Appendix L: Noise and Vibration Analysis

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Green River Ranch Specific Plan Amendment

SP00-001 Amendment No.1

Noise and Vibration Analysis

City of Corona

Prepared by:

Bill Lawson, PE, INCE
blawson@urbanxroads.com
(949) 584-3148

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
MARB/IPA	March Air Reserve Base / Inland Port Airport
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Green River Ranch Specific Plan Amendment
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Green River Ranch Specific Plan Amendment development ("Project"). The Project site is located at the southwest corner of Green River Road and Dominguez Ranch Road in the City of Corona. The Project consists of an amendment to the previously approved Green River Ranch Specific Plan, a Precise Plan for the Business Park Industrial portion of the project, and a tentative tract map.

The results of this Green River Ranch Specific Plan Amendment Noise and Vibration 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. All impacts are considered less than significant without mitigation.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
On-Site Traffic Noise	8	*Less Than Significant*	-
Operational Noise	10	*Less Than Significant*	-
Construction Noise	11	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-
Nighttime Concrete Pour		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Green River Ranch Specific Plan Amendment ("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 potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed project is located at the southwest corner of Green River Road and Dominguez Ranch Road in the City of Corona. The Project site is bordered to the south by vacant land, to the east and west by residential uses, and to the north and west by California State Route 91 (CA-91).

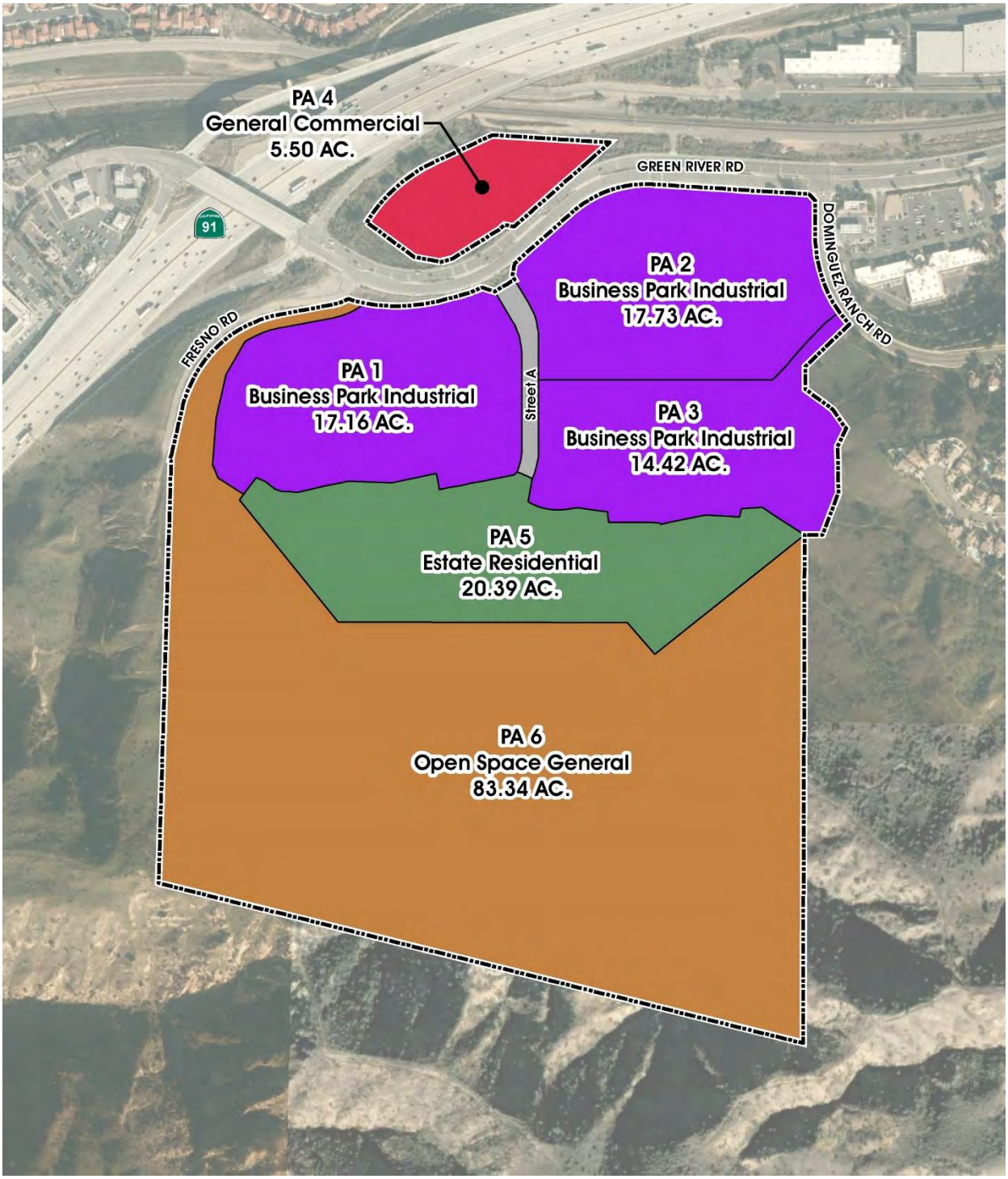
1.2 PROJECT DESCRIPTION

The Project is proposing an amendment to the previously approved Green River Ranch Specific Plan, a Precise Plan for the Business Park Industrial component of the Project, and a tentative tract map. The Precise Plan includes the development of 746,167 square feet of building space and for the purposes of the Traffic Study assumes 634,242 square feet of industrial park use (85% of the overall Business Park Industrial square footage) and 111,925 square feet of high-cube cold storage warehouse use (15% of the overall Business Park Industrial square footage). Exhibit 1-A illustrates the preliminary land use plan for the Project. The Project is proposed to be developed in phases as follows:

- **Phase 1:** 634,242 square feet of Business Park Industrial use and 111,925 square feet of High-Cube Cold Storage Warehouse use ((Planning Areas) or PAs 1, 2, and 3)
- **Phase 2:** Development in Phase 1 plus up to 19,600 square feet of general commercial uses which were evaluated in the traffic analysis as a Gas Station with Convenience Market with 12 vehicle fueling positions 2,500 square feet of Fast-Food Restaurant with Drive-Through Window use 4,200 square feet of Fine Dining Restaurant use, and 9,500 square feet of High Turnover (Sit-Down) Restaurant use (buildout of PAs 1, 2, and 3 and the addition of PA 4). The land uses and intensities proposed for the retail component were selected to conduct a conservative analysis (i.e., evaluate a higher trip generation than 19,600 square feet of general commercial use)
- **Project Buildout:** Development in Phases 1 and 2 plus the addition of 32 Residential Estate Lots (buildout of PAs 1, 2, 3, and 4 and the addition of PA 5)

The on-site Project-related operational noise sources are expected to include: loading dock activity, truck movements, roof-top air conditioning units, gas station activity, drive-thru activity, and trash enclosure activity, car wash tunnels and car wash vacuums. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site. This report assumes the Project will operate 24-hours daily for seven days per week. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown.

EXHIBIT 1-A: PRELIMINARY LAND USE PLAN



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.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud (2). 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 (3). 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.

To describe the time-varying character of environmental noise, the City of Corona relies on the L_{50}, L_{25}, L_8, L_2 and L_{max}, percentile noise levels to describe the stationary source noise level limits. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent, and 2 percent of a stated time. Sound levels associated with the L_8 and L_2 typically describe transient or short-term events, while levels associated with the L_{50} describe the base or typical noise conditions. The City of Corona relies on the percentile noise levels to describe the stationary source noise level limits. While the L_{50} describes the noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour.

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_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Corona 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 (2).

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 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 (4).

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 (2).

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 (4).

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 (4). 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 (4).

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.

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 (5).

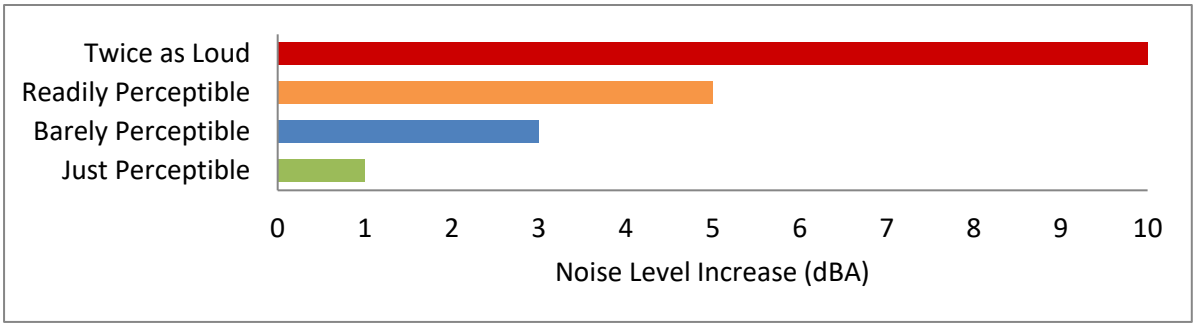
2.7 COMMUNITY RESPONSE TO NOISE

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 (6). 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 (6). 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*. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 VIBRATION

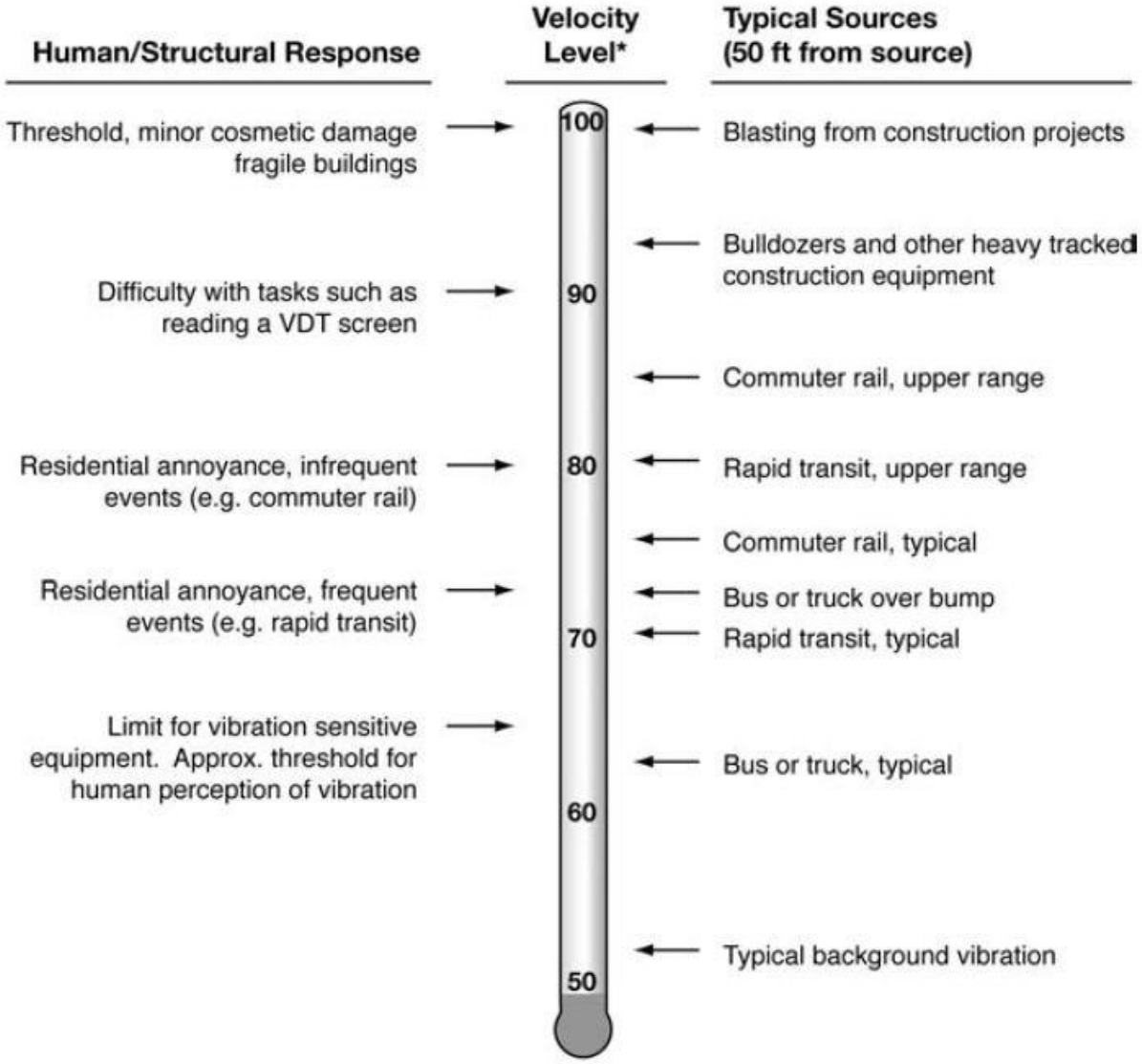
Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (7), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include 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^{-6} 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). (8) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF CORONA GENERAL PLAN NOISE ELEMENT

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

- *N-1 Protect residents, visitors, and noise-sensitive land uses from the adverse human health and environmental impacts created by excessive noise levels from transportation sources by requiring proactive mitigation.*
- *N-2 Prevent and mitigate the adverse impacts of excessive ambient noise exposure on residents, employees, visitors, and noise-sensitive land uses.*
- *N-3 Discourage the spillover or encroachment of unacceptable noise levels from mixed use, commercial, and industrial land uses on to noise sensitive land uses.*
- *N-4 Minimize noise impacts created by railroad transit and airport operations and flight patterns on residential areas and other "noise sensitive" land use areas.*

The noise criteria identified in the City of Corona Noise Element (Table N-1) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land

uses relative to existing and future exterior noise levels. The *Noise Levels and Land Use Compatibility Guidelines* describes categories of compatibility and not specific noise standards.

