68.6
Medium Trucks:	6	0.2	58.6		52.3		50	.7	59.2	2	59.4
Heavy Trucks:	6	0.7	59.3		50.3		51	.5	59.9	)	60.0
Vehicle Noise:	7	0.1	68.3		65.8		60	.5	69.7	1	69.6
Scenario: Backyard No Wall Road Name: Redlands Avenue Lot No: 172

SITE	SPECIFIC II	NPUT DATA			Ν	IOISE MODE	L INPUTS	
Highway Data				Site Con	ditions	(Hard = 10, S	oft = 15)	
Average Daily	Traffic (Adt):	28,700 vehicles	6			Autos	15	
Peak Hour	Percentage:	10%		Me	dium Tr	ucks (2 Axles)	15	
Peak H	lour Volume:	2,870 vehicles	6	He	avy Tru	cks (3+ Axles)	: 15	
Ve	hicle Speed:	40 mph		Vehicle	Mix			
Near/Far La	ne Distance:	0 feet		Veh	icleTvpe	a Dav	Evenina	Night Daily
Site Data						Autos: 77.5%	6 12.9%	9.6% 97.42%
Ba	rrior Hoight:	0.0 foot		М	edium T	rucks: 84.8%	6 4.9%	10.3% 1.84%
Barrier Type (0-W	/all 1-Rerm) <sup>.</sup>				Heavy T	rucks: 86.5%	6 2.7%	10.8% 0.74%
Centerline Di	st to Barrier	77.0 feet						
Centerline Dist	to Observer:	87.0 feet		Noise Sc	ource E	levations (in f	eet)	
Barrier Distance	to Observer:	10.0 feet			Auto	s: 0.000		
Observer Height	(Above Pad):	5.0 feet		Mediu	m Truck	s: 2.297		
P	ad Elevation:	0.0 feet		Heav	y Truck	s: 8.006	Grade Adjl	istment: 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (in	feet)	
Barr	ier Elevation:	0.0 feet			Auto	s: 87.144		
	Road Grade:	0.0%		Mediu	m Truck	s: 87.042		
				Heav	y Truck	s: 87.052		
FHWA Noise Mod	el Calculation	15						
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atte	n Berm Atten
Autos:	67.36	3.14	-3.	.72	-1.20	-1.01	0.00	0.000
Medium Trucks:	76.31	-14.10	-3.	.71	-1.20	-1.15	0.00	0.000
Heavy Trucks:	81.16	5 -18.05	-3.	.72	-1.20	-1.51	0.00	0.000
Unmitigated Noise	e Levels (with	nout Topo and	barrier atte	enuation)				
VehicleType	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	65	5.6	63.7	61.9		55.9	64.5	65.1
Medium Trucks:	57	7.3	55.8	49.4		47.9	56.3	56.6
Heavy Trucks:	58	8.2	56.8	47.7		49.0	57.3	57.5
Vehicle Noise:	66	6.8	65.0	62.3		57.2	65.8	66.3
Mitigated Noise L	evels (with To	opo and barrier	attenuatio	on)				
VehicleType	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	65	5.6	63.7	61.9		55.9	64.5	65.1
Medium Trucks:	57	7.3	55.8	49.4		47.9	56.3	56.6
Heavy Trucks:	58	8.2	56.8	47.7		49.0	57.3	57.5
Vehicle Noise:	66	6.8	65.0	62.3		57.2	65.8	66.3

Scenario: Backyard No Wall Road Name: Redlands Avenue Lot No: 46

SITE	SPECIFIC II	NPUT DATA			l	NOISE MODE	L INPUTS	
Highway Data				Site Co	onditions	: (Hard = 10, S	oft = 15)	
Average Daily	Traffic (Adt):	28,700 vehicles	6			Autos	: 15	
Peak Hour	Percentage:	10%		٨	/ledium Ti	rucks (2 Axles)	: 15	
Peak H	lour Volume:	2,870 vehicles	5	ŀ	Heavy Tru	icks (3+ Axles).	: 15	
Ve	hicle Speed:	40 mph		Vehicl	e Mix			
Near/Far La	ne Distance:	0 feet		Venier	ehicleTvo	e Dav	Evenina	Night Daily
Site Data						Autos: 77.5%	6 12.9%	9.6% 97.42%
Ba	rrior Hoight:	0.0 foot			Medium T	Trucks: 84.8%	6 4.9%	10.3% 1.84%
Barrier Type (0-W	/all 1-Rerm) <sup>.</sup>				Heavy T	Trucks: 86.5%	6 2.7%	10.8% 0.74%
Centerline Di	ist to Barrier	96.0 feet						
Centerline Dist	to Observer:	106.0 feet		Noise	Source E	levations (in f	eet)	
Barrier Distance	to Observer:	10.0 feet			Auto	os: 0.000		
Observer Height	(Above Pad):	5.0 feet		Med	ium Trucł	ks: 2.297		
P	ad Elevation:	0.0 feet		He	avy Truck	ks: 8.006	Grade Adju	stment: 0.0
Ro	ad Elevation:	0.0 feet		Lane E	quivalen	t Distance (in	feet)	
Barr	ier Elevation:	0.0 feet			Auto	os: 106.118		
	Road Grade:	0.0%		Med	ium Trucł	ks: 106.034		
				He	avy Truck	ks: 106.043		
FHWA Noise Mod	el Calculation	1S						
Vehicle I ype	REMEL	I raffic Flow	Distanc	e   Fini	te Road	Fresnel	Barrier Atte	n Berm Atten
Autos:	67.36	5 3.14	-{	5.01 - 55	-1.20	-1.04	0.00	0.000
Medium Trucks:	76.31	-14.10	-{	o.00	-1.20	-1.15	0.00	0.000
Heavy Trucks:	81.16	-18.05	-5	5.00	-1.20	-1.44	0.00	0.000
Unmitigated Nois	e Levels (with	hout Topo and	barrier at	enuation	)			
VehicleType	Leq Peak Ho	ur Leq Day	r Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	64	4.3	62.4	60	.6	54.6	63.2	63.8
Medium Trucks:	5	6.0	54.5	48	.1	46.6	55.1	55.3
Heavy Trucks:	5	6.9	55.5	46	.4	47.7	56.1	56.2
Vehicle Noise:	6	5.5	63.7	61	.0	55.9	64.5	65.0
Mitigated Noise L	evels (with To	opo and barrier	attenuat	on)				
VehicleType	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	64	4.3	62.4	60	.6	54.6	63.2	63.8
Medium Trucks:	50	6.0	54.5	48	.1	46.6	55.1	55.3
Heavy Trucks:	5	6.9	55.5	46	.4	47.7	56.1	56.2
Vehicle Noise:	6	5.5	63.7	61	.0	55.9	64.5	65.0

Scenario: Backyard No Wall Road Name: Redlands Avenue Lot No: 168

SITE	SPECIFIC II	NPUT DATA				1	NOISE	MODE	L INPUT	S	
Highway Data				S	Site Con	ditions	(Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	5					Autos.	15		
Peak Hour	Percentage:	10%			Me	dium Ti	rucks (2	Axles).	15		
Peak H	lour Volume:	2,870 vehicles	5		Hea	avy Tru	ıcks (3+	Axles).	: 15		
Ve	hicle Speed:	40 mph		V	/ehicle I	Nix					
Near/Far La	ne Distance:	0 feet			Vehi	icleTvp	е	Dav	Evenina	Niaht	Dailv
Site Data						<b>)</b>  -	Autos:	77.5%	6 12.9%	9.6%	97.42%
Ba	rrier Height	0.0 feet			Me	edium 1	Trucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-V	/all. 1-Berm):	0.0			ŀ	leavy T	Trucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline Di	ist. to Barrier:	83.0 feet		٨	laisa Sa		lovatio	na (in f			
Centerline Dist.	to Observer:	93.0 feet		N	10158 30				eel)		
Barrier Distance	to Observer:	10.0 feet			Modium	AUIC m Truck	)S.	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediur	n nucr v Truck	(S.	2.297	Grade Ad	iustmont	· 0 0
P	ad Elevation:	0.0 feet			Tieav	y TTUCK	13.	0.000	Grade Adj	usinen	. 0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivalen	t Dista	nce (in	feet)		
Barr	ier Elevation:	0.0 feet				Auto	os: 9	93.134			
	Road Grade:	0.0%			Mediur	n Truck	ks: (	93.039			
					Heav	y Truck	(s: 9	93.049			
VehicleType		1S Troffic Flow	Diator	noo	Finito	Pood	Ero	nol	Porrior Att	on Por	m Atton
Venicie i ype	REIVIEL 67.26		Distai	100	Fille	1 20	ries	1 02			
Aulos. Medium Trucks:	76 31	-14.10		-4.10		-1.20		-1.02	0.0	000	0.000
Heavy Trucks:	81 16	-14.10		-4.15		-1.20		-1.13	0.0	000	0.000
Theory Trucks.	01.10	-10.00		-4.15		-1.20		-1.40	0.0		0.000
Unmitigated Nois	e Levels (with	hout Topo and	barrier a	attenu	uation)						
Vehicle I ype	Leq Peak Ho	ur Leq Day		eq Ev	ening	Leq	Night		Ldn		NEL 017
Autos:	6	5.1	63.2		61.5		55	.4	64.(	)	64.7
Mealum Trucks:	5	6.9 7 0	55.4		49.0		47	.5	55.8	<i>)</i>	56.1
Heavy Trucks:	5	7.8	56.3		47.3		48	.5	56.9	)	57.0
Venicie inoise:	6	6.4	64.6		61.9		56	.8	65.3	3	65.8
Mitigated Noise L	evels (with To	opo and barrie	r attenua	ation)	)					T	
VehicleType	Leq Peak Ho	ur Leq Day	' L	eq Ev	rening	Leq	Night		Ldn	Cl	NEL
Autos:	6	5.1	63.2		61.5		55	.4	64.0	)	64.7
Medium Trucks:	50	6.9	55.4		49.0		47	.5	55.9	)	56.1
Heavy Trucks:	5	7.8	56.3		47.3		48	.5	56.9	)	57.0
Vehicle Noise:	6	6.4	64.6		61.9		56	.8	65.3	3	65.8