3.2.1 NOISE LEVELS AND LAND USE COMPATIBILITY

The proposed Green River Ranch Specific Plan Amendment contains industrial park and commercial land uses that are considered *clearly compatible* with unmitigated exterior noise levels of less than 70 dBA CNEL, *normally compatible* with unmitigated exterior noise levels above 80 dBA CNEL. Although specific development plans are not proposed for the other areas of the property, the noise sensitive estate residential land uses are considered *clearly compatible* with unmitigated exterior noise levels of less than 60 dBA CNEL, *normally compatible* with unmitigated exterior noise levels above 70 dBA CNEL and *clearly incompatible* with unmitigated exterior noise levels above 70 dBA CNEL. For *normally compatible* land use, *new construction should be undertaken only after detailed analysis of the noise reduction requirements and needed noise insulation features are determined. Conventional construction, with windows closed and fresh air supply or air conditioning, will normally suffice.* For *normally incompatible* land use, *new construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.* For *clearly incompatible* land use, *new construction or development should generally not be undertaken.*

3.2.2 LAND USE NOISE STANDARDS

The City of Corona General Plan Noise Element specifies the maximum noise levels allowable for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. For noise-sensitive residential land uses, Table N-2 *Interior and Exterior Noise Standards* of the Noise Element indicates that the exterior noise levels shall not exceed 65 dBA CNEL and interior noise levels of 45 dBA CNEL. The 65 dBA CNEL exterior noise standards typically apply to outdoor areas where people congregate. The City of Corona does not identify any exterior noise standards for the Project commercial or industrial land use activities. The City of Corona transportation noise standards are shown on Exhibit 3-B.

EXHIBIT 3-A: NOISE LEVELS AND LAND USE COMPATIBILITY GUIDELINES

Land Use Categories		Community Noise Equivalent Level (CNEL)						
Categories	**Uses**	**<55**	**60**	**65**	**70**	**75**	**80>**	
Residential	Single Family, Duplex	A	A	B	B	D	D	D
	Multiple Family	A	A	B	B	C	D	D
	Hotel, Motel Lodging	A	A	B	C	C	D	D
Commercial Regional, District	Commercial Retail, Bank, Restaurant, Movie Theatre	A	A	B	B	C	C	D
Commercial Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	B	B	C
Commercial Office, Institution	Office Building, R&D, Professional Offices, City Office Building	A	A	A	B	B	C	D
Rec. Institutional Civic Center	Amphitheatre, Concert Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial Recreation	Amusement Park, Miniature Golf, Sports Club, Equestrian Center	A	A	A	B	B	D	D
Commercial, General, Special, Industrial, and Institutional	Auto Service Station, Auto Dealer, Manu-facturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional General	Hospital, Church, Library, Schools' Classroom	A	A	B	C	C	D	D
Open Space	Local, Community, and Regional Parks	A	A	A	B	C	D	D
Open Space	Golf Course, Cemetery, Nature Centers Wildlife Reserves and Habitat	A	A	A	A	B	C	C

Zone A: Clearly Compatible: Specified land use is satisfactory, based on the assumption that any buildings involved are of conventional construction without any special noise insulation requirements.
Zone B: Normally Compatible: New construction should be undertaken only after detailed analysis of the noise reduction requirements and needed noise insulation features are determined. Conventional construction, with closed windows and fresh air supply or air conditioning, will normally suffice.
Zone C: Normally Incompatible: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.
Zone D: Clearly Incompatible: New development should generally not be undertaken.

EXHIBIT 3-B: INTERIOR AND EXTERIOR NOISE STANDARDS

Land Use Categories		Average CNEL	
Categories	**Uses**	**Interior[1]**	**Exterior[2]**
Residential	Single Family, Duplex, Multiple Family	45[3]	65
	Mobile Home	NA	65[4]
Commercial; Industrial; and Institutional	Hotel, Motel, Transient Lodging	45	65[5]
	Commercial Retail, Bank, Restaurant; Sports Club	55	NA
	Office Building, Research and Develop. Professional Offices, City Offices	50	NA
	Amphitheatre, Concert Hall Auditorium, Meeting Hall	45	NA
	Gymnasium (Multipurpose)	50	NA
	Manufacturing, Warehousing, Wholesale, Utilities	65	NA
	Movie Theatres	45	NA
Institutional	Hospital, Schools' classroom	45	65
	Church, Library	45	NA
	Parks	NA	65

Notes:
1. Indoor environment excluding bathrooms, toilets, closets, corridors.
2. Outdoor environment limited to: private yard of single family, multi-family private patio or balcony that is served by a means of exit from inside, mobile home park, hospital patio, park's picnic area, school's playground, and hotel and motel recreation area.
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.
4. Exterior noise level should be such that interior noise level will not exceed 45 CNEL.
5. Except those areas affected by aircraft noise.

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from the Green River Ranch Specific Plan Amendment, operational source noise such as loading dock activity, truck movements, roof-top air conditioning units, gas station activity, drive-thru activity, and trash enclosure activity, car wash tunnels and car wash vacuums are typically evaluated against standards established under a City's Municipal Code. The City of Corona Municipal Code, Section 17.84.040 *Noise*, provides noise control guidelines for determining and mitigating non-transportation or stationary-source noise impacts from operations at private properties. The City of Corona Municipal Code defines *Stationary Noise Source Standards* in Section 17.84.040[C][2], Table 1, for different land uses. For noise-sensitive residential properties, the Municipal Code identifies operational noise level limits for the daytime (7:00 a.m. to 10:00 p.m.) hours of 55 dBA L_{50} and 50 dBA L_{50} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. (10) These standards shall apply for a cumulative period of 30 minutes in any hour, as well as plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute

in any hour, or the standard plus 20 dBA for any period of time. The City of Corona Municipal Code noise standards are shown on Table 3-1 and included in Appendix 3.1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land Use	Time Period	Exterior Noise Level Standards (dBA Leq)[2]				
			L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
City of Corona[1]	Residential	Daytime	55	60	65	70	75
		Nighttime	50	55	60	65	70
	Commercial	Daytime	65	70	75	80	85
		Nighttime	60	65	70	75	80
	Industrial	Daytime	75	80	85	90	95
		Nighttime	70	75	80	85	90

[1] City of Corona Municipal Code, Section 17.84.040 Noise (Appendix 3.1).
[2] The percent noise level is the level exceeded "n" percent of the time during the measurement period. L50 is the noise level exceeded 50% of the time.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

The percentile noise descriptors are provided to ensure that the duration of the noise source is fully considered. However, due to the relatively constant intensity of the Project operational activities, the L_{50} or average L_{eq} noise level metrics best describe the loading dock activity, truck movements, roof-top air conditioning units, gas station activity, drive-thru activity, and trash enclosure activity, car wash tunnels and car wash vacuums. In addition, the L_{eq} noise level metric accounts for noise fluctuations over time by averaging the louder and quieter events and giving more weight to the louder events. In addition, due to the mathematical relationship between the median (L_{50}) and the mean (L_{eq}), the L_{eq} will always be larger than or equal to the L_{50}. The more variable the noise becomes, the larger the L_{eq} becomes in comparison to the L_{50}. Therefore, this noise study conservatively relies on the average L_{eq} sound level limits to describe the Project operational noise levels.

3.4 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Green River Ranch Specific Plan Amendment, noise from construction activities is typically evaluated against standards established under a City's Municipal Code. To analyze noise impacts originating from the construction of the Green River Ranch Specific Plan Amendment Project, noise from construction activities is typically evaluated against standards established under a City's Municipal Code. The City of Corona Municipal Code, Section 17.84.040[D][2], states that construction noise is prohibited between the hours of 8:00 p.m. to 7:00 a.m., Monday through Saturday and 6:00 p.m. to 10:00 a.m. on Sundays and federal holidays. While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} and a nighttime exterior construction noise level of 70 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (7 p. 179)

3.5 CONSTRUCTION VIBRATION STANDARDS

To analyze the vibration impacts originating from the construction of the Project, vibration from construction activities is typically evaluated against standards established under a City's Municipal Code. The City of Corona Municipal Code, Section 17.84.050, identifies a vibration velocity standard of 0.05 in/sec root-mean-square (RMS) for sensitive land uses which is used in this analysis as the basis for determining the relative significance of potential Project related vibration impacts. Typically, the human response at the perception threshold for vibration includes annoyance in residential areas as previously shown on Exhibit 2-B, when vibration levels expressed in vibration decibels (VdB) approach 75 VdB. The City of Corona, however, identifies a vibration perception threshold of 0.05 in/sec at any point on the affected property. For vibration levels expressed in velocity, the human body responds to the average vibration amplitude often described as the root-mean-square (RMS). Therefore, the City of Corona vibration standard of 0.05 in/sec in RMS velocity levels is used in this analysis to assess the human perception of vibration levels due to Project-related construction activities.

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

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

Since the Project is located more than two miles away from the nearest airport, the potential impacts are considered *less than significant,* and no further noise analysis is provided under Guideline C.

4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the nearest noise 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 (11). This approach recognizes that there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an effective 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) (12) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations

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

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera (11). 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 existing noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise 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 (4 p. 9) and Caltrans (13 p. 2_48).

4.3 NON-NOISE-SENSITIVE RECEIVERS

The City of Corona General Plan Noise Element (Table N-1) *Noise Levels and Land Use Compatibility Guidelines* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *clearly compatible* exterior noise level for non-noise-sensitive land use, such as commercial or industrial land use is 70 dBA CNEL. To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the *clearly compatible* 70 dBA CNEL land use compatibility criteria at non-noise sensitive land uses, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded.

4.4 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[1]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[2]	if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
On-Site Traffic	Residential[3]	Exterior Noise Level	65 dBA CNEL	
		Interior Noise Level	45 dBA CNEL	
Operational	Noise-Sensitive	Exterior Noise Level Standards[4]	See Table 3-1	
		if ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
	Non-Noise-Sensitive[2]	If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Construction	Noise-Sensitive	Prohibited between the hours of 8:00 p.m. to 7:00 a.m., Monday through Saturday and 6:00 p.m. to 10:00 a.m. on Sundays and federal holidays.[5]		
		Noise Level Threshold[6]	80 dBA L_{eq}	70 dBA L_{eq}
		Vibration Level Threshold[7]	0.05 in/sec RMS	

[1] FICON, 1992.
[2] City of Corona General Plan Noise Element (Table N-1)
[3] City of Corona General Plan Noise Element Table N-2 Interior and Exterior Noise Standards.
[4] City of Corona Municipal Code, Section 17.84.040 Noise[C][2] (Appendix 3.1).
[5] City of Corona Municipal Code, Section 17.84.040[D][2] Noise (Appendix 3.1).
[6] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018.
[7] City of Corona Municipal Code, Section 17.84.050 Vibration (Appendix 3.1).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "RMS" = root-mean-square

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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 Tuesday, November 3rd, 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. (14)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (7)

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

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

5.3 NOISE MEASUREMENT RESULTS

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

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

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located north of the Project site on Prado Road near existing single-family residential home at 4567 Pennyroyal Drive.	68.6	69.2	75.8
L2	Located east of the Project site on Dominguez Ranch Road near existing single-family residential home at 1230 Dominguez Ranch Road.	63.1	61.1	68.2
L3	Located west of the Project site on San Viscaya Circle near existing single-family residential home at 4311 San Viscaya Circle.	52.1	47.5	55.2
L4	Located west of the Project site on Green River Road by James Dawson indoor lodging at 19800 Lords Canyon.	68.3	64.5	71.9
L5	Located northwest of the Project stie on Crestridge Drive near existing single-family residential home at 4717 Green River Road.	64.7	61.1	69.0

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

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with CA-91 as well as nearby surface streets.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

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6 METHODS AND PROCEDURES

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

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

6.1.1 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 4 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Corona General Plan Circulation Element, and the vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on the *Green River Ranch Specific Plan Amendment Traffic Analysis* prepared by Urban Crossroads, Inc. for the following traffic scenarios under both Without and With Project alternatives: Existing (2023), Opening Year Cumulative (2023), and Horizon Year (2045). (16)

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. This analysis relies on a comparative evaluation of the off-site traffic noise impacts, without and with project ADT traffic volumes from the Project traffic study.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Existing Land Use[1]	Distance from Centerline to Receiving Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	Palisades Dr.	n/o Green River Rd.	Sensitive	38'	50
2	Green River Rd.	w/o Street A	Non-Sensitive	65'	45
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	65'	45
4	Green River Rd.	e/o Palisades Dr.	Sensitive	53'	45

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] Distance to receiving land use is based upon the right-of-way distances.
[3] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1), Urban Crossroads, Inc.