Scenario: Backyard With Wall Road Name: Ramona Expressway Lot No: 177 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE SPECIFIC	<b>INPUT DATA</b>			N	NOISE MOI	DEL INPUT	S	
Highway Data			Site Cor	nditions	(Hard = 10,	Soft = 15)		
Average Daily Traffic (Adt,	): 49,000 vehicle	es			Auto	os: 15		
Peak Hour Percentage	e: 10%		Me	edium Tr	ucks (2 Axle	s <i>):</i> 15		
Peak Hour Volume	e: 4,900 vehicle	es	He	avy Tru	cks (3+ Axle	s <i>):</i> 15		
Vehicle Speed	<i>l:</i> 55 mph		Vehicle	Mix				
Near/Far Lane Distance	e: 102 feet		Veł	icleType	e Day	/ Evening	Night	Daily
Site Data					Autos: 77.	5% 12.9%	9.6%	97.42%
Barrier Heigh	<i>t:</i> 6.0 feet		- M	ledium T	rucks: 84.	8% 4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm	): 0.0			Heavy T	rucks: 86.	5% 2.7%	10.8%	0.74%
Centerline Dist. to Barrie	<i>r:</i> 220.0 feet		Noise S	ource E	lovations (ir	(foot)		
Centerline Dist. to Observe	r: 230.0 feet		140136 3					
Barrier Distance to Observe	r: 10.0 feet		Modiu	Aulo m Truck	3. 0.000	7		
Observer Height (Above Pad	): 5.0 feet		Hear	W Truck	s. 2.29 s <sup>.</sup> 8.00	, 6 Grade Ad	liustment	· 0.0
Pad Elevation	n: 0.0 feet		Tica	vy mach	3. 0.000		juounona	
Road Elevatior	n: 0.0 feet		Lane Eq	uivalen	t Distance (i	in feet)		
Barrier Elevatior	n: 0.0 feet			Auto	s: 224.14	1		
Road Grade	e: 0.0%		Mediu	m Truck	s: 224.08	9		
			Hea	vy Truck	s: 224.06	6		
FHWA Noise Model Calculati	ions							
VehicleType REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Att	ten Ber	m Atten
Autos: 72.	73 4.08	3 -9.	.88	-1.20	0.0	.8 -5.8	800	-8.800
Medium Trucks: 79.	85 -13.16	6 -9.	.88	-1.20	0.0	6 -5.0	600	-8.600
Heavy Trucks: 83.	81 -17.11	I -9.	.87	-1.20	0.0	.4 -5.4	400	-8.400
IInmitiaated Noise Levels (w	ithout Topo and	l harrior atte	nuation)					
VehicleType Leg Peak I	Hour Leg Da	v Lea	Evenina	Lea	Niaht	Ldn	Cl	NEL
Autos:	65.7	63.8	62.1	- 1	56.0	64.0	6	65.2
Medium Trucks:	55.6	54.1	47.8		46.2	54.	7	54.9
Heavy Trucks:	55.6	54.2	45.2		46.4	54.8	8	54.9
Vehicle Noise:	66.5	64.7	62.3		56.9	65.4	4	66.0
Mitigated Noise Levels (with	Topo and barrie	er attenuatio	on)					
VehicleType Leq Peak I	- Hour Leq Da	y Leq	Evening	Leq	Night	Ldn	Cl	NEL
Autos:	59.9	58.0	56.3		50.2	58.8	8	59.4
Medium Trucks:	50.0	48.5	42.2		40.6	49.	1	49.3
Heavy Trucks:	50.2	48.8	39.8		41.0	49.4	4	49.5
Vehicle Noise:	60.8	58.9	56.5		51.1	59.	7	60.2

Scenario: Backyard With Wall Road Name: Ramona Expressway Lot No: 182 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE	SPECIFIC I	NPUT DATA				Ν	IOISE	MODE	L INPUT	S	
Highway Data				Site	e Condi	itions	(Hard =	: 10, S	oft = 15)		
Average Daily	Traffic (Adt):	49,000 vehicles	S					Autos.	15		
Peak Hour	Percentage:	10%			Medi	um Tr	ucks (2	Axles).	15		
Peak H	lour Volume:	4,900 vehicles	3		Heav	/y Tru	cks (3+	Axles).	: 15		
Ve	ehicle Speed:	55 mph		Vel	hicle Mi	x					
Near/Far La	ane Distance:	102 feet			Vehicl	n leTvpe	)	Dav	Evening	Night	Daily
Site Data							Autos:	77.5%	6 12.9%	9.6%	97.42%
Ba	rrier Height	6.0 feet			Med	lium T	rucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-V	Vall 1-Berm)	0.0			He	avy T	rucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline D	ist. to Barrier:	220.0 feet		Na				- /: 6	(a a 4)		
Centerline Dist.	to Observer:	230.0 feet		NO	ise Sou	rce El	evation	is (in f	eet)		
Barrier Distance	to Observer:	10.0 feet				Auto	s:	0.000			
Observer Height	(Above Pad):	5.0 feet		Λ	Viedium	Truck	S:	2.297	Crada Ad	inatroant	
P	ad Elevation:	0.0 feet			Heavy	Iruck	S:	8.006	Grade Adj	ustment	0.0
Ro	ad Elevation:	0.0 feet		Lar	ne Equi	valen	t Distan	ce (in	feet)		
Barr	ier Elevation:	0.0 feet				Auto	s: 22	4.141			
	Road Grade:	0.0%		٨	Medium	Truck	s: 22	4.089			
					Heavy	Truck	s: 22	4.066			
FHWA NOISE Mod		1S Troffic Flow	Diatana	•	Finita D	and	Fron	nol	Dorrior Att	an Dar	m Atton
Venicie i ype	REMEL		Distance		Finite R	1 20	Fres		Barrier Att	en Ber	
Aulos. Modium Trucks:	70.95	5 4.00	-9	1.00 1.00		1.20		0.00	-5.0	500 500	-0.000 8 600
Heavy Trucks.	79.0	-13.10	-8	9.00 9.87		-1.20		0.00	-5.0	100	-8.400
Theavy Trucks.	00.01	-17.11		9.07		-1.20		0.04	-0	+00	-0.400
Unmitigated Nois	e Levels (witl	hout Topo and	barrier att	enua	tion)						
VehicleType	Leq Peak Ho	ur Leq Day	' Leq	Even	ning	Leq	Night	_	Ldn	CI	VEL
Autos:	6	5.7	63.8		62.1		56.	0	64.6	6	65.2
Medium Trucks:	5	5.6	54.1		47.8		46.	2	54.7	7	54.9
Heavy Trucks:	5	5.6	54.2		45.2		46.	4	54.8	3	54.9
Vehicle Noise:	6	6.5	64.7		62.3		56.	9	65.4	1	66.0
Mitigated Noise L	evels (with T	opo and barrie	r attenuati	ion)							
VehicleType	Leq Peak Ho	our Leq Day	' Leq	Even	ning	Leq	Night		Ldn	Cl	VEL
Autos:	5	9.9	58.0		56.3		50.	2	58.8	3	59.4
Medium Trucks:	5	0.0	48.5		42.2		40.	6	49.1	l	49.3
Heavy Trucks:	5	0.2	48.8		39.8		41.	0	49.4	1	49.5
Vehicle Noise:	6	0.8	58.9		56.5		51.	1	59.7	7	60.2

Scenario: Backyard With Wall Road Name: Evans Road Lot No: 1

SITE	SPECIFIC I	NPUT DATA				NOISE N	IODE		S	
Highway Data				Site Co	onditions	; (Hard =	10, Se	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	6			/	Autos:	15		
Peak Hour	Percentage:	10%		٨	ledium T	rucks (2 A	xles):	15		
Peak H	Hour Volume:	2,870 vehicles	6	ŀ	leavy Tru	ıcks (3+ A	xles):	15		
Ve	ehicle Speed:	45 mph		Vehicl	Mix					
Near/Far La	ane Distance:	80 feet		Venici	hicleTvn	ρ	Dav	Evenina	Niaht	Daily
Site Data					,	Autos:	77 5%	6 12.9%	9.6%	97 42%
Ba	wier Usight	C O fact		_	Medium	Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-V		<b>6.0</b> leet			Heavy	Trucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline D	ist to Barrier	0.0 63.0 feet			,					
Centerline Dist	to Observer	73.0 feet		Noise	Source E	levations	s (in f	eet)		
Barrier Distance	to Observer:	10.0 feet			Auto	os: 0	.000			
Observer Height	(Above Pad):	5.0 feet		Med	ium Trucl	ks: 2	.297	<b>.</b>		
P	ad Elevation:	0.0 feet		He	avy Trucl	ks: 8	.006	Grade Ad	justment	: 0.0
Ro	ad Elevation:	0.0 feet		Lane E	quivaler	t Distand	e (in	feet)		
Barr	rier Elevation:	0.0 feet			Auto	os: 59	.091			
	Road Grade:	0.0%		Med	ium Trucl	ks: 58	.863			
				He	avy Trucl	ks: 58	.764			
FHWA Noise Mod	lel Calculatior	1S								-
Vehicle I ype	REMEL	Traffic Flow	Distanc	e Fini	te Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	69.34	2.63	-1	.19	-1.20		0.16	-6.4	180	-9.480
Medium Trucks:	77.62	2 -14.61	-1	.17	-1.20		0.11	-6.(	080	-9.080
Heavy Trucks:	82.14	-18.57	-1	.16	-1.20		0.02	-5.2	200	-8.200
Unmitigated Nois	e Levels (with	hout Topo and	barrier att	enuation	)					
VehicleType	Leq Peak Ho	ur Leq Day	' Leq	Evening	Leq	ı Night		Ldn	Cl	NEL
Autos:	6	9.6	67.7	65	.9	59.9		68.5	5	69.1
Medium Trucks:	6	0.6	59.1	52	.8	51.2		59.7	7	59.9
Heavy Trucks:	6	1.2	59.8	50	.8	52.0		60.4	1	60.5
Vehicle Noise:	7	0.6	68.8	66	.2	61.0	)	69.6	6	70.1
Mitigated Noise L	evels (with To	opo and barrie	r attenuati	on)						
VehicleType	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq	ı Night		Ldn	Cl	NEL
Autos:	6	3.1	61.2	59	.4	53.4		62.0	)	62.6
Medium Trucks:	5	4.6	53.1	46	.7	45.2		53.6	5	53.8
Heavy Trucks:	5	6.0	54.6	45	.6	46.8		55.2	2	55.3
Vehicle Noise:	6	4.4	62.6	59	.8	54.8		63.3	3	63.8

Scenario: Backyard With Wall Road Name: Evans Road Lot No: 11

SITE		NPUT DATA			1	NOISE MODE	L INPUTS	
Highway Data				Site Con	ditions	(Hard = 10, S	oft = 15)	
Average Daily	Traffic (Adt):	28,700 vehicles				Autos	: 15	
Peak Hour	Percentage:	10%		Me	dium Tr	rucks (2 Axles).	: 15	
Peak F	lour Volume:	2,870 vehicles		He	avy Tru	icks (3+ Axles)	: 15	
Ve	hicle Speed:	45 mph		Vehicle	Mix			
Near/Far La	ne Distance:	80 feet		Veh	icleTvp	e Dav	Evenina	Night Daily
Site Data						Autos: 77.5%	6 12.9%	9.6% 97.42%
Ba	rrier Height:	6.0 feet		М	edium 1	rucks: 84.8%	6 4.9%	10.3% 1.84%
Barrier Type (0-W	/all_1-Rerm) <sup>.</sup>	0.0			Heavy T	rucks: 86.5%	6 2.7%	10.8% 0.74%
Centerline Di	st. to Barrier:	65.0 feet					·	
Centerline Dist.	to Observer:	75.0 feet		Noise Se	ource E	levations (in f	eet)	
Barrier Distance	to Observer:	10.0 feet			Auto	os: 0.000		
Observer Height	(Above Pad):	5.0 feet		Mediu	m Truck	(s: 2.297	Crada Adiu	atmont: 0.0
P	ad Elevation:	0.0 feet		Heav	/у ттиск	(S. 8.006	Grade Auju	Sumerii. 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (in	feet)	
Barr	ier Elevation:	0.0 feet			Auto	os: 61.635		
	Road Grade:	0.0%		Mediu	m Truck	ks: 61.418		
				Heav	/y Truck	ks: 61.324		
EUWA Naisa Mad								
VehicleType		Traffic Flow	Distanco	Einito	Pood	Fragnal	Parriar Atta	n Porm Atton
Autos	60 34	2 63		7 7	-1 20	0.16		$\frac{1}{20} = \frac{1}{20} \frac{1}{20} \frac{1}{20} = \frac{1}{20} \frac{1}{2$
Aulos. Medium Trucks:	77 62	-14 61	-1. _1	47 ЛЛ	-1.20	0.10	-0.40	-9.480
Heavy Trucks:	82 14	-18 57	-1	43 43	-1 20	0.10	-5.20	0 -8 200
Theory Trucks.	02.14	10.07			1.20	0.02	0.20	0.200
Unmitigated Noise	e Levels (with	out Topo and b	parrier atte	nuation)		• • • •		
Vehicle I ype	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq	Night	Lan	CNEL
Autos:	65	9.3 6	57.4	65.6		59.6	68.2	68.8
Medium Trucks:	60	).4 5	98.9 •	52.5		51.0	59.4	59.6
Heavy Trucks:	60	).9 5	9.5	50.5		51.7	60.1	60.2
Vehicle Noise:	/(	).4 6	68.6	66.0		60.7	69.3	69.8
Mitigated Noise L	evels (with To	po and barrier	attenuatio	n)				
VehicleType	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	62	2.8 6	60.9	59.2		53.1	61.7	62.3
Medium Trucks:	54	1.4 5	52.9	46.5		45.0	53.4	53.6
Heavy Trucks:	55	5.7 5	54.3	45.3		46.5	54.9	55.0
Vehicle Noise:	64	4.1 6	52.3	59.6		54.5	63.0	63.5

Scenario: Backyard With Wall Road Name: Redlands Avenue Lot No: 172

SITE	SPECIFIC II	NPUT DATA				NOISE M	ODE		5	
Highway Data				Site C	onditions	s (Hard = 1	0, So	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	5			Au	utos:	15		
Peak Hour	Percentage:	10%			Medium T	rucks (2 Ax	des):	15		
Peak H	lour Volume:	2,870 vehicles	5		Heavy Tru	ucks (3+ Ax	des):	15		
Ve	hicle Speed:	40 mph		Vehic	e Mix					
Near/Far La	ne Distance:	0 feet		V	ehicleTvn	e r	Dav	Evenina	Niaht	Dailv
Site Data				_		Autos: 7		12.9%	9.6%	97,42%
Ba	rrior Hoight:	6 0 foot			Medium	Trucks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-W	/all 1-Berm)				Heavy	Trucks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Di	st. to Barrier	77.0 feet		N/ -	, 	-1	(*** *	- ()		
Centerline Dist.	to Observer:	87.0 feet		Noise	Source E	evations	(In fe	et)		
Barrier Distance	to Observer:	10.0 feet			Auto	os: 0.0	000			
Observer Height (	Above Pad):	5.0 feet		Med	lium Truc	ks: 2.2	297	Crada Adi	ustmont	
Pa	ad Elevation:	0.0 feet		He	avy Truc	ks: 8.0	006	Grade Adj	ustment.	0.0
Roa	ad Elevation:	0.0 feet		Lane	Equivaler	nt Distance	e (in f	eet)		
Barri	ier Elevation:	0.0 feet			Auto	os: 87.2	283			
	Road Grade:	0.0%		Med	lium Truc	ks: 87.1	139			
				He	avy Truc	ks: 87.0	076			
rnvvA Noise Mode		IS Traffic Elow	Dictors		ito Dood	Eroono	,	Parriar Att	n Dor	mAtton
Venicie i ype	REIVIEL		Distanc	2 7 7 111		Freshe	1			
Aulos: Madium Trucka	07.30 76.21	o 3.14 _1/10		3.13 3.72	-1.20		). 14 ) //0	-0.3	000	-9.320 _8 000
Heavy Trucks.	81 16	-14.10		3 72	-1.20 -1.20	· · · · · ·	).09 ) ()?	-5.8	200	-0.900
	01.10	-10.05		0.72	-1.20	L L	J.UZ	-0.2	.00	-0.200
Unmitigated Noise	e Levels (with	nout Topo and	barrier at	tenuatio	<b>)</b>					
VehicleType	Leq Peak Ho	ur Leq Day	Leo	y Evening	Lec	Night		Ldn	CI	VEL
Autos:	65	5.6 (	53.7	61	.9	55.8		64.5	)	65.1
Medium Trucks:	57	7.3	5.8	49	.4	47.9		56.3	5	56.6
Heavy Trucks:	58	3.2	56.8	47	./	49.0		57.3	5	57.5
Vehicle Noise:	66	5.8	55.0	62	.3	57.2		65.8	5	66.3
Mitigated Noise Le	evels (with To	opo and barrier	attenuat	ion)						
VehicleType	Leq Peak Ho	ur Leq Day	Leo	q Evening	Lec	n Night		Ldn	Cl	VEL
Autos:	59	9.2	57.3	55	.6	49.5		58.1		58.8
Medium Trucks:	5	1.4 4	49.9	43	.5	42.0		50.4	ŀ	50.7
Heavy Trucks:	53	3.0	51.6	42	.5	43.8		52.1		52.3
Vehicle Noise:	60	0.7	58.9	56	0.0	51.1		59.7	,	60.2

Scenario: Backyard With Wall Road Name: Redlands Avenue Lot No: 46

SITE SPECIFIC I	NPUT DATA			1	NOISE MO	DEL INPUT	S	
Highway Data			Site Cor	nditions	(Hard = 10,	Soft = 15)		
Average Daily Traffic (Adt):	28,700 vehicles				Aut	os: 15		
Peak Hour Percentage:	10%		Me	edium Tr	ucks (2 Axle	es <i>):</i> 15		
Peak Hour Volume:	2,870 vehicles		He	eavy Tru	cks (3+ Axle	es <i>):</i> 15		
Vehicle Speed:	40 mph		Vehicle	Mix				
Near/Far Lane Distance:	0 feet		Vel	nicleTvoe	e Da	v Evenina	Niaht	Daily
Site Data					Autos: 77	5% 12.9%	9.6%	97.42%
Barrior Hoight:	6 0 foot		N	ledium T	rucks: 84	.8% 4.9%	10.3%	1.84%
Barrier Type (0-Wall 1-Berm):	0.0			Heavy T	rucks: 86	.5% 2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	96.0 feet							
Centerline Dist. to Observer:	106.0 feet		Noise S	ource E	levations (ii	n feet)		
Barrier Distance to Observer:	10.0 feet			Auto	os: 0.00	0		
Observer Height (Above Pad):	5.0 feet		Mediu	m Truck	(s: 2.29		r	0.0
Pad Elevation:	0.0 feet		Hea	vy Truck	ks: 8.00	6 Grade Ad	ijustment.	: 0.0
Road Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (	in feet)		
Barrier Elevation:	0.0 feet			Auto	os: 106.23	7		
Road Grade:	0.0%		Mediu	m Truck	.s: 106.12	:1		
			Hea	vy Truck	s: 106.07	'1		
FHWA Noise Model Calculatio	ns	<u> </u>						
VehicleType REMEL	I raffic Flow	Distance	e Finite	Road	Fresnel	Barrier At	ten Ber	m Atten
Autos: 67.3	6 3.14	-5	0.01	-1.20	0.	12 -6.	160	-9.160
Medium Trucks: 76.3	1 -14.10	-5	.01	-1.20	0.0	08 -5.	800	-8.800
Heavy Trucks: 81.1	6 -18.05	-5	.00	-1.20	0.0	03 -5.	300	-8.300
Unmitigated Noise Levels (wit	hout Topo and b	oarrier att	enuation)					
VehicleType Leq Peak He	our Leq Day	Leq	Evening	Leq	Night	Ldn	Cl	VEL
Autos: 6	64.3 6	2.4	60.6	i	54.6	63.	2	63.8
Medium Trucks: 5	6.0 5	4.5	48.1		46.6	55.	1	55.3
Heavy Trucks:5	6.9 5	5.5	46.4		47.7	56.	0	56.2
Vehicle Noise: 6	5.5 6	3.7	61.0		55.9	64.	5	65.0
Mitigated Noise Levels (with T	opo and barrier	attenuati	on)					
VehicleType Leq Peak He	our Leq Day	Leq	Evening	Leq	Night	Ldn	Cl	VEL
Autos: 5	58.1 5	6.2	54.5		48.4	57.	0	57.6
Medium Trucks: 5	60.2 4	8.7	42.3		40.8	49.	3	49.5
Heavy Trucks: 5	51.6 5	0.2	41.1		42.4	50.	7	50.9
Vehicle Noise: 5	59.5 5	7.8	54.9		49.9	58.	5	59.0

Scenario: Backyard With Wall Road Name: Redlands Avenue Lot No: 168 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE SPECIFIC I		NOISE MODEL INPUTS					
Highway Data			Site Cor	nditions	(Hard = 10,	Soft = 15)	
Average Daily Traffic (Adt):	28,700 vehicles				Auto	s: 15	
Peak Hour Percentage:	10%		Me	edium Tr	ucks (2 Axles	s <i>):</i> 15	
Peak Hour Volume:	2,870 vehicles		He	avy Tru	cks (3+ Axles	s <i>):</i> 15	
Vehicle Speed:	40 mph		Vehicle	Mix			
Near/Far Lane Distance:	0 feet		Veh	icleType	e Dav	Evening	Night Daily
Site Data					Autos: 77.5	5% 12.9%	9.6% 97.42%
Barrier Height:	6.0 feet		M	ledium T	rucks: 84.8	3% 4.9%	10.3% 1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy T	rucks: 86.5	5% 2.7%	10.8% 0.74%
Centerline Dist. to Barrier:	83.0 feet		Noice C		lovetione (in	fa a 4)	
Centerline Dist. to Observer:	93.0 feet		Noise Se	ource E		reet)	
Barrier Distance to Observer:	10.0 feet			AUto	s: 0.000	) 7	
Observer Height (Above Pad):	5.0 feet		Mediu	m Truck	S: 2.297	Crada Adi	uctmont: 0.0
Pad Elevation:	0.0 feet		Hea	у тиск	S: 8.000	Grade Auj	usimenii. 0.0
Road Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (i	n feet)	
Barrier Elevation:	0.0 feet			Auto	s: 93.266	5	
Road Grade:	0.0%		Mediu	m Truck	rs: 93.132	2	
			Hear	vy Truck	rs: 93.074	ŀ	
FHWA Noise Model Calculatio	ns Troffic Flow	Distance	Finite	Deed	Freenal	Dorrior Atta	
Venicie i ype REMEL		Distance	Finite	Road	Fresnei	Barrier Atte	en Berm Atten
Autos: 67.3	0 3.14 1 14.10	-4.	10	-1.20	0.1	3 -6.2 0 5 0	40 -9.240
Hoovy Trucks: 91.1	1 -14.10 6 19.05	-4.	10	-1.20	0.0	9 - 5.9 ว 5.2	00 -8.900
Theavy Trucks. 81.1	-16.05	-4.	15	-1.20	0.0	2 -5.2	-0.200
Unmitigated Noise Levels (wit	hout Topo and l	barrier atte	enuation)	I			
VehicleType Leq Peak He	our Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos: 6	65.1 6	63.2	61.5		55.4	64.0	64.6
Medium Trucks: 5	6.9 5	55.4	49.0		47.4	55.9	56.1
Heavy Trucks: 5	57.8 5	56.3	47.3		48.5	56.9	57.0
Vehicle Noise: 6	6.4 6	64.6	61.9		56.8	65.3	65.8
Mitigated Noise Levels (with T	opo and barrier	attenuatio	on)				
VehicleType Leq Peak He	our Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos: 5	68.9 5	57.0	55.2	•	49.2	57.8	58.4
Medium Trucks: 5	51.0 4	19.5	43.1		41.5	50.0	50.2
Heavy Trucks: 5	52.6 5	51.1	42.1		43.3	51.7	51.8
Vehicle Noise:	60.3 5	58.6	55.7		50.7	59.3	59.8