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

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Traffic Impact Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-5 through 6-11 show the vehicle mixes used for the with Project traffic scenarios.

Due to the added Project truck trips, the increase in Project traffic volumes and the distributions of trucks on the study area road segments, the percentage of autos, medium trucks and heavy trucks will vary for each of the traffic scenarios. This explains why the existing and future traffic volumes and vehicle mixes vary between seemingly identical study area roadway segments.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]									
			Existing (2023)				Opening Year Cumulative (2026)				Horizon Year (2045)	
			Without Project	With Project Phase 1	With Project Phase 2	With Project Buildout	Without Project	With Project Phase 1	With Project Phase 2	With Project Buildout	Without Project	With Project
1	Palisades Dr.	n/o Green River Rd.	3,349	3,561	3,815	4,279	4,279	4,492	4,745	4,794	4,279	4,794
2	Green River Rd.	w/o Street A	28,234	29,647	30,238	30,925	30,925	32,338	32,930	33,111	34,018	36,204
3	Green River Rd.	e/o Dominguez Ranch Rd.	26,858	27,746	28,676	29,149	29,149	30,037	30,967	31,082	32,064	33,996
4	Green River Rd.	e/o Palisades Dr.	25,444	26,120	26,796	27,560	27,560	28,236	28,912	28,978	30,316	31,734

[1] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1) Traffic Analysis, Urban Crossroads, Inc.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	70.18%	11.29%	18.53%	100.00%
Medium Trucks	76.89%	6.44%	16.67%	100.00%
Heavy Trucks	67.09%	7.59%	25.32%	100.00%

[1] Based on the March 28, 2023, 24-hour directional vehicle classification count collected on Green River Road between State Route 91 Eastbound Ramps and Fresno Road (Green River Ranch Specific Plan Amendment Traffic Analysis, Urban Crossroads, Inc.)
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: WITHOUT PROJECT VEHICLE MIX

Classification	Total % Traffic Flow[1]			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	98.65%	1.04%	0.31%	100.00%

[1] Based on the March 28, 2023, 24-hour directional vehicle classification count collected on Green River Road between State Route 91 Eastbound Ramps and Fresno Road (Green River Ranch Specific Plan Amendment Traffic Analysis, Urban Crossroads, Inc.)

TABLE 6-5: EXISTING WITH PROJECT PHASE 1 VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Palisades Dr.	n/o Green River Rd.	98.73%	0.98%	0.29%	100.00%
2	Green River Rd.	w/o Street A	97.20%	1.29%	1.51%	100.00%
3	Green River Rd.	e/o Dominguez Ranch Rd.	98.69%	1.00%	0.30%	100.00%
4	Green River Rd.	e/o Palisades Dr.	98.69%	1.01%	0.30%	100.00%

[1] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1), Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: EXISTING WITH PROJECT PHASE 2 VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Palisades Dr.	n/o Green River Rd.	98.82%	0.91%	0.27%	100.00%
2	Green River Rd.	w/o Street A	97.26%	1.27%	1.48%	100.00%
3	Green River Rd.	e/o Dominguez Ranch Rd.	98.74%	0.97%	0.29%	100.00%
4	Green River Rd.	e/o Palisades Dr.	98.72%	0.99%	0.30%	100.00%

[1] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1), Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-7: EXISTING WITH PROJECT BUILDOUT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Palisades Dr.	n/o Green River Rd.	98.83%	0.90%	0.27%	100.00%
2	Green River Rd.	w/o Street A	97.28%	1.26%	1.47%	100.00%
3	Green River Rd.	e/o Dominguez Ranch Rd.	98.74%	0.97%	0.29%	100.00%
4	Green River Rd.	e/o Palisades Dr.	98.72%	0.98%	0.29%	100.00%

[1] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1), Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-8: OPENING YEAR CUMULATIVE WITH PROJECT PHASE 1 VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Palisades Dr.	n/o Green River Rd.	98.71%	0.99%	0.30%	100.00%
2	Green River Rd.	w/o Street A	97.32%	1.27%	1.41%	100.00%
3	Green River Rd.	e/o Dominguez Ranch Rd.	98.69%	1.01%	0.30%	100.00%
4	Green River Rd.	e/o Palisades Dr.	98.68%	1.01%	0.30%	100.00%

[1] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1), Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-9: OPENING YEAR CUMULATIVE WITH PROJECT PHASE 2 VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Palisades Dr.	n/o Green River Rd.	98.78%	0.94%	0.28%	100.00%
2	Green River Rd.	w/o Street A	97.37%	1.25%	1.38%	100.00%
3	Green River Rd.	e/o Dominguez Ranch Rd.	98.73%	0.98%	0.29%	100.00%
4	Green River Rd.	e/o Palisades Dr.	98.71%	0.99%	0.30%	100.00%

[1] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1), Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-10: OPENING YEAR CUMULATIVE WITH PROJECT BUILDOUT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Palisades Dr.	n/o Green River Rd.	98.80%	0.93%	0.28%	100.00%
2	Green River Rd.	w/o Street A	97.39%	1.24%	1.37%	100.00%
3	Green River Rd.	e/o Dominguez Ranch Rd.	98.73%	0.97%	0.29%	100.00%
4	Green River Rd.	e/o Palisades Dr.	98.72%	0.99%	0.30%	100.00%

[1] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1), Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-11: HORIZON YEAR WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Palisades Dr.	n/o Green River Rd.	98.80%	0.93%	0.28%	100.00%
2	Green River Rd.	w/o Street A	97.49%	1.22%	1.28%	100.00%
3	Green River Rd.	e/o Dominguez Ranch Rd.	98.73%	0.98%	0.29%	100.00%
4	Green River Rd.	e/o Palisades Dr.	98.71%	0.99%	0.30%	100.00%

[1] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1), Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

6.1.2 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 in Table 6-12. The average daily traffic volumes for CA-91 Freeway are based on a 10-percent increase in the existing traffic volumes published in the Caltrans Traffic Data Branch *Annual Average Daily Truck Traffic on the California Highways System*. (17) Future Horizon Year 2045 with Project traffic volumes on Green River Road are based on the *Green River Ranch Specific Plan Amendment Traffic Analysis* prepared by Urban Crossroads. (16)

TABLE 6-12: ON-SITE TRAFFIC NOISE PREDICITON MODEL PARAMETERS

Roadway Segment	Future ADT Volume[1]	Speed (mph)
CA-91[1]	281,600	65
Green River Road[2]	36,204	45

[1] Average Daily Traffic (ADT) volumes are based on a 10-percent increase in existing volumes obtained from the Caltrans Traffic Data Branch Annual Average Daily Truck Traffic on the California Highways System.
[2] Green River Ranch Specific Plan Amendment (SP00-001 Amendment No. 1) Traffic Analysis, Urban Crossroads, Inc. Horizon Year 2040 with Project condition (Table 6-2)

Table 6-13 presents the traffic flow distributions (vehicle mix). The vehicle mix provides the distribution percentages of automobiles, medium trucks, and heavy trucks for input into the FHWA traffic noise prediction model.

TABLE 6-13: ON-SITE TRAFFIC NOISE PREDICTION MODEL VEHICLE MIX

Roadway	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
CA-91[1]	93.49%	2.79%	3.72%	100.00%
Green River Rd.[2]	98.65%	1.04%	0.31%	100.00%

[1] Caltrans Traffic Data Branch Annual Average Daily Truck Traffic on the California Highways System, 2018.
[2] Based on the March 28, 2023, 24-hour directional vehicle classification count collected on Green River Road between State Route 91 Eastbound Ramps and Fresno Road (Green River Ranch Specific Plan Amendment Traffic Analysis, Urban Crossroads, Inc.) See Table 6-4.

6.2 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior noise levels at the Project site, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, topography, buildings, and barriers in its calculations to predict exterior noise levels.

Using the ISO 9613 and the TNM protocols, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish from intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading. A default ground attenuation factor of 0.0 was used in the CadnaA noise analysis to account for hard site conditions.

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7 OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with the proposed Project, noise contours were developed based on the *Green River Ranch Specific Plan Amendment Traffic Analysis*. (16) 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 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area.

Tables 7-1 through 7-10 present a summary of the exterior dBA CNEL traffic noise level without barrier attenuation. Roadway segments are analyzed from the without Project to the with Project conditions in each of the following timeframes: Existing (2020), Opening Year Cumulative (2023), and Horizon Year (2040). Appendix 7.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	65.4	RW	40	87
2	Green River Rd.	w/o Street A	Non-Sensitive	71.3	79	171	368
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.1	77	165	356
4	Green River Rd.	e/o Palisades Dr.	Sensitive	71.7	69	148	319

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING WITH PROJECT PHASE 1 NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	65.6	RW	42	90
2	Green River Rd.	w/o Street A	Non-Sensitive	73.1	105	225	485
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.2	78	168	362
4	Green River Rd.	e/o Palisades Dr.	Sensitive	71.8	70	150	323

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: EXISTING WITH PROJECT PHASE 2 NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	65.8	RW	43	93
2	Green River Rd.	w/o Street A	Non-Sensitive	73.1	105	227	489
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.3	79	171	368
4	Green River Rd.	e/o Palisades Dr.	Sensitive	71.9	71	152	328

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: EXISTING WITH PROJECT BUILDOUT NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.3	RW	47	101
2	Green River Rd.	w/o Street A	Non-Sensitive	73.2	107	230	495
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.4	80	173	372
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.0	72	155	334

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: OPENING YEAR CUMULATIVE WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.4	RW	47	102
2	Green River Rd.	w/o Street A	Non-Sensitive	71.7	84	181	391
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.4	81	174	376
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.0	72	156	336

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: OPENING YEAR CUMULATIVE WITH PROJECT PHASE 1 NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.6	RW	49	105
2	Green River Rd.	w/o Street A	Non-Sensitive	73.4	109	235	505
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.5	82	177	382
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.1	73	158	341

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-7: OPENING YEAR CUMULATIVE WITH PROJECT PHASE 2 NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.8	RW	50	108
2	Green River Rd.	w/o Street A	Non-Sensitive	73.4	110	236	509
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.6	84	180	388
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.2	74	160	345

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-8: OPENING YEAR CUMULATIVE WITH PROJECT BUILDOUT NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.9	RW	50	109
2	Green River Rd.	w/o Street A	Non-Sensitive	73.4	110	237	510
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.7	84	180	389
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.2	74	160	345

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-9: HORIZON YEAR WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.4	RW	47	102
2	Green River Rd.	w/o Street A	Non-Sensitive	72.1	90	193	416
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.8	86	186	400
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.4	77	166	358

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-10: HORIZON YEAR WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.9	RW	50	109
2	Green River Rd.	w/o Street A	Non-Sensitive	73.7	115	247	532
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	72.0	89	192	413
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.6	79	170	367

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING PROJECT PHASE 1 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 to fully analyze all the existing traffic scenarios identified in the *Green River Ranch Specific Plan Amendment Traffic Analysis*. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 65.4 to 71.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project Phase 1 conditions will range from 65.6 to 73.1 dBA CNEL. Table 7-11 shows that the Project off-site traffic noise level impacts will range from 0.1 to 1.8 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.

7.3 EXISTING PROJECT PHASE 2 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 to fully analyze all the existing traffic scenarios identified in the *Green River Ranch Specific Plan Amendment Traffic Analysis*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 65.4 to 71.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-3 shows the Existing with Project Phase 2 conditions will range from 65.8 to 73.1 dBA CNEL. Table 7-12 shows that the Project off-site traffic noise level impacts will range from 0.2 to 1.8 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.

7.4 EXISTING PROJECT BUILDOUT 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 to fully analyze all the existing traffic scenarios identified in the *Green River Ranch Specific Plan Amendment Traffic Analysis*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 65.4 to 71.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Existing with Project Buildout conditions will range from 66.3 to 73.2 dBA CNEL. Table 7-13 shows that the Project off-site traffic noise level impacts will range from 0.3 to 1.9 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

7.5 OPENING YEAR CUMULATIVE PROJECT PHASE 1 TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the Opening Year Cumulative (2026) without Project conditions CNEL noise levels. The Opening Year Cumulative (2026) without Project exterior noise levels are expected to range from 66.4 to 72.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the Opening Year Cumulative (2026) with Project Phase 1 conditions will range from 66.6 to 73.4 dBA CNEL. Table 7-14 shows that the Project off-site traffic noise level increases will range from 0.1 to 1.7 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.

7.6 OPENING YEAR CUMULATIVE PROJECT PHASE 2 TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the Opening Year Cumulative (2026) without Project conditions CNEL noise levels. The Opening Year Cumulative (2026) without Project exterior noise levels are expected to range from 66.4 to 72.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-7 shows the Opening Year Cumulative (2026) with Project Phase 2 conditions will range from 66.8 to 73.4 dBA CNEL. Table 7-15 shows that the Project off-site traffic noise level increases will range from 0.2 to 1.7 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.