Scenario: First Floor With Wall Road Name: Ramona Expressway Lot No: 177 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE	SPECIFIC I	NPUT DATA			1	NOISE MOD	EL INPUTS	5	
Highway Data				Site Col	nditions	(Hard = 10, \$	Soft = 15)		
Average Daily	Traffic (Adt):	49,000 vehicles	S			Auto	s: 15		
Peak Hour	Percentage:	10%		M	ədium Tr	ucks (2 Axles	): 15		
Peak I	Hour Volume:	4,900 vehicles	S	H	eavy Tru	cks (3+ Axles	<i>):</i> 15		
Ve	ehicle Speed:	55 mph		Vehicle	Mix				
Near/Far La	ane Distance:	102 feet		Vel	nicleTvpe	e Dav	Evenina	Niaht	Dailv
Site Data						Autos: 77.5	% 12.9%	9.6%	97.42%
Ba	rrier Height	6.0 feet		٨	ledium T	rucks: 84.8	% 4.9%	10.3%	1.84%
Barrier Type (0-V	Vall, 1-Berm):	0.0			Heavy T	<i>rucks:</i> 86.5	% 2.7%	10.8%	0.74%
Centerline D	ist. to Barrier:	220.0 feet		Noiso S	ourco E	lovations /in	foot		
Centerline Dist.	to Observer:	240.0 feet		NOISE 3			ieel)		
Barrier Distance	to Observer:	20.0 feet		Madi	Aulo m Truck	0.000			
Observer Height	(Above Pad):	5.0 feet		Medic	MIT TTUCK	2.297	Grada Adi	ustmont	. 0 0
P	ad Elevation:	0.0 feet		nea	vy much	.3. 0.000	Grade Auj	ustinent.	0.0
Ro	ad Elevation:	0.0 feet		Lane Ec	uivalen	t Distance (ii	n feet)		
Barı	rier Elevation:	0.0 feet			Auto	os: 234.116			
	Road Grade:	0.0%		Mediu	ım Truck	(s: 234.064			
				Hea	vy Truck	rs: 234.041			
EUWA Noise Mee	lal Calaulatia								
VehicleType		Traffic Flow	Distance	Finite	Road	Fresnel	Rarrier Atte	n Ber	m ∆tten
Autos	72 73	3 4.08	-10	, , , , , , , , , , , , , , , , , , ,	-1 20		5 -5 5		-8 500
Medium Trucks	79.85	5 -13.16	-10	16	-1 20	0.04	5 0.0 4 -5.4	.00	-8 400
Heavy Trucks:	83.8	1 -17.11	-10	.16	-1.20	0.0	<i>.</i> -5.1	00	-8.100
, Un mitiaco de Noio		have Tana and	have at						
	e Leveis (witi		barrier att	Evoning	100	Night	l dn	CI	
	Ley Feak I C	5 4	63 5	61 £		55 7	64 3	Ci	65 0
Medium Trucks	9 . 5	53	53.8	01.0 47 ه		45.9	54 A		54.6
Heavy Trucks:	5	5.3	53.9	44 9		46 1	54 5		54 6
Vehicle Noise:	6	6.2	64.4	62.0	)	56.6	65.2		65.7
Witigated Noise L	evers (with 10			on) Evonina	100	Night	l dn	CI	
Δυτοο	Ley i eak IIC	aa Ley Day	58 0	56 C		50.2	58 8		50 5
Aulos. Medium Trucks	Л	9.9	48 4	10.0	,	40 5	0.00 ۸۵ ۸		10.2
Heavy Trucks.	4 . 5	0.2	-0. <del>-</del> 48.8	42.1 20 s	1	40.0 41 0	49.0 10 1		49.Z 10 5
Vehicle Noise		0.2	59.0	59.0	;	51.0	43.4 50.7		49.0
venicie noise:	6	0.0	00.9	50.5	)	51.1	59.7		60.2

Scenario: First Floor With Wall Road Name: Ramona Expressway Lot No: 182 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE SPECIFIC II	NPUT DATA				<u>IOISE M</u> O	<u>DEL INP</u> U	TS	
Highway Data			Site Con	nditions	(Hard = 10,	Soft = 15)		
Average Daily Traffic (Adt):	49,000 vehicle	S			Aut	os: 15		
Peak Hour Percentage:	10%		Ме	edium Tr	ucks (2 Axle	es <i>):</i> 15		
Peak Hour Volume:	4,900 vehicle	S	He	avy Tru	cks (3+ Axle	es <i>):</i> 15		
Vehicle Speed:	55 mph		Vehicle	Mix				
Near/Far Lane Distance:	102 feet		Veh	icleType	e Da	y Evenin	g Night	Daily
Site Data					Autos: 77	.5% 12.99	% 9.6%	97.42%
Barrier Height:	6.0 feet		M	ledium T	rucks: 84	.8% 4.99	% 10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy T	rucks: 86	.5% 2.79	% 10.8%	0.74%
Centerline Dist. to Barrier:	220.0 feet		Noise Su	ource E	lovations (i	n foot)		
Centerline Dist. to Observer:	240.0 feet		140136 30					
Barrier Distance to Observer:	20.0 feet		Modiu	m Truck	S. 0.00			
Observer Height (Above Pad):	5.0 feet		Heav	M Truck	s. 2.20 s <sup>.</sup> 8.00	ne Grade A	Adiustment	+ 0 0
Pad Elevation:	0.0 feet		near	ly much	3. 0.00		lajaounom	
Road Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (	(in feet)		
Barrier Elevation:	0.0 feet			Auto	s: 234.11	6		
Road Grade:	0.0%		Mediu	m Truck	rs: 234.06	64		
			Heav	vy Truck	s: 234.04	1		
FHWA Noise Model Calculation	15							
VehicleType REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier A	Atten Ber	rm Atten
Autos: 72.73	3 4.08	-10.	16	-1.20	0.	05 -	5.500	-8.500
Medium Trucks: 79.85	5 -13.16	-10.	16	-1.20	0.	04 -:	5.400	-8.400
Heavy Trucks: 83.81	-17.11	-10.	16	-1.20	0.	01 -	5.100	-8.100
Unmitigated Noise Levels (with	hout Topo and	harrier atte	nuation)					
VehicleType Leg Peak Ho	ur Lea Dav	Lea	Evenina	Lea	Niaht	Ldn	C	NEL
Autos: 6	5.4	63.5	61.8	1	55.7	64	4.3	65.0
Medium Trucks: 55	5.3	53.8	47.5		45.9	54	4.4	54.6
Heavy Trucks: 55	5.3	53.9	44.9		46.1	54	4.5	54.6
Vehicle Noise: 6	6.2	64.4	62.0		56.6	6	5.2	65.7
Mitigated Noise Levels (with To	opo and barrie	r attenuatio	on)					
VehicleType Leq Peak Ho	ur Leq Day	/ Leq	Evening	Leq	Night	Ldn	C	NEL
Autos: 59	9.9	58.0	56.3		50.2	5	8.8	59.5
Medium Trucks: 4	9.9	48.4	42.1		40.5	49	9.0	49.2
Heavy Trucks: 50	0.2	48.8	39.8		41.0	4	9.4	49.5
Vehicle Noise: 6	0.8	58.9	56.5		51.1	5	9.7	60.2

Scenario: First Floor With Wall Road Name: Evans Road Lot No: 1

SITE	SPECIFIC II	NPUT DATA					IODE		S	
Highway Data				Site Cor	nditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	5			A	Autos:	15		
Peak Hour	Percentage:	10%		Me	edium Ti	rucks (2 A	xles):	15		
Peak H	our Volume:	2,870 vehicles	S	He	avy Tru	ıcks (3+ A	xles):	15		
Ve	ehicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ane Distance:	80 feet		Veh	nicleTvn	ρ	Dav	Evenina	Niaht	Daily
Site Data					liololyp	Autos:	77 5%	6 12.9%	9.6%	97 42%
Ba	wier Usight	C Q fact		M	ledium T	Frucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-M	Vall 1-Borm):	<b>6.0</b> leet			Heavy T	Trucks:	86.5%	6 2.7%	10.8%	0.74%
Contorlino D	ist to Barrier.	0.0 63.0 foot								
Centerline Dist	to Observer	83.0 feet		Noise S	ource E	levations	s (in fe	eet)		
Barrier Distance	to Observer:	20.0 feet			Auto	os: 0	.000			
Observer Height	(Above Pad):	5.0 feet		Mediu	m Truck	ks: 2	.297	~ · · ·		
P	ad Elevation:	0.0 feet		Hea	vy Trucł	ks: 8	.006	Grade Ad	iustment:	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalen	t Distanc	e (in	feet)		
Barr	ier Elevation:	0.0 feet			Auto	os: 69	.066			
	Road Grade:	0.0%		Mediu	m Truck	ks: 68	.838			
				Hea	vy Trucł	ks: 68	.739			
FHWA Noise Mod	el Calculation									
Vehicle I ype	REMEL	I raffic Flow	Distance		Road	Fresh	el	Barrier Atte	en Ber	m Atten
Autos:	69.34	2.63	-2.	.21	-1.20		0.16	-6.4	180	-9.480
Medium Trucks:	//.62	-14.61	-2	.19	-1.20		0.09	-5.9	900	-8.900
	02.14	-18.57	-2.	.18	-1.20		0.00	-4.9	900	-7.900
Unmitigated Nois	e Levels (with	nout Topo and	barrier atte	enuation)	1				П	
VehicleType	Leq Peak Ho	ur Leq Day	' Leq	Evening	Leq	Night		Ldn	Cl	VEL
Autos:	68	3.6	66.7	64.9		58.8		67.5	5	68.1
Medium Trucks:	59	9.6	58.1	51.8		50.2		58.7	7	58.9
Heavy Trucks:	60	0.2	58.8	49.7		51.0		59.3	}	59.5
Vehicle Noise:	69	9.6	67.8	65.2		60.0		68.6	6	69.1
Mitigated Noise L	evels (with To	opo and barrie	r attenuatio	on)						
VehicleType	Leq Peak Ho	ur Leq Day	' Leq	Evening	Leq	Night		Ldn	Cl	VEL
Autos:	62	2.1	60.2	58.4		52.4		61.0	)	61.6
Medium Trucks:	53	3.7	52.2	45.9		44.3		52.8	3	53.0
Heavy Trucks:	55	5.3	53.9	44.8		46.1		54.4	<u>ا</u>	54.6
Vehicle Noise:	63	3.4	61.6	58.8		53.8		62.4	ł	62.9

Scenario: First Floor With Wall Road Name: Evans Road Lot No: 11

SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS						
Highway Data				Sit	te Con	ditions	(Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	6					Autos	: 15		
Peak Hour	Percentage:	10%			Me	dium Tı	rucks (2	Axles)	: 15		
Peak F	lour Volume:	2,870 vehicles	6		He	avy Tru	ıcks (3+	Axles)	: 15		
Ve	hicle Speed:	45 mph		Ve	hicle l	Mix					
Near/Far La	ne Distance:	80 feet			Veh	icleTvp	e	Dav	Evenina	Niaht	Dailv
Site Data							- Autos:	77.5%	6 12.9%	9.6%	97.42%
Ba	rrior Hoiaht:	6 0 feet			M	edium 1	Trucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	Heavy T	Trucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	65.0 feet		No	ine Ce		'lavatia		(a.a.4)		
Centerline Dist.	to Observer:	85.0 feet		NO	ise Sc		levatio	$\frac{ns}{0.000}$	eet)		
Barrier Distance	to Observer:	20.0 feet			Madiu	AUIC AUIC	os:	0.000			
Observer Height	(Above Pad):	5.0 feet			иеанн Цору	n Truck	(S.	2.297	Grade Ad	iustment	· 0 0
P	ad Elevation:	0.0 feet			neav	y mucr	13.	0.000	Orade Auj	usineni	. 0.0
Ro	ad Elevation:	0.0 feet		La	ne Eq	uivalen	t Dista	nce (in	feet)		
Barr	ier Elevation:	0.0 feet				Auto	os:	71.610			
	Road Grade:	0.0%			Mediui	m Truck	(S:	71.393			
					Heav	y Truck	(S:	71.299			
EHWA Noiso Mod	ol Calculation	ns									
VehicleType	REMEI	Traffic Flow	Distanc	ce	Finite	Road	Fre	snel	Barrier Att	en Ber	m Atten
Autos:	69.34	4 2.63	-	2.44		-1.20		0.15	-6.4	100	-9.400
Medium Trucks:	77.62	2 -14.61	-	2.42		-1.20		0.09	-5.9	900	-8.900
Heavy Trucks:	82.14	4 -18.57	-	2.42		-1.20		0.00	-4.9	900	-7.900
In mitigate d Naia		have Tana and	horrior of	40000	tion)						
VehicleType	Leveis (with	nout ropo and		a Ever	nina	ا م ا	Night		l dn		NEI
Autos:	Ley reak no	83	66 4	<i>ч ∟vе</i>	64 7	Ley	58	6	EUN 67 2		VLL 67.8
Medium Trucks:	5	94	57 9		51.5		50	0	58.4	- 1	58.7
Heavy Trucks:	6	0.0	58.5		49.5		50	8	59 1	r 	59.2
Vehicle Noise:	6	9.4	67.6		65.0		50	8	68.3	3	68.8
	· · · · · · · · · · · · · · · · · · ·	····		(* )							
Witigated Noise L	evels (with T	opo and barrie	attenuat	tion)	nina	1.00	Night		l do		
Autor	Ley Feak HC	Leq Day		q ⊑vei	59.2	Leq	TNIGHT 52	2	LUII		NEL 61 4
Autos. Modium Trucks:	0	1.9	52.0		00.0 45.6		52		50.0	5	52.9
Hoony Trucks.	0 E	5.5	52.0 53.6		40.0 11 G		44 15	. I . 0	52.5 57 C	, )	57.0 57.2
Heavy Hucks:	5	0.1	00.0		44.0		40	.9	54.2	-	54.3
venicie inolse:	6	3.2	01.4		58.7		53	.0	62.2	2	62.7

Scenario: First Floor With Wall Road Name: Redlands Avenue Lot No: 172

SITE	SPECIFIC I	NPUT DATA					NOISE	MODE		S	
Highway Data			-	:	Site Con	ditions	(Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	6					Autos	15		
Peak Hour	Percentage:	10%			Ме	dium Ti	rucks (2	Axles)	15		
Peak H	lour Volume:	2,870 vehicles	6		He	avy Tru	ıcks (3+	Axles)	: 15		
Ve	hicle Speed:	40 mph			Vehicle	Mix					
Near/Far La	ne Distance:	0 feet			Veh	icleTvp	е	Dav	Evenina	Niaht	Dailv
Site Data						<b>)</b>  -	Autos:	77.5%	6 12.9%	9.6%	97.42%
Ba	rrier Heiaht <sup>.</sup>	6.0 feet			М	edium T	Trucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-W	/all. 1-Berm):	0.0				Heavy T	Trucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	77.0 feet			Naiaa Si			no (in f	(act)		
Centerline Dist.	to Observer:	97.0 feet		'	voise So		levatio	$\frac{ns}{0.000}$	eet)		
Barrier Distance	to Observer:	20.0 feet			Madiu	AUIC	DS:	0.000			
Observer Height	Above Pad):	5.0 feet			Mediu Loo	n Truck	(S.	2.297	Grade Ad	iustment	· 0 0
Pa	ad Elevation:	0.0 feet			nea	y mucr	13.	0.000	Orade Auj	usunent.	. 0.0
Roa	ad Elevation:	0.0 feet		1	Lane Eq	uivalen	t Dista	nce (in	feet)		
Barn	ier Elevation:	0.0 feet				Auto	DS:	97.258			
	Road Grade:	0.0%			Mediu	m Truck	ks:	97.114			
					Heav	/y Truck	KS:	97.051			
EHWA Noise Mod	al Calculation	ne									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fre	snel	Barrier Att	en Ber	m Atten
Autos:	67.36	3.14	2.010	-4.44	4	-1.20		0.13	-6.2	240	-9.240
Medium Trucks:	76.31	-14.10		-4.43	3	-1.20		0.07	-5.7	700	-8.700
Heavy Trucks:	81.16	-18.05		-4.42	2	-1.20		0.00	-4.9	900	-7.900
I Inmitiaatod Noise	a Lovols (with	hout Tono and	harrior	atton	ustion)						
VehicleType	Leveis (wiu Lea Peak Ho	ur Lea Day			venina	Leo	Niaht		l dn	CI	VEI
Autos:	<u> </u>	4.9	63.0	209 21	61.2	209	55	5.1	63.8	3	64.4
Medium Trucks:	5	6.6	55.1		48.7		47	.2	55.6	5	55.9
Heavy Trucks:	5	7.5	56.1		47.0		48	.3	56.6	5	56.8
Vehicle Noise:	6	6.1	64.3		61.6		56	5.5	65.1		65.6
Mitigated Noise L	evels (with To	opo and barrie	attenu	uation	)						
VehicleType	Leq Peak Ho	ur Leq Day	' L	Leq E	, vening	Leq	Night		Ldn	Cl	VEL
Autos:	5	8.6	56.7		55.0		48	.9	57.5	5	58.1
Medium Trucks:	5	0.9	49.4		43.0		41	.5	49.9	)	50.2
Heavy Trucks:	52	2.6	51.2		42.1		43	.4	51.7	7	51.9
Vehicle Noise:	6	0.1	58.4		55.4		50	.5	59.1		59.6

Scenario: First Floor With Wall Road Name: Redlands Avenue Lot No: 46 Project Name: Stratford Ranch East Job Number: 13780 Analyst: P. Mara

SITE		NPUT DATA				1	NOISE	MODE	L INPUT	S	
Highway Data				S	Site Con	ditions	(Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	5					Autos	15		
Peak Hour	Percentage:	10%			Me	dium Tı	rucks (2	Axles)	15		
Peak F	lour Volume:	2,870 vehicles	5		He	avy Tru	icks (3+	Axles)	: 15		
Ve	hicle Speed:	40 mph		v	/ehicle	Mix					
Near/Far La	ne Distance:	0 feet			Veh	icleTvn	e	Dav	Evenina	Niaht	Daily
Site Data							Autos:	77.5%	6 12.9%	9.6%	97.42%
Ba	rrior Hoight:	6 0 feet			M	edium 7	rucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-W	/all 1-Rerm) <sup>.</sup>	0.0				Heavy T	Trucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline Di	st. to Barrier:	96.0 feet									
Centerline Dist.	to Observer:	116.0 feet		N	loise Sc	ource E	levatio	ns (in f	eet)		
Barrier Distance	to Observer:	20.0 feet				Auto	DS:	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediul	m Truck	(S:	2.297	Crada Ad	instruct	
P	ad Elevation:	0.0 feet			Heav	y Truck	(S <i>:</i>	8.006	Grade Adj	ustment.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Dista	nce (in	feet)		
Barr	ier Elevation:	0.0 feet				Auto	os: 1	16.212			
	Road Grade:	0.0%			Mediul	m Truck	(s: 1	16.096			
					Heav	y Truck	(s: 1	16.046			
FHWA Noise Mod	el Calculatio	ns Tagʻila Fla			<b>—</b>		<b></b>		DeviewAu		
Venicie i ype	REMEL		Distai	nce	Finite	Road	Fre	snei	Barrier Att	en Ber	m Atten
Autos:	67.30	5 3.14		-5.60		-1.20		0.10	-6.0	000	-9.000
Medium Trucks:	70.3	1 -14.10		-5.59		-1.20		0.00	-5.0		-8.600
neavy mucks.	01.10	-16.05		-5.59		-1.20		0.01	-5.	00	-8.100
Unmitigated Noise	e Levels (witl	hout Topo and	barrier a	attenu	uation)						
VehicleType	Leq Peak Ho	our Leq Day	' L	.eq Ev	rening	Leq	Night		Ldn	CI	VEL
Autos:	6	3.7	61.8		60.0		54	.0	62.6	6	63.2
Medium Trucks:	5	5.4	53.9		47.6		46	5.0	54.5	5	54.7
Heavy Trucks:	5	6.3	54.9		45.9		47	'.1	55.5	5	55.6
Vehicle Noise:	6	4.9	63.2		60.4		55	5.3	63.9	)	64.4
Mitigated Noise L	evels (with T	opo and barrie	r attenu	ation)	)						
VehicleType	Leq Peak Ho	our Leq Day	' L	.eq Ev	rening	Leq	Night		Ldn	Cl	VEL
Autos:	5	7.7	55.8		54.0		48	.0	56.6	3	57.2
Medium Trucks:	4	9.8	48.3		42.0		40	.4	48.9	)	49.1
Heavy Trucks:	5	1.2	49.8		40.8		42	.0	50.4	<u>ا</u>	50.5
Vehicle Noise:	5	9.1	57.4		54.5		49	.5	58.1		58.6