7.7 OPENING YEAR CUMULATIVE PROJECT BUILDOUT TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the Opening Year Cumulative (2026) without Project conditions CNEL noise levels. The Opening Year Cumulative (2026) without Project exterior noise levels are expected to range from 66.4 to 72.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-8 shows the Opening Year Cumulative (2026) with Project Buildout conditions will range from 66.9 to 73.4 dBA CNEL. Table 7-16 shows that the Project off-site traffic noise level increases will range from 0.2 to 1.7 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.

7.8 HORIZON YEAR PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-9 presents the Horizon Year (2045) without Project conditions CNEL noise levels. The Horizon Year (2045) without Project exterior noise levels are expected to range from 66.4 to 72.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-10 shows the Horizon Year (2045) with Project Buildout conditions will range from 66.9 to 73.7 dBA CNEL. Table 7-17 shows that the Project off-site traffic noise level increases will range from 0.2 to 1.6 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.

TABLE 7-11: EXISTING WITH PROJECT PHASE 1 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Palisades Dr.	n/o Green River Rd.	Sensitive	65.4	65.6	0.2	1.5	No
2	Green River Rd.	w/o Street A	Non-Sensitive	71.3	73.1	1.8	3.0	No
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.1	71.2	0.1	1.5	No
4	Green River Rd.	e/o Palisades Dr.	Sensitive	71.7	71.8	0.1	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-12: EXISTING PLUS AMBIENT GROWTH WITH PROJECT PHASE 2 TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Palisades Dr.	n/o Green River Rd.	Sensitive	65.4	65.8	0.4	1.5	No
2	Green River Rd.	w/o Street A	Non-Sensitive	71.3	73.1	1.8	3.0	No
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.1	71.3	0.2	1.5	No
4	Green River Rd.	e/o Palisades Dr.	Sensitive	71.7	71.9	0.2	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-13: EXISTING WITH PROJECT BUILDOUT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Palisades Dr.	n/o Green River Rd.	Sensitive	65.4	66.3	0.9	1.5	No
2	Green River Rd.	w/o Street A	Non-Sensitive	71.3	73.2	1.9	3.0	No
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.1	71.4	0.3	1.5	No
4	Green River Rd.	e/o Palisades Dr.	Sensitive	71.7	72.0	0.3	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-14: OPENING YEAR CUMULATIVE WITH PROJECT PHASE 1 TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.4	66.6	0.2	1.5	No
2	Green River Rd.	w/o Street A	Non-Sensitive	71.7	73.4	1.7	3.0	No
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.4	71.5	0.1	1.5	No
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.0	72.1	0.1	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-15: OPENING YEAR CUMULATIVE WITH PROJECT PHASE 2 TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.4	66.8	0.4	1.5	No
2	Green River Rd.	w/o Street A	Non-Sensitive	71.7	73.4	1.7	3.0	No
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.4	71.6	0.2	1.5	No
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.0	72.2	0.2	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-16: OPENING YEAR CUMULATIVE WITH PROJECT BUILDOUT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.4	66.9	0.5	1.5	No
2	Green River Rd.	w/o Street A	Non-Sensitive	71.7	73.4	1.7	3.0	No
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.4	71.7	0.3	1.5	No
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.0	72.2	0.2	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-17: HORIZON YEAR WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Existing Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Palisades Dr.	n/o Green River Rd.	Sensitive	66.4	66.9	0.5	1.5	No
2	Green River Rd.	w/o Street A	Non-Sensitive	72.1	73.7	1.6	3.0	No
3	Green River Rd.	e/o Dominguez Ranch Rd.	Sensitive	71.8	72.0	0.2	1.5	No
4	Green River Rd.	e/o Palisades Dr.	Sensitive	72.4	72.6	0.2	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

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8 ON-SITE TRANSPORTATION NOISE IMPACTS

An on-site exterior noise impact analysis has been completed to determine the noise exposure levels and land use compatibility that would result from adjacent transportation noise sources in the Project study area. The primary source of transportation noise affecting the Project site is anticipated to be from CA-91 and Green River Road. However, the planned estate residential land use will benefit from the existing topography separating the noise sensitive land use from traffic noise on CA-91. The change in elevation and distances separating CA-91 from the planned estate residential land use will provide substantial exterior noise mitigation.

The Project would also be exposed to nominal traffic noise from the Project's internal roads. However, due to the distance, topography and low traffic volume/speed, traffic noise from these roads will not make a substantive contribution to ambient noise conditions. This section analyzes on-site exterior and interior noise levels at the noise sensitive residential estate land use.

8.1 NOISE LEVEL AND LAND USE COMPATIBILITY

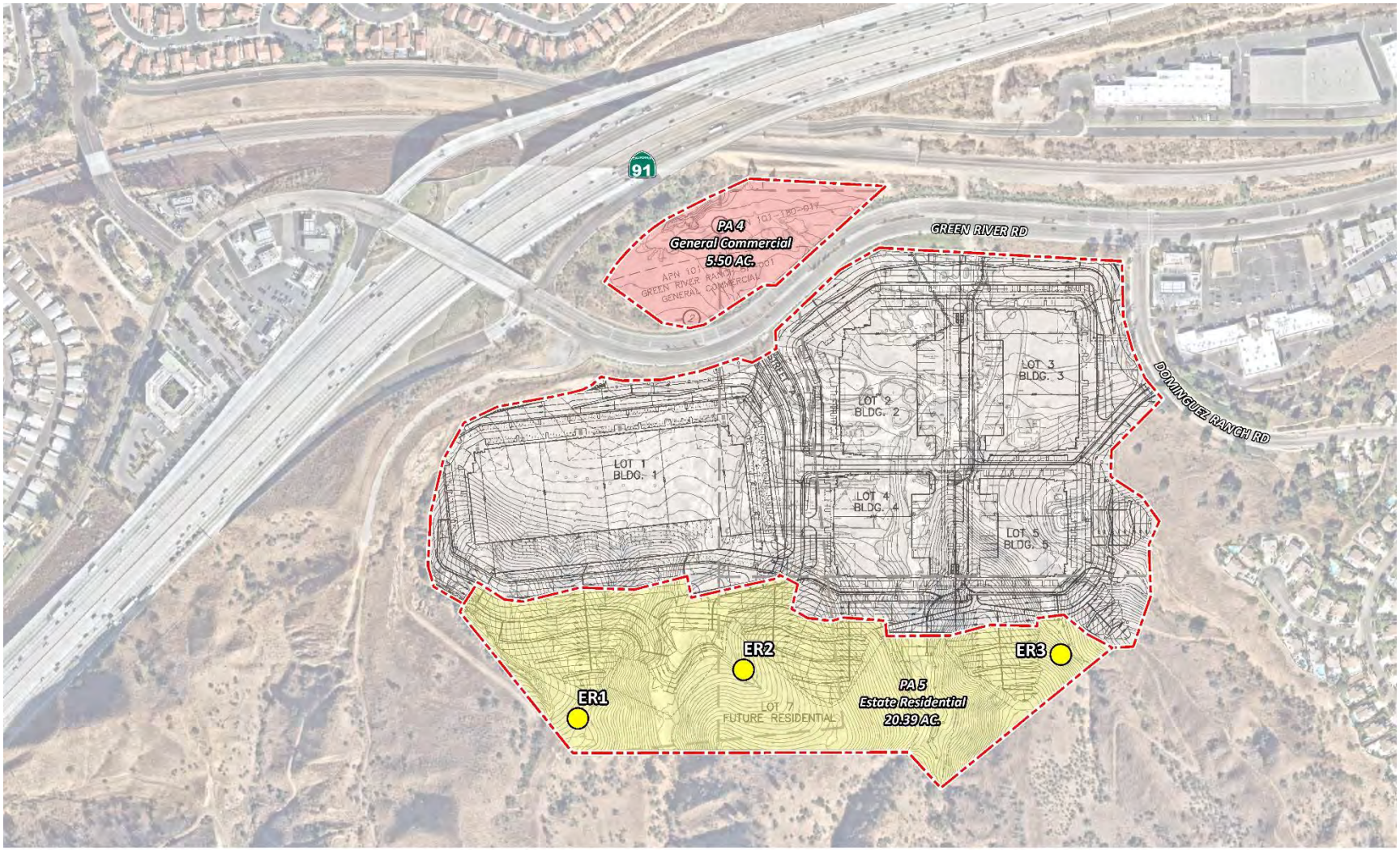
Since the actual locations of the estate residential lots is not known at time, three on-site estate residential receivers were selected to represent the noise sensitive land use as shown on Exhibit 8-A. Using the FHWA traffic noise prediction model, and the parameters outlined in Section 6, the expected future exterior noise levels at the noise sensitive residential estate lots were calculated. Table 8-1 presents a summary of future exterior noise level impacts at the noise sensitive residential estate lots. The on-site transportation noise level impacts indicate that the unmitigated exterior noise levels will range from 53.4 to 65.2 dBA CNEL. The on-site traffic noise analysis calculations are provided in Appendix 8.1. Based on Exhibit 3-A, land use for single-family residential homes is considered *normally compatible* with unmitigated exterior noise levels of up to 70 dBA CNEL. For *normally compatible* noise levels, *new construction should be undertaken only after detailed analysis of the noise reduction requirements and needed noise insultation features are determined. Conventional Construction with windows closed and fresh air supply or air conditioning, will normally suffice.* Therefore, no exterior noise mitigation is required to satisfy the *Noise Levels and Land Use Compatibility Guidelines*.

TABLE 8-1: UNMITIGATED EXTERIOR TRAFFIC NOISE LEVELS

Receiver Location	Source	Unmitigated Exterior Noise Level (dBA CNEL)	Single-Family Land Use Compatibility[1]
ER1	CA-91, Green River Rd.	64.6	*Normally Compatible*
ER2	CA-91, Green River Rd.	56.5	*Normally Compatible*
ER3	CA-91, Green River Rd.	52.8	*Normally Compatible*

[1] Based on the General Plan Noise Element *Noise Levels and Land Use Compatibility Guidelines* as shown on Exhibit 3-A. Normally Compatible: New construction should be undertaken only after detailed analysis of the noise reduction requirements and needed noise insultation features are determined. Conventional Construction with windows closed and fresh air supply or air conditioning, will normally suffice.

EXHIBIT 8-A: ON-SITE ESTATE RESIDENTIAL RECEIVER LOCATIONS



8.2 EXTERIOR NOISE ANALYSIS

In addition, to demonstrating that the Project land uses are compatible with the *Noise Levels and Land Use Compatibility Guidelines,* the City of Corona General Plan Noise Element specifies the maximum noise levels allowable for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. For noise-sensitive residential land uses, the Noise Element indicates that the exterior noise levels shall not exceed 65 dBA CNEL. The City of Corona does not identify any exterior noise standards for the Project commercial land use or industrial land use activities. As shown on Table 8-1, the unmitigated future exterior noise levels will range from 52.8 to 64.6 dBA CNEL and will satisfy the City of Corona 65 dBA CNEL exterior noise standards.

8.3 INTERIOR NOISE ANALYSIS

To ensure that the Project provides an acceptable interior noise environment, this analysis relies on the City of Corona 45 dBA CNEL interior noise limit for new construction.

8.3.1 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." (4) (18) 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.

8.3.2 INTERIOR NOISE LEVEL ASSESSMENT

Table 8-2 shows that the buildings within the Project will require windows-closed condition and a means of mechanical ventilation (e.g., air conditioning). Table 8-2 shows that the future interior noise levels are expected to range from 25.8 to 39.6 dBA CNEL. The interior noise level analysis shows that the 45 dBA CNEL interior noise level standard can be satisfied using standard building construction providing windows and sliding glass doors with minimum STC ratings of 27.

TABLE 8-2: INTERIOR NOISE LEVELS (CNEL)

Receiver Location	Source	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Estimated Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]
ER1	CA-91, Green River Rd.	64.6	19.6	25.0	No	39.6
ER2	CA-91, Green River Rd.	56.5	11.5	26.0	No	30.5
ER3	CA-91, Green River Rd.	52.8	7.8	27.0	No	25.8

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise limits.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.

9 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 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, five receiver locations in the vicinity of the Project site were identified. 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 4489 Feather River Road, approximately 676 feet north of the Project site. R1 is placed at the private outdoor living area (backyard) facing the Project site. 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 1220 Dominguez Ranch Road, approximately 652 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R2 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 4341 San Viscaya Circle, approximately 246 feet east of the Project site. R3 is placed at the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

R4: Location R4 represents the mobile homes at 4901 Green River Road, approximately 1,195 feet west of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R4 is placed at the residential building façade. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

R5: Location R5 represents the existing noise sensitive residence at 4717 Green River Road, approximately 1,158 feet northwest of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R5 is placed at the residential building façade. A 24-hour noise measurement near this location, L5, is used to describe the existing ambient noise environment.

EXHIBIT 9-A: SENSITIVE RECEIVER LOCATIONS

10 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 9, resulting from the operation of the proposed Green River Ranch Specific Plan Amendment Project. Exhibit 10-A identifies the representative noise source locations used to assess the operational noise levels. Since the noise source activities and locations for the commercial planning area are not known at this time, the underlying uses permitted by Conditional Use Permit (CUP) are used to describe the operational noise levels. To describe the commercial noise sources activity, several commercial noise source activities are placed throughout the Project site to ensure that the analysis fully considers the potential noise levels for potential uses permitted by the CUP.

10.1 OPERATIONAL NOISE SOURCES

At the time this noise analysis was prepared the future tenants of the proposed Project were unknown. Therefore, this operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities associated with the land uses at the Project site. It is expected that the commercial Project component will operate during normal business hours for each use. The hours of operation for each individual noise source activity are described in more detail below in Section 10.2 and outlined on Table 10-1. In addition, this analysis assumes the Project industrial and warehouse uses would be operational 24 hours per day, seven days per week. In addition, Project industrial and warehouse operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: loading dock activity, truck movements, roof-top air conditioning units, gas station activity, drive-thru activity, and trash enclosure activity, car wash tunnels and car wash vacuums.

10.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the loading dock activity, truck movements, roof-top air conditioning units, gas station activity, drive-thru activity, and trash enclosure activity, car wash tunnels and car wash vacuums all operating continuously. These sources of noise activity will likely vary throughout the day.

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS

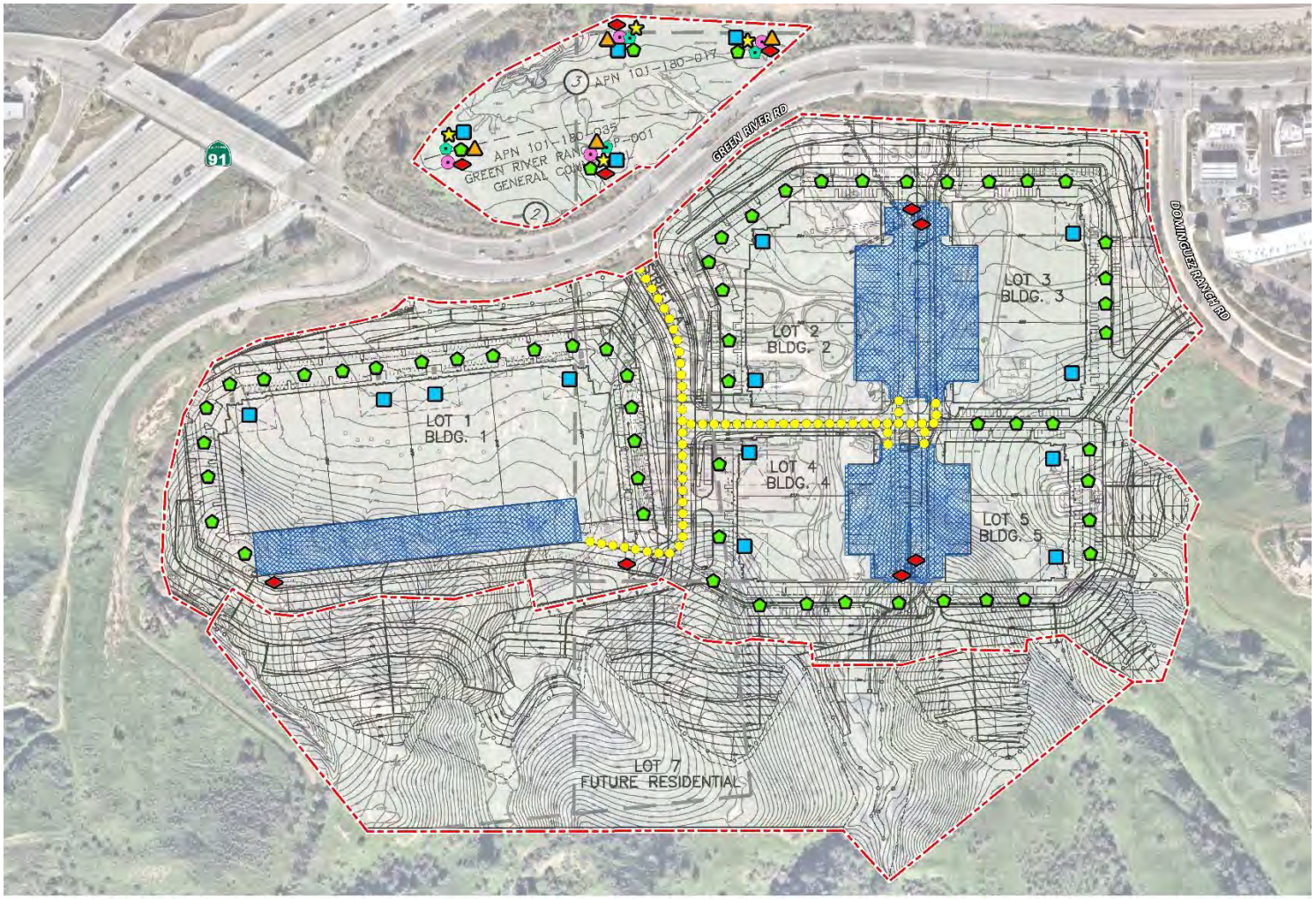


TABLE 10-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	65.7	111.5
Truck Movements	8'	-[4]	-[4]	58.0	89.7
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Gas Station Activity	5'	60	60	48.2	79.9
Parking Lot Vehicle Movements	5'	60	60	56.1	87.8
Drive-Thru Activity	3'	60	60	51.5	83.2
Trash Enclosure Activity	5'	10	10	57.3	89.0
Car Wash Tunnel	8'	60	0	74.3	106.0
Car Wash Vacuum	3'	60	0	54.6	86.3

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:0 p.m. - 7:00 a.m.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.
[4] Truck Movements are calculated based on the number of events by time of day (See Table 10-2).

10.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (14)

10.2.2 LOADING DOCK ACTIVITY

To describe the loading dock activities, a reference noise level measurement was collected to represent the truck activities. The reference noise level measurement was taken in the center of the loading dock activity area and represents multiple concurrent noise sources resulting in a combined noise level of 65.7 dBA L_{eq} at a uniform distance of 50 feet. Specifically, the reference noise level measurement represents one truck located approximately 30 feet from the noise level meter with another truck passing by to park roughly 20 feet away, both with their engines idling. Throughout the reference noise level measurement, a separate docked and running reefer truck was located approximately 50 feet east of the measurement location. Additional background noise sources included truck pass-by noise, truck drivers talking to each other next to docked trucks, and air brake release noise when trucks parked.

10.2.3 TRUCK MOVEMENTS

Truck movements reference noise level measurement were taken over a 15-minute period and represent multiple noise sources producing a reference noise level of 58.0 dBA Leq at 50 feet. The noise sources included at this measurement location account for trucks entering and exiting the Project driveways and maneuvering in and out of the outdoor loading dock activity area. Consistent with the *Green River Ranch Specific Plan Amendment Traffic Analysis*, the Project is expected to generate a total of approximately 4,370 trip-ends per day (actual vehicles) and includes 448 truck trip-ends per day. (16) This noise study relies on the actual Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of individual truck trips on the study area roadway network. Using the estimated number of truck trips in combination with time-of-day vehicle splits, the number of entry gates and truck movements by driveway location were calculated. As shown on Table 10-2, this information is then used to calculate the entry gate and truck movements operational noise source activity based on the number of events by time of day.

TABLE 10-2: TRUCK MOVEMENTS BY LOCATION

Entry Gate & Truck Movement Location[1]	Total Project Truck Trips[2]	Trip Dist.[3]		Truck Trips by Location[4]	Time of Day Vehicle Splits[5]			Truck Movements[6]		
		In	Out		Day	Evening	Night	Day	Evening	Night
Driveway	448	100%	100%	448	67.09%	7.59%	25.32%	301	34	113

[1] Driveway location as shown on Exhibit 10-A.
[2] Total Project truck trips according to Table 4-2 of the Green River Ranch Specific Plan Amendment, Traffic Analysis.
[3] Project truck trip distribution according to Exhibit 4-2 of the Green River Ranch Specific Plan Amendment, Traffic Analysis.
[4] Calculated trip trucks per location represents the product of the total (inbound and outbound) project truck trips by and the trip distribution.
[5] Heavy truck time of day vehicle splits as shown on Table 6-3.
[6] Calculated time of day entry gate and truck movements by location.

10.2.4 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise level is 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

10.2.5 GAS STATION ACTIVITY

To describe the potential noise level impacts created by the gas station of the Project, a reference noise level measurement was collected. The reference noise level measurement includes six cars fueling at once, car doors closing, engines starting, fuel pump TV sounds and background car

pass-by events within a 3-minute period. At 50 feet from the gas station, a reference noise level of 48.2 dBA L_{eq} was measured.

10.2.6 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity, a long-term 29-hour reference noise level measurement was collected in the center of activity within the staff parking lot of a warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 56.1 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due cars pulling in and out of parking spaces in combination with car doors opening and closing.

10.2.7 DRIVE-THRU ACTIVITY

To describe the potential noise level impacts associated with potential drive-thru speakerphones and vehicle activities, a reference noise level measurement was collected. The reference noise levels collected are expected to reflect potential drive-thru speakerphone noise level activities at the Project site, since the reference measurement includes both drive-thru speakerphone and vehicle activity noise. The noise sources included in the reference noise level measurement consist of voices of the employees over the speakerphone, customers' voices ordering food, car engines idling, car radios playing music, and cars queuing in the drive-thru lane. At 50 feet from the speakerphone, a reference noise level of 51.5 dBA L_{eq} was measured. This reference noise level measurement overstates the actual average noise levels since it represents the average of 28 speakerphone menu board ordering events observed over a two-hour period. In other words, the speakerphone menu board reference noise level describes continuous drive-thru operations and does not include any periods of inactivity.

10.2.8 TRASH ENCLOSURE ACTIVITY

The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The trash enclosure activity noise levels include two metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster, and background parking lot vehicle movements. Noise associated with trash enclosure activities is conservatively expected to occur for 5 minutes per hour.

10.2.9 CAR WASH TUNNEL

A reference noise level measurement was taken by Urban Crossroads to describe the air blowers used in a car wash tunnel. A reference noise level of 74.3 dBA L_{eq} was measured at the uniform distance of 50 feet. The reference noise level measurement includes an exposed five-unit air blower system with background pressure washer noise and is used to represent the proposed Project facilities. It is anticipated that the air dryers within the proposed car wash will operate continuously during the peak operating conditions. Further, this noise analysis does not include any additional attenuation or directional influence provided by locating the car wash air blower and dryer equipment inside the tunnel itself, but rather, models the tunnel exit activities as occurring at the building façade. As such, the analysis may conservatively overstate actual noise

levels produced by the car wash tunnel air blower and dryer equipment. The car wash tunnel will be limited to daytime hours only.

10.2.10 CAR WASH VACUUM

To represent the self-serve vacuums within the Project site, a reference noise level measurement was collected at an express car wash. The reference noise level measurement represents up to four vacuums operating simultaneously. At a uniform reference distance of 50 feet, the vacuum reference noise level is 54.6 dBA L_{eq}. The car wash vacuum will be limited to the daytime hours only.

10.3 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, truck movements, roof-top air conditioning units, gas station activity, drive-thru activity, and trash enclosure activity, car wash tunnels and car wash vacuums, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Tables 10-3 show the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 32.3 to 53.6 dBA L_{eq}.

TABLE 10-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	R5
Loading Dock Activity	44.4	39.9	49.2	29.8	41.8
Truck Movements	35.0	29.1	35.0	16.0	29.4
Roof-Top Air Conditioning Units	37.2	31.4	32.7	16.4	32.8
Gas Station Activity	27.5	11.1	14.5	2.1	19.2
Parking Lot Vehicle Movements	40.7	36.9	37.9	21.9	37.2
Drive-Thru Activity	32.5	14.1	18.2	4.6	22.7
Trash Enclosure Activity	30.3	14.4	21.1	6.4	21.9
Car Wash Tunnel	52.4	34.9	39.7	26.8	43.3
Car Wash Vacuum	33.3	15.7	18.9	6.3	24.1
Total (All Noise Sources)	**53.6**	**43.0**	**50.2**	**32.3**	**46.6**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.1.

Table 10-4 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 30.6 to 49.6 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the duration of noise activity (Table 9-1).

TABLE 10-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	R5
Loading Dock Activity	44.4	39.9	49.2	29.8	41.8
Truck Movements	30.8	24.9	30.8	11.7	25.1
Roof-Top Air Conditioning Units	34.8	29.0	30.2	14.0	30.4
Gas Station Activity	27.5	11.1	14.5	2.1	19.2
Parking Lot Vehicle Movements	40.7	36.9	37.9	21.9	37.2
Drive-Thru Activity	32.5	14.1	18.2	4.6	22.7
Trash Enclosure Activity	29.3	13.5	20.1	5.4	20.9
Car Wash Tunnel	0.0	0.0	0.0	0.0	0.0
Car Wash Vacuum	0.0	0.0	0.0	0.0	0.0
Total (All Noise Sources)	**46.7**	**42.0**	**49.6**	**30.6**	**43.5**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.1.

10.4 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Corona exterior noise level standards at the nearest noise-sensitive receiver locations. Table 10-5 shows the operational noise levels associated with Green River Ranch Specific Plan Amendment Project will satisfy the City of Corona 55 dBA L_{eq} daytime and 50 dBA L_{eq} nighttime exterior noise level standards at all the nearest receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearest noise-sensitive receiver locations.