Scenario: First Floor With Wall Road Name: Redlands Avenue Lot No: 168

SITE	SPECIFIC II	NPUT DATA				NOISE M	ODE		5	
Highway Data				Site Co	nditions	: (Hard = 1	0, So	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	5			A	utos:	15		
Peak Hour	Percentage:	10%		N	ledium Ti	rucks (2 Ax	des):	15		
Peak F	lour Volume:	2,870 vehicles	5	H	leavy Tru	ıcks (3+ Ax	des):	15		
Ve	hicle Speed:	40 mph		Vehicle	Mix					
Near/Far La	ne Distance:	0 feet		Ve	hicleTvp	e C	Dav	Evenina	Niaht	Daily
Site Data					moloryp	Autos: 7	7 5%	12.9%	9.6%	97 42%
Ba	rriar Haight:	6 0 foot			Medium T	Trucks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-M	/all_1-Borm)	<b>6.0</b> Teet			Heavy T	Trucks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Di	st to Barrier	0.0 83.0 feet			,					
Centerline Dist	to Observer:	103.0 feet		Noise S	Source E	levations	(in fe	et)		
Barrier Distance	to Observer:	20.0 feet			Auto	os: 0.0	000			
Observer Height	(Above Pad):	5.0 feet		Medi	um Trucł	ks: 2.2	297	~ · · ·		
P	ad Elevation:	0.0 feet		Hea	avy Truck	ks: 8.0	006	Grade Adj	ustment.	: 0.0
Ro	ad Elevation:	0.0 feet		Lane E	quivalen	t Distance	e (in f	eet)		
Barr	ier Elevation:	0.0 feet			Auto	os: 103.2	242			
	Road Grade:	0.0%		Medi	um Trucl	ks <i>:</i> 103.1	108			
				Hea	avy Truck	ks: 103.0	049			
					-					
FHWA Noise Mod	el Calculatior	15								
VehicleType	REMEL	Traffic Flow	Distanc	e Finit	e Road	Fresne	1	Barrier Atte	en Ber	m Atten
Autos:	67.36	<b>3.14</b>		4.83	-1.20	(	0.12	-6.1	60	-9.160
Medium Trucks:	76.31	-14.10		4.82	-1.20	(	0.07	-5.7	00	-8.700
Heavy Trucks:	81.16	5 -18.05		4.81	-1.20	(	0.01	-5.1	00	-8.100
Unmitigated Noise	e Levels (with	hout Topo and	barrier at	tenuation	)					
VehicleType	Leq Peak Ho	ur Leq Day	Leo	q Evening	Leq	Night		Ldn	Cl	NEL
Autos:	64	4.5 6	62.6	60.	8	54.8		63.4		64.0
Medium Trucks:	5	6.2 క	54.7	48.	3	46.8		55.2	2	55.5
Heavy Trucks:	5	7.1 :	55.7	46.	6	47.9		56.2		56.4
Vehicle Noise:	6	5.7 6	63.9	61.	2	56.1		64.7	•	65.2
Mitigated Noise L	evels (with To	opo and barrier	attenuat	ion)						
VehicleType	Leq Peak Ho	ur Leq Day	Leo	, Evening	Leg	Night		Ldn	Cl	NEL
Autos:	. 5	8.3 ;	56.4	54.	6	48.6		57.2		57.8
Medium Trucks:	5	0.5	49.0	42.	6	41.1		49.5	;	49.8
Heavy Trucks:	52	2.0	50.6	41.	5	42.8		51.1		51.3
Vehicle Noise:	5	9.8	58.0	55.	1	50.2		58.7	,	59.2

Scenario: Second Floor With Wall Road Name: Ramona Expressway Lot No: 177

SITE SPECIF		T DATA			Ν	OISE MOD	EL INPUTS	;	
Highway Data				Site Col	nditions (	(Hard = 10, S	oft = 15)		
Average Daily Traffic (A	A <i>dt):</i> 49,0	00 vehicles				Autos	: 15		
Peak Hour Percenta	age:	10%		Me	edium Tru	icks (2 Axles)	): 15		
Peak Hour Volu	ime: 4,9	00 vehicles		He	eavy Truc	ks (3+ Axles)	): 15		
Vehicle Spe	eed:	55 mph		Vehicle	Mix				
Near/Far Lane Dista	nce: 1	02 feet		Vel	nicleType	Dav	Evenina	Niaht	Dailv
Site Data					<u>μοιο 1 γρο</u> Α	$utos: 77.5^{\circ}$	% 12.9%	9.6%	97.42%
Barrior Hoi	aht:	6.0 foot		Λ	ledium Tr	ucks: 84.8 <sup>o</sup>	% 4.9%	10.3%	1.84%
Barrier Type (0-Wall 1-Be	ym. vm)·				Heavy Tr	ucks: 86.5°	% 2.7%	10.8%	0.74%
Centerline Dist to Bar	rier: 22	0.0 feet					<b>-</b>		
Centerline Dist to Obser	rver: 24	0.0 feet		Noise S	ource Ele	evations (in i	feet)		
Barrier Distance to Obser	rver: 2	0.0 feet			Autos	: 0.000			
Observer Height (Above P	Pad): 1	4.0 feet		Mediu	Im Trucks	s: 2.297			0.0
Pad Eleva	tion:	0.0 feet		Hea	vy Trucks	8.006	Grade Adji	ustment:	0.0
Road Eleva	tion:	0.0 feet		Lane Eq	uivalent	Distance (in	feet)		
Barrier Eleva	tion:	0.0 feet			Autos	234.936			
Road Gra	ade:	0.0%		Mediu	ım Trucks	: 234.810			
				Hea	vy Trucks	234.595			
FHWA Noise Model Calcul	lations								• • •
Vehicle Type REMI	EL Tra	affic Flow L	Distance	Finite	Road	Fresnel	Barrier Atte	n Beri	m Atten
Autos:	72.73	4.08	-10.	18	-1.20	-1.19	0.0	00	0.000
Medium Trucks:	79.85	-13.16	-10.	18	-1.20	-1.26	0.0	00	0.000
Heavy Trucks:	83.81	-17.11	-10.	17	-1.20	-1.44	0.0	00	0.000
Unmitigated Noise Levels	(without	Topo and bar	rier atte	nuation)					
VehicleType Leq Pea	ak Hour	Leq Day	Leq	Evening	Leq I	Vight	Ldn	CN	VEL
Autos:	65.4	63.5	5	61.8	5	55.7	64.3		64.9
Medium Trucks:	55.3	53.8	3	47.4		45.9	54.4		54.6
Heavy Trucks:	55.3	53.9	9	44.9		46.1	54.5		54.6
Vehicle Noise:	66.2	64.4	4	62.0	)	56.5	65.1		65.7
Mitigated Noise Levels (w	ith Topo a	and barrier at	tenuatio	n)					
VehicleType Leq Pea	ak Hour	Leq Day	Leq	Evening	Leq I	Vight	Ldn	CN	IEL
Autos:	65.4	63.5	5	61.8	5	55.7	64.3		64.9
Medium Trucks:	55.3	53.8	3	47.4	Ļ	45.9	54.4		54.6
Heavy Trucks:	55.3	53.9	9	44.9	)	46.1	54.5		54.6
Vehicle Noise:	66.2	64.4	4	62.0	)	56.5	65.1		65.7

Scenario: Second Floor With Wall Road Name: Ramona Expressway Lot No: 182

SITE	SPECIFIC II	NPUT DATA			N	OISE MODE	L INPUTS	
Highway Data				Site Con	ditions	(Hard = 10, S	oft = 15)	
Average Daily	Traffic (Adt):	49,000 vehicles	5			Autos	15	
Peak Hour	Percentage:	10%		Me	dium Tru	ucks (2 Axles).	15	
Peak H	our Volume:	4,900 vehicles	6	He	avy Truc	cks (3+ Axles)	: 15	
Ve	hicle Speed:	55 mph		Vehicle	Mix			
Near/Far La	ne Distance:	102 feet		Veh	icleTvpe	Dav	Evenina	Night Daily
Site Data						Autos: 77.5%	6 12.9%	9.6% 97.42%
Ba	rrior Hoight:	6.0 foot		М	edium Ti	rucks: 84.8%	6 4.9%	10.3% 1.84%
Barrier Type (0-W	/all 1-Rerm) <sup>.</sup>	0.0			Heavy Ti	rucks: 86.5%	6 2.7%	10.8% 0.74%
Centerline Di	ist. to Barrier:	220.0 feet		No 10 0				
Centerline Dist.	to Observer:	240.0 feet		Noise So	burce El	evations (in f	eet)	
Barrier Distance	to Observer:	20.0 feet			Autos	s: 0.000		
Observer Height	(Above Pad):	14.0 feet		Meaiu	m Trucks	s: 2.297	Crada Adiu	atmont: 0.0
P	ad Elevation:	0.0 feet		Heav	y Trucks	s. 8.006	Grade Auju	Sumerit. 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distance (in	feet)	
Barr	ier Elevation:	0.0 feet			Autos	s: 234.936		
	Road Grade:	0.0%		Mediu	m Trucks	s: 234.810		
				Heav	y Trucks	s: 234.595		
VohioloTypo		Traffic Flow	Distance	Einito	Pood	Freepol	Parriar Atta	n Borm Atton
Autos	72 73			18	-1 20			
Aulos. Medium Trucks:	72.73	5 -13.16	-10	.10 18	-1.20	-1.19	0.00	
Heavy Trucks:	83.81	-17.11	-10	17	-1 20	-1 44	0.00	
					1.20	1.77	0.00	0.000
Unmitigated Nois	e Levels (with	hout Topo and	barrier att	enuation)				01/5/
Vehicle I ype	Leq Peak Ho	Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	6	5.4	63.5 50.0	61.8		55.7	64.3	64.9
Medium Trucks:	5	5.3	53.8 53.0	47.4		45.9	54.4	54.6
Heavy Trucks.	5	5.3 C 0	03.9	44.9		46.1	04.0	54.0
	D	0.2	64.4	62.0		56.5	05.1	
Mitigated Noise L	evels (with To	opo and barrier	r attenuatio	on)				
VehicleType	Leq Peak Ho	our Leq Day	' Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	6	5.4	63.5	61.8		55.7	64.3	64.9
Medium Trucks:	5	5.3	53.8	47.4		45.9	54.4	54.6
Heavy Trucks:	5	5.3	53.9	44.9		46.1	54.5	54.6
Vehicle Noise:	6	6.2	64.4	62.0		56.5	65.1	65.7