TABLE 10-5: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	53.6	46.7	55	50	No	No
R2	43.0	42.0	55	50	No	No
R3	50.2	49.6	55	50	No	No
R4	32.3	30.6	55	50	No	No
R5	46.6	43.5	55	50	No	No

[1] See Exhibit 9-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 10-3 and 10-4.
[3] Exterior noise level standards for source (commercial) land use, as shown on Table 4-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

10.5 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearest receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. As indicated on Tables 10-6 and 10-7, the Project will generate operational noise level increases ranging from 0.0 to 4.2 dBA at the nearest receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented on Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 10-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	53.6	L1	68.6	68.7	0.1	1.5	No
R2	43.0	L2	63.1	63.1	0.0	3.0	No
R3	50.2	L3	52.1	54.3	2.2	5.0	No
R4	32.3	L4	68.3	68.3	0.0	1.5	No
R5	46.6	L5	64.7	64.8	0.1	3.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 10-3.
[3] Ambient noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 10-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	46.7	L1	69.2	69.2	0.0	1.5	No
R2	42.0	L2	61.1	61.2	0.1	3.0	No
R3	49.6	L3	47.5	51.7	4.2	5.0	No
R4	30.6	L4	64.5	64.5	0.0	3.0	No
R5	43.5	L5	61.1	61.2	0.1	3.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 10-4.
[3] Ambient noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

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, the City of Corona Municipal Code, Section 17.84.040[D][2], states that construction noise is prohibited between the hours of 8:00 p.m. to 7:00 a.m., Monday through Saturday and 6:00 p.m. to 10:00 a.m. on Sundays and federal holidays.

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:

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

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

11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project typical construction noise levels, measurements were collected for similar activities at several construction sites. Table 11-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 11-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet. Construction noise generated from concrete crushing activities and nighttime concrete pours are addressed separately, below.

EXHIBIT 11-A: TYPICAL CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS

TABLE 11-1: TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

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

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.

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 with multiple pieces of equipment operating simultaneously 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 11-2, the construction noise levels are expected to range from 46.6 to 69.9 dBA L_{eq}, and the highest construction levels are expected to range from 56.7 to 69.9 dBA L_{eq} at the nearest receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

TABLE 11-2: TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	66.5	69.9	68.1	66.2	65.8	59.8	69.9
R2	60.5	63.9	62.1	60.2	59.8	53.8	63.9
R3	61.9	65.3	63.5	61.6	61.2	55.2	65.3
R4	53.3	56.7	54.9	53.0	52.6	46.6	56.7
R5	63.6	67.0	65.2	63.3	62.9	56.9	67.0

[1] Typical construction noise source and receiver locations are shown on Exhibit 11-A.
[2] Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 11.1.

11.4 TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest noise sensitive receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the daytime 80 dBA L_{eq} 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.

TABLE 11-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	69.9	80	No
R2	63.9	80	No
R3	65.3	80	No
R4	56.7	80	No
R5	67.0	80	No

[1] Typical construction noise source and receiver locations are shown on Exhibit 11-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 11-2.
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment noise level threshold as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

Nighttime concrete pouring activities may occur as a part of Project construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual buildings area. Since the nighttime concrete pours may take place outside the

permitted hours of construction as outlined in Section 3.4, the Project Applicant will be required to obtain prior authorization for nighttime work from the City of Corona. Nighttime concrete pours or any grading or construction that needs to be done outside of the city's permissible construction hours will require the submittal of a Noise Variance application pursuant to City of Corona Municipal Code Section 17.84.040(H). A noise variance is subject to the review of the city's Board of Zoning Adjustment. The noise variance would need to be approved prior to the issuance of a grading or building permit, whichever is associated with the nighttime work.

Table 11-4 shows that the concrete pour activities (paving) noise will range from 43.4 to 62.5 dBA $L_{eq.}$ at the nearest sensitive receiver locations. The nighttime concrete pour noise analysis shows that the nearest receiver locations will satisfy the nighttime 70 dBA L_{eq} noise level significance threshold. Therefore, the unmitigated nighttime concrete pour noise level impacts are considered *less than significant* at the nearest noise-sensitive receiver locations.

TABLE 11-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Paving Construction[2]	Threshold[3]	Threshold Exceeded?[4]
R1	62.5	70	No
R2	58.6	70	No
R3	57.4	70	No
R4	43.4	70	No
R5	58.7	70	No

[1] Typical construction noise source and receiver locations are shown on Exhibit 11-A.
[2] Paving construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 11-2.
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment noise level threshold (Table 4-1).
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.6 TYPICAL CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground vibration levels associated with various types of construction equipment are summarized on Table 11-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 11-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018.

Table 11-6 presents the expected typical construction equipment vibration levels at the nearest receiver locations. At distances ranging from 246 feet to 986 feet from typical Project construction activities (at the Project site boundary), construction vibration levels are estimated to range from 0.0000 to 0.003 in/sec RMS at the nearest receiver locations. The Project construction is not expected to generate vibration levels exceeding the City of Corona maximum acceptable vibration standard of 0.05 in/sec (RMS). Further, impacts at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating proximate to the Project site perimeter.

Moreover, construction at the Project site will be restricted to daytime hours consistent with City requirements thereby eliminating potential vibration impact during the sensitive nighttime hours. On this basis the potential for the Project to result in exposure of persons to, or generation of, excessive ground-borne vibration is determined to be *less than significant*.

TABLE 11-6: TYPICAL CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Land Use	Distance to Property Line (In Feet)	Receiver PPV Levels (in/sec)[2]					RMS Velocity Levels[3] (in/sec)	Potential Significant Impact?[4]
			Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration		
R1	Residential	559'	0.0000	0.0003	0.0007	0.0008	0.0008	0.0006	No
R2	Residential	526'	0.0000	0.0004	0.0008	0.0009	0.0009	0.0007	No
R3	Residential	246'	0.0001	0.0011	0.0025	0.0029	0.0029	0.0020	No
R4	Residential	983'	0.0000	0.0001	0.0003	0.0004	0.0004	0.0003	No
R5	Residential	986'	0.0000	0.0001	0.0003	0.0004	0.0004	0.0003	No

[1] Typical construction noise source and receiver locations are shown on Exhibit 11-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 11-4.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2020.
[4] Does the Peak Vibration exceed the City of Corona maximum acceptable vibration standard of 0.05 in/sec?

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12 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
6. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
7. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
8. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
9. **City of Corona.** *General Plan 2020-2040 Noise Element.*
10. —. *Municipal Code, Section 17.84.040 Noise.*
11. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
12. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
13. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
14. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
15. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
16. **Urban Crossroads, Inc.** *Green River Ranch Specific Plan Amendment Traffic Analysis.* June 2024.
17. **Caltrans Traffic Data Branch Annual Average Daily Truck Traffic (ADT) Volumes on the California Highway System .** 2018.
18. **California Department of Transportation.** *Traffic Noise Analysis Protocol.* May 2011.

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13 CERTIFICATIONS

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Green River Ranch Specific Plan Amendment 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) 584-3148.

Bill Lawson, P.E., INCE
Principal
URBAN CROSSROADS, INC.
1133 Camelback #8329
Newport Beach, CA 92658
(949) 581-3148
blawson@urbanxroads.com

EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

CITY OF CORONA MUNICIPAL CODE

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17.84.040 Noise.

(A) **Purpose and intent**.

(1) The purpose of this section is to regulate noise and vibration in the interest of the public health, safety and general welfare. The city finds that certain noise levels and vibrations are detrimental to the public health, safety and general welfare and that the primary sources of noise in the city are freeways, highways, manufacturing uses, railroads, the airport and construction noise. The noise element of the General Plan contains the city's policies regarding noise and identifies noise contours for existing and future roadways and the Corona Municipal Airport, which are implemented by this chapter. The General Plan noise element shall govern all noise standards and policies.

(2) In order to control unnecessary, excessive and annoying noise and vibration in the city, it is hereby declared to be the policy of the city to prohibit such noise and vibration generated from or by all sources as specified in this chapter. It shall be the policy of the city to maintain quiet in those areas which exhibit low noise levels and to implement programs to reduce noise in those areas within the city where noise levels are above acceptable values. It is the intent of the city to minimize noise impacts to adjacent land uses pursuant to the standards identified herein.

(B) **Definitions**. Terms found in this chapter shall be defined as follows. Additional definitions are found in the noise element of the General Plan.

(1) "**A-weighted sound level**." The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter network is designed to simulate the response of the human ear. The A-weighted sound level is expressed by the symbol dBA.

(2) "**Ambient noise**." The composite of noise from all existing sources near and far. The ambient noise level constitutes the normal or existing level of environmental noise at a given location, excluding any alleged offensive noise.

(3) "**Cumulative period**." An additive period of time composed of individual time segments which may be continuous or interrupted.

(4) "**Community noise equivalent level (CNEL)**." The average equivalent A-weighted sound level during a 24 hour day, obtained after addition of five decibels to sound levels between 7:00 p.m. and 10:00 p.m. and the addition of ten decibels to sound levels between 10:00 p.m. and 7:00 a.m.

(5) "**Decibel (dB)**." A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals.

(6) "**Impulsive noise**." A noise of short duration, usually less than one second, and of high intensity, with an abrupt onset and rapid decay.

(7) "**Noise study**." An acoustical analysis performed by a qualified noise engineer which determines the potential noise impacts of a roadway, land use or operation of equipment. The noise study will generate noise contours and recommend mitigation for noise impacts which exceed the city's noise standards.

(8) "**Sensitive land uses**." Those specific land uses which have associated human activities that may be subject to stress or significant interference from noise. Sensitive land uses include single family residential, multiple family residential, churches, hospitals and similar health care institutions, convalescent homes, libraries and school classroom areas.

(9) "**Simple tone noise**." A noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished. When measured, a simple tone noise shall exist if the one-third octave band sound pressure levels in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two continuous one-third octave bands as follows: 5 dB for frequencies of 500 hertz or above or by 15 dB for frequencies less than or equal to 125 hertz.

(10) "**Sound attenuation device**." An enclosure, blanket, vault, box, wall, fence, panel, baffle, coating, material, silencer, or other appurtenance, mechanism, or device intended to reduce the noise level of mechanical equipment.

(C) **Noise standards**.

(1) The noise ordinance identifies two separate types of noise sources: transportation and stationary. Transportation related noise sources, such as freeways, airports and railroads, are identified within this chapter and are mainly for the planning stages of project development. The noise metrics used for this noise type is the Community Noise Equivalent Level (CNEL) which is a 24 hour time weighted average noise level. The other type of noise standard is for stationary noise sources, such as industrial or construction noise, that may be intrusive to a neighboring private property. The noise metric used for stationary sources is defined as noise levels that cannot be exceeded for certain percentages of time. The noise standards shown in Table 1 are for regulating the impact of stationary noise sources to a neighboring private property. Standards for transportation related noise are found in Table 2.

(2) Stationary noise sources.

TABLE 1 STATIONARY NOISE SOURCE STANDARDS

TYPE OF LAND USE	MAXIMUM ALLOWABLE NOISE LEVELS			
	Exterior Noise Level		Interior Noise Level	
	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
Single-, Double- and Multi-Family Residential	55 dBA	50 dBA	45 dBA	35 dBA
Other Sensitive Land Uses	55 dBA	50 dBA	45 dBA	35 dBA
Commercial Uses	65 dBA	60 dBA	Not applicable	Not applicable
Industrial, Manufacturing or Agricultural	75 dBA	70 dBA	Not applicable	Not applicable

(a) Each of the noise limits specified here shall be reduced by 5 dBA for impulse or simple tone noises; provided, however, that if the ambient noise level exceeds the resulting standards, the ambient shall be the standard.

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

(c) If the intruding noise is continuous and cannot be reasonably discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the source is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of the day the noise level is measured. The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the Code Enforcement Officer for the purpose of establishing the existing ambient noise level at the measurement location.

(d) Exterior noise:

1. It shall be unlawful for any person, entity or operation at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property to exceed:

a. The noise standard for a cumulative period of more than 30 minutes in any hour;

b. The noise standard plus 5 dB for a cumulative period of more than 15 minutes in any hour;

c. The noise standard plus 10 dB for a cumulative period of more than five minutes in any hour;

d. The noise standard plus 15 dB for a cumulative period of more than one minute in any hour; or

e. The noise standard plus 20 dB for any period of time.

2. In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to the category shall be increased to reflect the ambient noise level. In the event the ambient noise level exceeds the fifth noise category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

(e) Interior noise. It shall be unlawful for any person at any location within the incorporated area of the city to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such a person which causes the noise level when measured within any other residential dwelling unit or sensitive land use to exceed:

1. The noise standard for a cumulative period of more than five minutes in any hour;

2. The noise standard plus 5 dB for a cumulative period of more than one minute in any hour; or

3. The noise standard plus 10 dB, or the maximum measured ambient, for any period of time.

(3) Transportation noise sources.

TABLE 2 TRANSPORTATION NOISE SOURCE STANDARDS		
TYPE OF LAND USE	EXTERIOR NOISE LEVEL	INTERIOR NOISE LEVEL
	(Private Outdoor Living Areas)	
Residential (Roadway)	65 CNEL	45 CNEL
Residential (Airport)	65 CNEL	45 CNEL
Other sensitive land uses (Roadway)	65 CNEL	45 CNEL

Other sensitive land uses (Airport)	65 CNEL	45 CNEL
Hotels/Motels (Roadway)	65 CNEL	45 CNEL
Hotels/Motels (Airport)	65 CNEL	45 CNEL

(a) **Roadway noise**. A noise study shall be performed prior to the construction of new master planned roads, roadway improvements, rail lines and/or prior to the construction of residential or sensitive land uses adjacent to existing or master planned roads or railways. The noise study shall identify the existing and future noise contours for the roadway and propose mitigation measures to reduce the noise impacts to a maximum of 65 dBA CNEL in the private outdoor living area of residences and to a maximum interior noise level of 45 dBA CNEL for residential and sensitive land uses, as shown in Table 2.

(b) **Airport noise**. Sensitive land uses, site-built homes and institutional uses are prohibited in airport noise contours above 65 dBA CNEL. All subdivisions within two miles of the Corona Municipal Airport or within the 65 dBA CNEL contour shall show and record an avigation easement for the benefit of the airport. The avigation easement shall provide notification to potential buyers and occupants of the presence of the easement and the potential for over flights and aircraft noise.

(D) **Special provisions**.

(1) **Mechanical equipment in residential zones.** Upon application for a building permit to install mechanical equipment, such as air conditioner and pool equipment, in a residential zone, the equipment shall be setback at least ten feet from an adjoining property line except where a five foot high block sound wall is maintained extending a distance of two feet on each side of such equipment and situated either between such equipment and the property line or on said property line. Exception: Mechanical equipment in residential zones shall be permitted closer than ten feet from an adjoining property line without a five foot high block sound wall when sound attenuation devices approved by the Building Official are installed. The noise level with sound attenuation devices installed shall comply with the limits and conditions specified in § 17.84.040(C)(2) when measured from any adjoining property. The approved sound attenuation devices shall be maintained and any approvals shall not be construed to permit violations of this code.

(2) **Construction noise**. Construction noise is prohibited between the hours of 8:00 p.m. to 7:00 a.m., Monday through Saturday and 6:00 p.m. to 10:00 a.m. on Sundays and federal holidays. Construction noise is defined as noise which is disturbing, excessive or offensive and constitutes a nuisance involving discomfort or annoyance to persons of normal sensitivity residing in the area, which is generated by the use of any tools, machinery or equipment used in connection with construction operations.

(3) **Noise devices**. In accordance with Chapter 9.24, no loudspeaker, bells, gongs, buzzers, mechanical equipment or other sounds, attention-attracting or communication device associated with any use adjacent to residential or sensitive land uses shall be discernible beyond the boundary line of the parcel, except fire protection devices, burglar alarms and church bells. Noise generated by these sources shall be enforced by the Police Department.

(4) **Noisy animals**. Noise generated by animals shall be regulated by the Police Department in accordance with Chapter 6.11.

(E) **Exemptions**. The following activities shall be exempt from these noise standards:

(1) Special events pursuant to an approved special use permit. Noise impacts shall be evaluated and conditioned as part of the special use permit;

(2) Filming pursuant to a film permit. Noise impacts shall be evaluated and conditioned as part of the film permit;

(3) Activities conducted on public parks, public playgrounds and public or private school grounds, including school athletic and entertainment events that are conducted under the sanction of the school or which a license or permit has been duly issued pursuant to any provision of city code;

(4) Noise sources associated with the maintenance of real property, provided the activities take place between the hours of 7:00 a.m. to 8:00 p.m. on any day except Sunday or between the hours of 9:00 a.m. to 8:00 p.m. on Sunday;

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

(6) Repairs to and replacement of mechanical equipment in residential zones installed by permit prior to May 20, 1993 shall be exempt from the requirements in division (D) of this section;

(7) Noise variances granted pursuant to subsection (H)(1) below;

(8) Short-term, non-continuous operations associated with government and public utility facilities that are necessary to maintain the delivery of services for the benefit of public health and safety.

(F) **Noise level measurements**. All noise shall be measured in accordance with the following standards. Measurements shall be taken of the ambient noise level and any alleged offensive noise. If the measurement location is on the boundary of two different noise zones, the lower noise level standard shall apply.

(1) **Sound level meter**. A sound level meter shall mean an instrument meeting the American National Standards Institute's S1.4 - 1971 for Type 1 sound level meters or an instrument and the associated recording and analyzing

equipment which will provide equivalent data.

(2) **Ambient noise**. A measurement of the ambient noise level shall be taken according to the procedures in this chapter. If the ambient noise level exceeds the standard, the ambient level shall be the standard. If an alleged intruding noise source is continuous and cannot be reasonably discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the alleged intruding noise source is in operation shall be compared directly to the applicable noise level standard.

(G) **Noise studies required**. As referenced in division (C) of this section, there are essentially two different types of noise sources that have been identified in Corona and each has its own noise metrics as well as its own required noise studies. The noise metrics used for transportation related noise sources is the CNEL which is a 24 hour time weighted average noise level. The noise metrics used for stationary sources are defined as noise levels that cannot be exceeded for certain percentages of time.

(1) **Predevelopment noise studies**. A predevelopment noise study is performed prior to development and is designed to project future noise levels and recommend mitigation measures to be implemented in project development. All noise studies shall be prepared by a registered noise engineer as approved by the city. Noise studies will be required for the construction of master planned roadways, for development adjacent to master planned roadways, when a noise generating use, such as a factory, is proposed in proximity to residential uses and when residential uses are proposed in proximity to an existing noise source. The need for a noise study will be determined at development plan review. Predevelopment noise studies shall project future noise levels based on proposed uses, traffic volumes and other relevant future conditions. Existing and projected noise shall be evaluated pursuant to the noise standards within this chapter and the noise element of the General Plan. Mitigation measures shall be proposed to bring noise levels into compliance with these standards. Mitigation measures may consist of walls, berms, setbacks, landscaping, building materials, construction methods and any other means whereby noise can be reduced to the maximum amounts within this chapter.

(2) **Studies of existing stationary noise**. At times it will be necessary to study the noise generated by an existing source, either due to alleged violations of the noise ordinance or for monitoring purposes. These noise studies shall be prepared by a registered noise engineer as approved by the city in accordance with the standards in Table 1.

(H) **Noise variance**.

(1) The owner or operator of a noise or vibration source which violates any of the provisions of this chapter may file an application with the Community Development Department for a variance from the provisions thereof wherein said owner or operator shall set forth all actions taken to comply with the provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance and a proposed time schedule for its accomplishment. The application shall be accompanied by a fee as determined by City Council resolution. A separate application shall be filed for each noise source; provided, however, that several fixed sources on a single property may be combined into one application. An application for a variance shall remain subject to prosecution under the terms of this chapter until a variance is granted.

(2) The Board of Zoning Adjustment shall evaluate all applications for variance from the requirements of this chapter and may grant the variances with respect to time for compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this chapter. The terms, conditions and requirements may include, but shall not be limited to, limitations on noise levels and operating hours. Each such variance shall set forth in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment. In its determinations, the Board shall consider the following:

(a) The magnitude of the nuisance caused by the offensive noise;

(b) The uses of property within the area of impingement by the noise;

(c) The time factors related to study, design, financing and construction of remedial work;

(d) The economic factors related to age and useful life of the equipment;

(e) The general public interest, welfare and safety.

(3) Any variance granted by the Board shall be by resolution and shall be transmitted to the Code Enforcement Officer for enforcement. Any violation of the terms of the variance shall be unlawful and enforced pursuant to division (I) of this section.

(I) **Enforcement**.

(1) It shall be unlawful for any person at any location within the City of Corona to create any exterior noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured according to this chapter to exceed the maximum allowable noise levels in Table 1 of § 17.84.040(C).

(2) No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his or her duty.

(3) Any person violating any provision of this chapter shall be deemed guilty of a misdemeanor.

(4) The operation or maintenance of any device, instrument, vehicle or machinery in violation of any noise standard identified in this chapter is declared to be a public nuisance and may be abated pursuant to the nuisance abatement

procedure in Chapter 8.32 of this code.

(5) Pursuant to § 1.08.020(A) of this code, each person shall be deemed guilty of a separate offense for each and every day during any portion of which any violation of any provision of this chapter is committed, continued or permitted by such person and shall be punished accordingly.

(`78 Code, § 17.84.040.) (Ord. 3277 §§ 4, 5, 2018; Ord. 3188 § 3, 2015; Ord. 2372 § 2, 1999; Ord. 2161 § 1 (part), 1993.)

17.84.050 Vibration.

It shall be unlawful for any person to create, maintain or cause any ground vibration which is perceptible without instruments at any point on any affected property adjoining the property on which the vibration source is located. For the purposes of this section, the perception threshold shall be presumed to be more than 0.05 inches per second RMS vertical velocity.

(`78 Code, § 17.84.050.) (Ord. 2161 § 1 (part), 1993.)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 12630 Study Area Photos

L1_E
33, 52' 48.980000", 117, 39' 25.250000"

L1_N
33, 52' 50.080000", 117, 39' 26.350000"

L1_S
33, 52' 48.690000", 117, 39' 25.470000"

L1_W
33, 52' 48.730000", 117, 39' 25.490000"

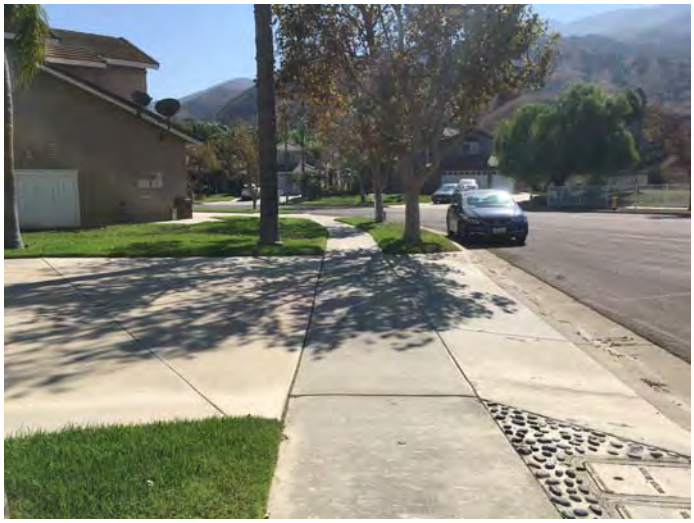
L2_E
33, 52' 37.200000", 117, 38' 53.190000"

L2_N
33, 52' 37.200000", 117, 38' 53.190000"

JN: 12630 Study Area Photos

L2_S
33, 52' 37.220000", 117, 38' 53.190000"

L2_W
33, 52' 37.210000", 117, 38' 53.190000"



L3_E
33, 52' 32.930000", 117, 38' 55.690000"

L3_N
33, 52' 32.930000", 117, 38' 55.690000"

L3_S
33, 52' 32.900000", 117, 38' 55.640000"

L3_W
33, 52' 32.910000", 117, 38' 55.640000"

L4_E
33, 52' 37.100000", 117, 39' 41.120000"

L4_N
33, 52' 37.090000", 117, 39' 41.260000"

L4_S
33, 52' 37.180000", 117, 39' 41.070000"

L4_W
33, 52' 37.210000", 117, 39' 41.070000"

L5_E
33, 52' 42.850000", 117, 39' 39.200000"

L5_N
33, 52' 43.650000", 117, 39' 37.330000"

JN: 12630 Study Area Photos

L5_S
33, 52' 42.680000", 117, 39' 39.230000"

L5_W
33, 52' 42.630000", 117, 39' 39.230000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

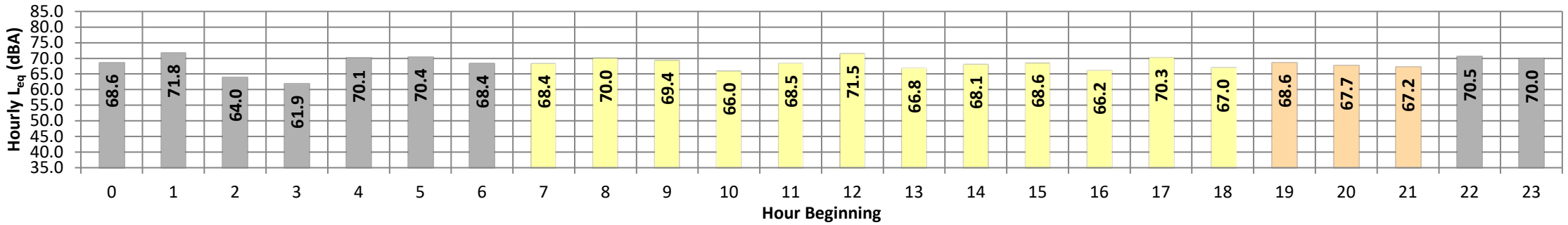
Date: Tuesday, November 03, 2020
Project: GREEN RIVER RANCH

Location: L1 - Located north of the Project site on Prado Road near existing single-family residential home at 4567 Pennyroyal Drive.