Scenario: Second Floor With Wall Road Name: Evans Road Lot No: 1

SITE	SPECIFIC II	NPUT DATA				NOISE MO	DEL IN	NPUTS	
Highway Data				Site Co	nditions	(Hard = 10	), Soft =	15)	
Average Daily	Traffic (Adt):	28,700 vehicles	5			Au	tos: 1	15	
Peak Hour	Percentage:	10%		M	ədium Ti	rucks (2 Axl	les): 1	15	
Peak H	our Volume:	2,870 vehicles	S	H	eavy Tru	ıcks (3+ Axl	'es): 1	15	
Ve	hicle Speed:	45 mph		Vehicle	Mix				
Near/Far La	ane Distance:	80 feet		Vel	hicleTvp	e Da	av Ev	enina N	iaht Dailv
Site Data						Autos: 77	7.5% 1	2.9%	9.6% 97.42%
Ba	rrier Height	6.0 feet		٨	ledium T	Trucks: 84	1.8%	4.9% 1	0.3% 1.84%
Barrier Type (0-V	Vall. 1-Berm):	0.0			Heavy T	Trucks: 86	6.5%	2.7% 1	0.8% 0.74%
Centerline Di	ist. to Barrier:	63.0 feet		Noine C		'lovetione (			
Centerline Dist.	to Observer:	83.0 feet		Noise S	ource E				
Barrier Distance	to Observer:	20.0 feet			AUto	DS: 0.0	00		
Observer Height	(Above Pad):	14.0 feet		Meail	IM Truck	(S: Z.Z)	97 06 Gra	do Adius	tmont: 0.0
P	ad Elevation:	0.0 feet		пеа	vy mucr	<i>IS.</i> 0.0	00 0/2		inent. 0.0
Ro	ad Elevation:	0.0 feet		Lane Ec	quivalen	t Distance	(in feet)	)	
Barr	ier Elevation:	0.0 feet			Auto	os: 74.0	61		
	Road Grade:	0.0%		Mediu	ım Trucł	ks: 73.6	61		
				Hea	vy Trucł	ks: 72.9	72		
FHWA Noise Mod	el Calculation	15							
VehicleTvpe	REMEL	Traffic Flow	Distanc	e Finite	e Road	Fresnel	Bar	rier Atten	Berm Atten
Autos:	69.34	2.63	-2	2.66	-1.20	-0	.64	0.000	0.000
Medium Trucks:	77.62	-14.61	-2	2.63	-1.20	-0	.81	0.000	0.000
Heavy Trucks:	82.14	-18.57	-2	2.57	-1.20	-1	.33	0.000	0.000
I Inmitiaated Nois	a lavals (with	out Topo and	harrior at	onustion)					
VehicleType	Lea Peak Ho	ur Lea Dav		Eruation) Evenina	Leo	Niaht	l di	<b>n</b>	CNFI
Autos:	68	8.1	66.2	64.4	  -	58.4	24	. 67.0	67.6
Medium Trucks:	59	9.2	57.7	51.3	3	49.8		58.2	58.5
Heavy Trucks:	59	9.8	58.4	49.4	ŀ	50.6		59.0	59.1
Vehicle Noise:	69	9.2	67.4	64.8	}	59.5		68.1	68.6
Mitigated Noise L	evels (with To	opo and barrie	r attenuati	on)					
VehicleType	Leq Peak Ho	ur Leq Day	' Leq	Evening	Leq	Night	Ldı	า	CNEL
Autos:	68	3.1	66.2	64.4	ŀ	58.4		67.0	67.6
Medium Trucks:	59	9.2	57.7	51.3	3	49.8		58.2	58.5
Heavy Trucks:	59	9.8	58.4	49.4	<u>ا</u>	50.6		59.0	59.1
Vehicle Noise:	69	9.2	67.4	64.8	3	59.5		68.1	68.6

Scenario: Second Floor With Wall Road Name: Evans Road Lot No: 11

SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS						
Highway Data				Si	ite Con	ditions	(Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	28,700 vehicles	5					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tr	ucks (2	Axles).	15		
Peak H	lour Volume:	2,870 vehicles	5		He	avy Tru	cks (3+	Axles):	15		
Ve	hicle Speed:	45 mph		V	ehicle I	Nix					
Near/Far La	ne Distance:	80 feet			Vehi	icleTvpe	9	Dav	Evenina	Niaht	Dailv
Site Data					-		Autos:	77.5%	6 12.9%	9.6%	97.42%
Bai	rrier Heiaht <sup>.</sup>	6.0 feet			Me	ədium T	rucks:	84.8%	6 4.9%	10.3%	1.84%
Barrier Type (0-W	all. 1-Berm):	0.0			ŀ	<del>l</del> eavy T	rucks:	86.5%	6 2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	65.0 feet		N/	aiaa Sa	uraa E	lovatio	na (in f	0.041		
Centerline Dist.	to Observer:	85.0 feet		///	use su				eel)		
Barrier Distance	to Observer:	20.0 feet			Madium	AUIO m Truck	S.	0.000			
Observer Height (	Above Pad):	14.0 feet			Hoov	II TTUCK	S.	2.297	Grade Ad	liustmont	· 0 0
Pa	ad Elevation:	0.0 feet			neav	у ттиск	<i>S.</i>	0.000	Glade Au	jusimeni	. 0.0
Roa	ad Elevation:	0.0 feet		La	ane Equ	uivalen	t Dista	nce (in	feet)		
Barri	er Elevation:	0.0 feet				Auto	s:	76.295			
	Road Grade:	0.0%			Mediur	n Truck	s:	75.908			
					Heav	y Truck	s:	75.239			
VehicleType		ns Troffic Flow	Distanc	2	Einito	Pood	Ero	nol	Parriar Att	on Por	m Atton
Autos	60 3/	1 2 63	Distanc	,e 2 86	Filille		rie:				
Medium Trucks:	77.63	-1/61		2.00		-1.20		-0.00	0.0		0.000
Heavy Trucks:	82 14	1 -18 57		2.02		-1.20		-0.03	0.0	000	0.000
	02.1-	10.07		2.11		1.20		1.00	0.0	500	0.000
Unmitigated Noise	e Levels (with	hout Topo and	barrier at	tenu	ation)		<b>N</b> <i>I I I</i>				
Vehicle I ype	Leq Peak Ho	our Leq Day		q Eve	ening	Leq	Night		Ldn		NEL 07.4
Autos:	6	7.9	66.0		64.3		58	.2	66.8	5	67.4
Medium Trucks:	5	9.0	57.5		51.1		49	.6	58.0	)	58.3
Heavy Trucks:	5	9.6	58.2		49.2		50	.4	58.8	3	58.9
Vehicle Noise:	6	9.0	67.2		64.6		59	.3	67.9	9	68.4
Mitigated Noise Le	evels (with T	opo and barrie	r attenuat	ion)							
VehicleType	Leq Peak Ho	our Leq Day	, Leo	q Eve	əning	Leq	Night		Ldn	C	NEL
Autos:	6	7.9	66.0		64.3		58	.2	66.8	3	67.4
Medium Trucks:	5	9.0	57.5		51.1		49	.6	58.0	C	58.3
Heavy Trucks:	5	9.6	58.2		49.2		50	.4	58.8	3	58.9
Vehicle Noise:	6	9.0	67.2		64.6		59	.3	67.9	9	68.4

Scenario: Second Floor With Wall Road Name: Redlands Avenue Lot No: 172

SITE	SPECIFIC II	NPUT DATA			I	NOISE MODE	EL INPUTS	i
Highway Data				Site Cor	nditions	(Hard = 10, S	oft = 15)	
Average Daily	Traffic (Adt):	28,700 vehicles	6			Autos	: 15	
Peak Hour	Percentage:	10%		Me	ədium Tı	rucks (2 Axles)	: 15	
Peak H	lour Volume:	2,870 vehicles	6	He	eavy Tru	icks (3+ Axles)	: 15	
Ve	hicle Speed:	40 mph		Vehicle	Mix			
Near/Far La	ane Distance:	0 feet		Vel	nicleTvp	e Dav	Evenina	Night Dailv
Site Data					<b>)</b>  -	Autos: 77.5%	% 12.9%	9.6% 97.42%
Ba	rrier Height	6.0 feet		N	ledium T	Trucks: 84.8%	6 4.9%	10.3% 1.84%
Barrier Type (0-V	Vall. 1-Berm):	0.0			Heavy T	rucks: 86.5%	% 2.7%	10.8% 0.74%
Centerline D	ist. to Barrier:	77.0 feet		Noiso S	ourco E	lovations (in f	iont)	
Centerline Dist.	to Observer:	97.0 feet		NOISE S			eel)	
Barrier Distance	to Observer:	20.0 feet		Modiu	Auic Im Truck	$\sim 2.207$		
Observer Height	(Above Pad):	14.0 feet		Hoo	M Truck	(S. 2.291 (S. 8.006	Grade Adii	istment: 0.0
P	ad Elevation:	0.0 feet		Tiea	vy mucr	0.000	Orado Majo	
Ro	ad Elevation:	0.0 feet		Lane Eq	luivalen	t Distance (in	feet)	
Barr	ier Elevation:	0.0 feet			Auto	os: 98.005		
	Road Grade:	0.0%		Mediu	ım Truck	ks: 97.703		
				Hea	vy Truck	ks: 97.185		
FUNAA Natao Mad								
VohioloTypo		IS Traffic Elow	Distance	Einite	Pood	Freepol	Parriar Atta	n Borm Atton
Autos	67.36	11anic 110W		10	-1.20	-0.75		
Autos. Medium Trucks:	76 31	-14 10	-4 _1	.45 17	-1.20	-0.75	0.00	
Heavy Trucks:	81 16	-14.10	-4 -4	.+ <i>1</i> 43	-1.20	-0.91	0.00	
					1.20		0.00	
Unmitigated Nois	e Levels (with	nout Topo and	barrier atte	enuation)			1.1.	
Venicie i ype	Leq Peak Ho	ur Leq Day		Evening	Leq		Lan	CNEL
Autos:	64	4.8	02.9 FF 0	61.1		55.1	63.7	64.3
Mealum Trucks:	50	0.5	55.0	48.7		47.1	55.6	55.8
Heavy Trucks:	5	7.5	56.1	47.0	)	48.3	56.6	56.7
Venicie inoise:	6	0.1	64.3	61.5		56.5	65.0	65.5
Mitigated Noise L	evels (with To	opo and barrier	attenuatio	on)	1		T	
VehicleType	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	64	4.8	62.9	61.1		55.1	63.7	64.3
Medium Trucks:	50	6.5	55.0	48.7		47.1	55.6	55.8
Heavy Trucks:	5	7.5	56.1	47.0	)	48.3	56.6	56.7
Vehicle Noise:	60	6.1	64.3	61.5	5	56.5	65.0	65.5

Scenario: Second Floor With Wall Road Name: Redlands Avenue Lot No: 46

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS						
Highway Data				Site Cor	nditions	(Hard = 10,	Soft = 15)			
Average Daily	Traffic (Adt):	28,700 vehicles	5			Auto	os: 15			
Peak Hour	Percentage:	10%		Me	ədium Tı	ucks (2 Axle	s <i>):</i> 15			
Peak F	lour Volume:	2,870 vehicles	5	He	eavy Tru	cks (3+ Axle	s <i>):</i> 15			
Ve	hicle Speed:	40 mph		Vehicle	Mix					
Near/Far La	ne Distance:	0 feet		Vel	nicleType	e Da	/ Evening	Night	Daily	
Site Data						Autos: 77.	5% 12.9%	9.6%	97.42%	
Ba	rrier Heiaht:	6.0 feet		N	1edium T	rucks: 84.	8% 4.9%	10.3%	1.84%	
Barrier Type (0-W	/all, 1-Berm):	0.0			Heavy 7	rucks: 86.	5% 2.7%	10.8%	0.74%	
Centerline Di	st. to Barrier:	96.0 feet		Noiso S	ourco E	lovations (in	toot)			
Centerline Dist.	to Observer:	116.0 feet		Noise S						
Barrier Distance	to Observer:	20.0 feet		Madi	Auic m Truck	0.00	7			
Observer Height	(Above Pad):	14.0 feet		Weak	MITTUCK	(S. 2.29 (o: 0.00	i Grada An	liustmont	· 0 0	
P	ad Elevation:	0.0 feet		пеа	vy mucr	.5. 0.00		justinent.	. 0.0	
Ro	ad Elevation:	0.0 feet		Lane Eq	luivalen	t Distance (	in feet)			
Barr	ier Elevation:	0.0 feet			Auto	os: 116.84	2			
	Road Grade:	0.0%		Mediu	ım Truck	ks: 116.58	9			
				Hea	vy Truck	s: 116.15	5			
FHWA NOISE MOD		IS Troffic Flow	Distance		Deed	Freenal	Douriou At			
Venicie i ype	REMEL	Trailic Flow	Distance		Road	Freshei	Barrier Att	en Ben	m Atten	
Autos:	67.36	3.14	-5	.63	-1.20	-0.8	37 U.U	000	0.000	
Medium Trucks:	70.31	-14.10	-5 F	.62	-1.20	-1.0		000	0.000	
	01.10	-18.05	C-	.59	-1.20	-1.3	38 0.0	500	0.000	
Unmitigated Noise	e Levels (with	nout Topo and	barrier att	enuation)	T					
VehicleType	Leq Peak Ho	ur Leq Day	' Leq	Evening	Leq	Night	Ldn	CI	VEL	
Autos:	63	3.7	61.8	60.0		53.9	62.	6	63.2	
Medium Trucks:	55	5.4	53.9	47.5	5	46.0	54.4	4	54.7	
Heavy Trucks:	56	6.3	54.9	45.9		47.1	55.	5	55.6	
Vehicle Noise:	64	4.9	63.1	60.4	ļ	55.3	63.	9	64.4	
Mitigated Noise L	evels (with To	opo and barrier	r attenuatio	on)						
VehicleType	Leq Peak Ho	ur Leq Day	' Leq	Evening	Leq	Night	Ldn	CI	VEL	
Autos:	63	3.7	61.8	60.0	)	53.9	62.	6	63.2	
Medium Trucks:	55	5.4	53.9	47.5	;	46.0	54.	4	54.7	
Heavy Trucks:	56	6.3	54.9	45.9	)	47.1	55.	5	55.6	
Vehicle Noise:	64	4.9	63.1	60.4		55.3	63.	9	64.4	

Scenario: Second Floor With Wall Road Name: Redlands Avenue Lot No: 168

SITE	SPECIFIC IN	IPUT DATA			M	NOISE MODE	L INPUTS	
Highway Data				Site Cor	nditions	(Hard = 10, S	oft = 15)	
Average Daily	Traffic (Adt):	28,700 vehicles				Autos	: 15	
Peak Hour	Percentage:	10%		Me	dium Tr	ucks (2 Axles)	: 15	
Peak H	lour Volume:	2,870 vehicles		He	avy Tru	cks (3+ Axles)	: 15	
Ve	hicle Speed:	40 mph		Vehicle	Mix			
Near/Far La	ne Distance:	0 feet		Veh	nicleTvpe	e Dav	Evenina	Night Daily
Site Data						Autos: 77.5%	6 12.9%	9.6% 97.42%
Ba	rrier Height:	6 0 feet		M	ledium T	rucks: 84.8%	6 4.9%	10.3% 1.84%
Barrier Type (0-W	/all_1-Berm):	0.0 1001			Heavy T	rucks: 86.5%	6 2.7%	10.8% 0.74%
Centerline Di	st. to Barrier:	83.0 feet						
Centerline Dist.	to Observer:	103.0 feet		Noise Se	ource E	levations (in f	eet)	
Barrier Distance	to Observer:	20.0 feet			Auto	os: 0.000		
Observer Height	(Above Pad):	14.0 feet		Mediu	m Truck	s: 2.297	Crada Adiu	otmont: 00
P	ad Elevation:	0.0 feet		Hear	у тиск	s: 8.006	Grade Adju	simeni. 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalen	t Distance (in	feet)	
Barr	ier Elevation:	0.0 feet			Auto	s: 103.947		
	Road Grade:	0.0%		Mediu	m Truck	s: 103.663		
				Hear	vy Truck	s: 103.174		
FHWA Noise Mod	el Calculation	S	Distance	Finite	Deed	Freeset	Demien Alle	
venicie i ype	REMEL		Distance	Finite	Road	Freshel	Barrier Attei	n Berm Atten
Autos: Madium Truaka	67.36 76.31	3.14	-4.	8/ 05	-1.20	-0.79	0.00	
Hoovy Trucks.	70.31 91.16	-14.10	-4.	00 00	-1.20	-0.94	0.00	
Tieavy Trucks.	01.10	-16.05	-4.	02	-1.20	-1.30	0.00	0 0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier atte	nuation)	1	1		
VehicleType	Leq Peak Hou	ur Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	64	.4 6	2.5	60.8		54.7	63.3	63.9
Medium Trucks:	56	5.2 5	4.7	48.3		46.7	55.2	55.4
Heavy Trucks:	57	'.1 5 <sup>.</sup>	5.7	46.6		47.9	56.2	56.4
Vehicle Noise:	65	6.7 6	3.9	61.2		56.1	64.6	65.1
Mitigated Noise L	evels (with To	po and barrier	attenuatio	n)				
VehicleType	Leq Peak Hou	ır Leq Day	Leq	Evening	Leq	Night	Ldn	CNEL
Autos:	64	.4 6	2.5	60.8		54.7	63.3	63.9
Medium Trucks:	56	5.2 5	4.7	48.3		46.7	55.2	55.4
Heavy Trucks:	57	.1 <u>5</u>	5.7	46.6		47.9	56.2	56.4
Vehicle Noise:	65	6.7 6	3.9	61.2		56.1	64.6	65.1

APPENDIX 11.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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#### 13780- Startford Ranch East

CadnaA Noise Prediction Model: 13780\_02.cna Date: 10.05.21 Analyst: S. Shami

#### **Calculation Configuration**

Configuration											
Parameter	Value										
General											
Country	(user defined)										
Max. Error (dB)	0.00										
Max. Search Radius (#(Unit,LEN))	2000.01										
Min. Dist Src to Rcvr	0.00										
Partition											
Raster Factor	0.50										
Max. Length of Section (#(Unit,LEN))	999.99										
Min. Length of Section (#(Unit,LEN))	1.01										
Min. Length of Section (%)	0.00										
Proj. Line Sources	On										
Proj. Area Sources	On										
Ref. Time											
Reference Time Day (min)	960.00										
Reference Time Night (min)	480.00										
Daytime Penalty (dB)	0.00										
Recr. Time Penalty (dB)	5.00										
Night-time Penalty (dB)	10.00										
DTM											
Standard Height (m)	0.00										
Model of Terrain	Triangulation										
Reflection											
max. Order of Reflection	2										
Search Radius Src	100.00										
Search Radius Rcvr	100.00										
Max. Distance Source - Rcvr	1000.00 1000.00										
Min. Distance Rvcr - Reflector	1.00 1.00										
Min. Distance Source - Reflector	0.10										
Industrial (ISO 9613)											
Lateral Diffraction	some Obj										
Obst. within Area Src do not shield	On										
Screening	Incl. Ground Att. over Barrier										
	Dz with limit (20/25)										
Barrier Coefficients C1,2,3	3.0 20.0 0.0										
Temperature (#(Unit,TEMP))	10										
rel. Humidity (%)	70										
Ground Absorption G	0.50										
Wind Speed for Dir. (#(Unit,SPEED))	3.0										
Roads (RLS-90)											
Strictly acc. to RLS-90											
Railways (FTA/FRA)											
Aircraft (???)											
Strictly acc. to AzB											

#### **Receiver Noise Levels**

Name	м.	ID	Level Lr			Lir	nit. Valu	ue		Land	Use	Height	Height Coordinates			
			Day	Night	CNEL	Day	Night	CNEL	Туре	ype Auto Noise Type				Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	76.8	76.8	83.5	0.0	0.0	0.0		х	Total	5.00	а	6270962.61	2254321.97	5.00
RECEIVERS		R2	65.0	65.0	71.6	0.0	0.0	0.0		х	Total	5.00	а	6271308.48	2251599.94	5.00
RECEIVERS		R3	64.0	64.0	70.7	0.0	0.0	0.0		х	Total	5.00	а	6269745.20	2252181.06	5.00

#### Area Source(s)

Name	М.	ID	R	esult. PW	Ľ	R	esult. PW		Lw/L	i	Op	Height			
			Day	Day Evening Nigh			Evening	Night	Туре	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
SITEBOUNDARY		CONSTRUCTION	135.7	135.7	135.7	83.0	83.0	83.0	Lw"	83					8

Name	ł	lei	ght		Coordinates								
	Begin	End		х	У	z	Ground						
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)					
SITEBOUNDARY	8.00	a			6271891.23	2253619.15	8.00	0.00					
					6271881.68	2252531.65	8.00	0.00					
				6270628.21	2252528.18	8.00	0.00						
			6270642.10	2254305.09	8.00	0.00							
					6271561.49	2254302.42	8.00	0.00					
					6271559.63	2253619.32	8.00	0.00					

#### Barrier(s)

Name	М.	ID	Abso	rption	Z-Ext.	Canti	ilever	Height				Coordinates				
			left	right		horz.	vert.	Begin	Begin			х	У	z	Ground	
					(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)	
BARRIEREXISTING		0						6.00	a			6270644.12	2254313.87	6.00	0.00	
												6271562.09	2254307.36	6.00	0.00	
												6271563.17	2254284.57	6.00	0.00	
												6271860.48	2254282.40	6.00	0.00	
BARRIEREXISTING		0						6.00	a			6270712.40	2251621.67	6.00	0.00	
												6272561.35	2251600.83	6.00	0.00	
BARRIEREXISTING		0						6.00	а			6269755.10	2252207.26	6.00	0.00	
												6269751.63	2251756.73	6.00	0.00	