Meter: Piccolo II

JN: 12630
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	68.6	76.3	62.5	76.1	75.6	74.2	73.1	68.6	66.0	63.6	63.3	62.9	68.6	10.0	78.6
	1	71.8	78.3	63.8	78.2	78.0	77.4	76.7	72.6	68.9	65.5	64.4	63.9	71.8	10.0	81.8
	2	64.0	70.1	59.0	69.8	69.4	68.4	67.6	65.3	61.8	60.0	59.6	59.1	64.0	10.0	74.0
	3	61.9	66.1	58.0	65.8	65.6	64.9	64.3	62.7	61.4	59.1	58.5	58.1	61.9	10.0	71.9
	4	70.1	76.2	64.1	76.1	75.8	74.8	74.0	70.7	68.7	65.0	64.6	64.2	70.1	10.0	80.1
	5	70.4	76.9	63.6	76.7	76.3	75.2	74.5	71.6	68.5	64.4	64.2	63.8	70.4	10.0	80.4
	6	68.4	76.2	60.0	75.9	75.4	73.9	72.8	68.3	66.4	62.9	61.2	60.1	68.4	10.0	78.4
Day	7	68.4	76.8	61.0	76.5	76.0	74.4	73.3	68.5	64.3	61.7	61.5	61.1	68.4	0.0	68.4
	8	70.0	78.5	63.7	78.2	77.8	76.3	74.8	69.0	67.2	65.2	64.5	63.8	70.0	0.0	70.0
	9	69.4	76.2	63.7	75.9	75.4	74.3	73.5	69.6	67.7	64.9	64.3	63.8	69.4	0.0	69.4
	10	66.0	74.1	61.6	73.6	72.9	69.9	68.3	65.9	65.1	62.9	62.3	61.7	66.0	0.0	66.0
	11	68.5	75.9	62.9	75.6	75.1	74.0	72.9	68.4	65.7	64.1	63.3	62.9	68.5	0.0	68.5
	12	71.5	82.0	63.1	81.5	80.5	77.0	75.7	71.1	68.0	64.7	63.7	63.3	71.5	0.0	71.5
	13	66.8	79.6	59.7	79.0	77.8	72.7	69.6	63.8	62.5	60.7	60.2	59.8	66.8	0.0	66.8
	14	68.1	76.6	62.4	76.2	75.4	73.4	72.1	68.0	65.9	63.4	63.1	62.5	68.1	0.0	68.1
	15	68.6	76.8	63.0	76.4	75.8	73.9	72.9	68.1	66.4	63.9	63.5	63.1	68.6	0.0	68.6
	16	66.2	74.3	61.7	73.9	73.1	71.0	69.8	66.1	64.3	62.6	62.2	61.8	66.2	0.0	66.2
	17	70.3	78.2	64.0	77.9	77.2	75.8	74.7	70.6	67.9	64.8	64.5	64.2	70.3	0.0	70.3
	18	67.0	75.6	59.8	75.2	74.4	72.1	70.9	68.1	64.0	60.7	60.3	59.9	67.0	0.0	67.0
Evening	19	68.6	76.6	62.4	76.2	75.7	74.1	72.6	68.7	66.6	63.4	62.9	62.5	68.6	5.0	73.6
	20	67.7	78.2	60.5	77.7	76.7	73.6	72.1	67.1	64.0	61.3	61.0	60.6	67.7	5.0	72.7
	21	67.2	76.7	59.9	76.3	75.5	73.1	71.3	66.5	64.8	62.3	61.5	60.2	67.2	5.0	72.2
Night	22	70.5	78.3	63.9	78.0	77.5	76.3	75.3	70.6	67.1	64.8	64.5	64.1	70.5	10.0	80.5
	23	70.0	77.6	59.9	77.3	76.9	76.0	75.4	70.5	66.8	61.2	60.7	60.1	70.0	10.0	80.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	66.0	74.1	59.7	73.6	72.9	69.9	68.3	63.8	62.5	60.7	60.2	59.8
	Max	71.5	82.0	64.0	81.5	80.5	77.0	75.7	71.1	68.0	65.2	64.5	64.2
Energy Average		68.7	Average:		76.7	75.9	73.7	72.4	68.1	65.7	63.3	62.8	62.3
Evening	Min	67.2	76.6	59.9	76.2	75.5	73.1	71.3	66.5	64.0	61.3	61.0	60.2
	Max	68.6	78.2	62.4	77.7	76.7	74.1	72.6	68.7	66.6	63.4	62.9	62.5
Energy Average		67.9	Average:		76.7	76.0	73.6	72.0	67.4	65.1	62.3	61.8	61.1
Night	Min	61.9	66.1	58.0	65.8	65.6	64.9	64.3	62.7	61.4	59.1	58.5	58.1
	Max	71.8	78.3	64.1	78.2	78.0	77.4	76.7	72.6	68.9	65.5	64.6	64.2
Energy Average		69.2	Average:		74.9	74.5	73.5	72.6	69.0	66.2	63.0	62.3	61.8

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
68.8	68.6	69.2

24-Hour CNEL (dBA)
75.8

24-Hour Noise Level Measurement Summary

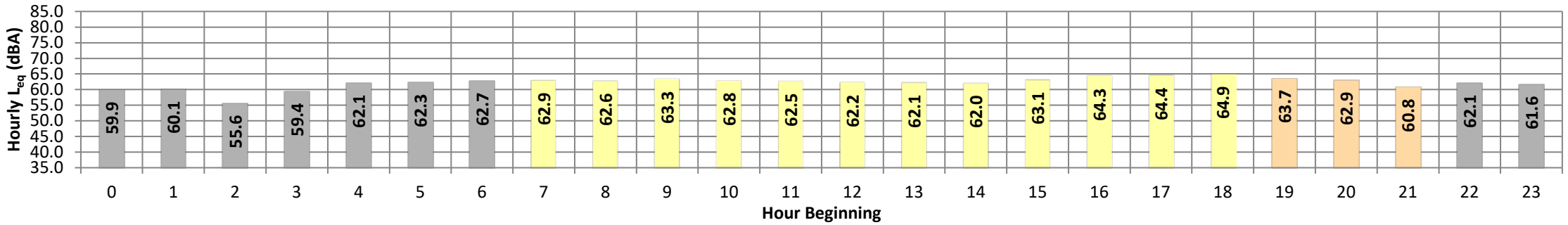
Date: Tuesday, November 03, 2020
Project: GREEN RIVER RANCH

L2 - Located east of the Project site on Dominguez Ranch Road near existing single-family residential home at 1230 Dominguez Ranch Road.

Meter: Piccolo II

JN: 12630
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	59.9	63.4	56.8	63.2	63.0	62.3	61.8	60.7	59.6	57.8	57.4	56.9	59.9	10.0	69.9
	1	60.1	65.2	55.1	65.0	64.6	63.4	62.8	61.6	59.3	56.1	55.7	55.3	60.1	10.0	70.1
	2	55.6	59.3	52.4	59.1	58.7	58.0	57.5	56.3	55.2	53.3	52.9	52.5	55.6	10.0	65.6
	3	59.4	62.4	56.9	62.2	62.0	61.4	61.0	60.0	59.2	57.6	57.4	57.1	59.4	10.0	69.4
	4	62.1	66.2	59.8	65.9	65.7	64.6	63.9	62.6	61.5	60.4	60.2	59.9	62.1	10.0	72.1
	5	62.3	67.3	59.0	66.9	66.5	65.1	64.3	62.9	61.9	59.8	59.4	59.1	62.3	10.0	72.3
	6	62.7	67.8	60.3	67.5	67.1	65.6	64.7	63.0	62.1	60.9	60.7	60.4	62.7	10.0	72.7
Day	7	62.9	69.7	59.8	69.5	68.9	67.0	65.8	62.9	61.6	60.3	60.1	59.8	62.9	0.0	62.9
	8	62.6	69.6	59.3	69.3	68.7	67.0	65.8	62.6	61.3	59.8	59.6	59.3	62.6	0.0	62.6
	9	63.3	68.8	60.6	68.5	68.1	66.7	65.7	63.6	62.4	61.2	61.0	60.7	63.3	0.0	63.3
	10	62.8	70.9	59.4	70.5	69.9	67.3	65.5	62.3	61.2	60.0	59.8	59.5	62.8	0.0	62.8
	11	62.5	70.8	58.9	70.4	69.8	67.3	65.6	62.1	60.7	59.5	59.3	59.0	62.5	0.0	62.5
	12	62.2	70.3	58.3	69.9	69.3	66.8	65.4	62.1	60.7	58.8	58.6	58.4	62.2	0.0	62.2
	13	62.1	70.7	58.6	70.3	69.6	67.0	65.1	61.5	60.3	59.2	59.0	58.7	62.1	0.0	62.1
	14	62.0	69.8	58.5	69.5	68.9	66.5	64.9	61.8	60.4	59.1	58.9	58.6	62.0	0.0	62.0
	15	63.1	71.4	59.6	71.1	70.4	67.7	65.6	62.6	61.4	60.3	60.0	59.7	63.1	0.0	63.1
	16	64.3	73.6	60.0	73.2	72.6	69.8	67.5	63.2	62.0	60.7	60.4	60.1	64.3	0.0	64.3
	17	64.4	71.7	61.1	71.4	70.7	68.4	67.0	64.5	63.2	61.7	61.4	61.1	64.4	0.0	64.4
	18	64.9	75.9	60.1	75.4	74.3	70.5	67.7	63.4	61.9	60.6	60.5	60.2	64.9	0.0	64.9
Evening	19	63.7	70.2	60.8	70.0	69.4	67.2	66.0	63.7	62.7	61.4	61.1	60.9	63.7	5.0	68.7
	20	62.9	68.9	60.3	68.7	68.2	66.3	65.1	63.2	62.1	60.9	60.6	60.4	62.9	5.0	67.9
	21	60.8	66.5	58.3	66.3	65.8	63.6	62.3	61.0	60.3	58.9	58.6	58.4	60.8	5.0	65.8
Night	22	62.1	68.2	58.6	67.9	67.4	65.6	64.5	62.6	61.2	59.4	59.0	58.7	62.1	10.0	72.1
	23	61.6	67.0	58.0	66.7	66.2	64.8	64.0	62.3	60.6	58.8	58.4	58.1	61.6	10.0	71.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	62.0	68.8	58.3	68.5	68.1	66.5	64.9	61.5	60.3	58.8	58.6	58.4
	Max	64.9	75.9	61.1	75.4	74.3	70.5	67.7	64.5	63.2	61.7	61.4	61.1
Energy Average		63.2	Average:		70.7	70.1	67.7	66.0	62.7	61.4	60.1	59.9	59.6
Evening	Min	60.8	66.5	58.3	66.3	65.8	63.6	62.3	61.0	60.3	58.9	58.6	58.4
	Max	63.7	70.2	60.8	70.0	69.4	67.2	66.0	63.7	62.7	61.4	61.1	60.9
Energy Average		62.6	Average:		68.3	67.8	65.7	64.5	62.7	61.7	60.4	60.1	59.9
Night	Min	55.6	59.3	52.4	59.1	58.7	58.0	57.5	56.3	55.2	53.3	52.9	52.5
	Max	62.7	68.2	60.3	67.9	67.4	65.6	64.7	63.0	62.1	60.9	60.7	60.4
Energy Average		61.1	Average:		64.9	64.6	63.4	62.7	61.3	60.1	58.2	57.9	57.5

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
62.4	**63.1**	**61.1**

24-Hour CNEL (dBA)
68.2

24-Hour Noise Level Measurement Summary

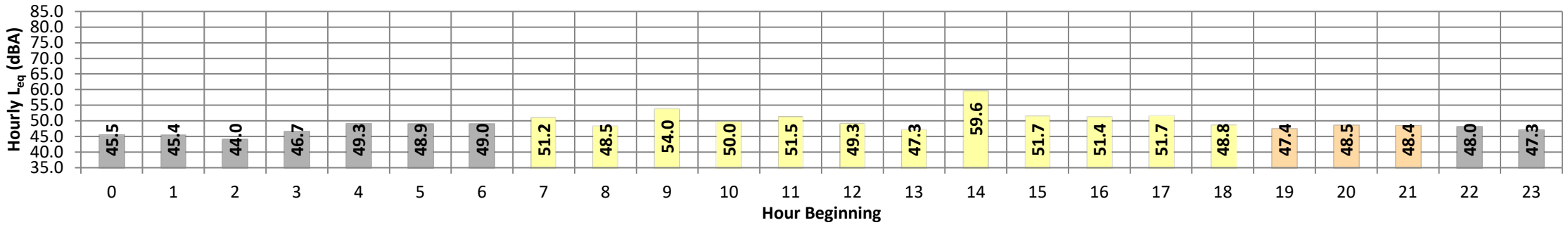
Date: Tuesday, November 03, 2020
Project: GREEN RIVER RANCH

L3 - Located west of the Project site on San Viscaya Circle near existing single family residential home at 4311 San Viscaya Circle.

Meter: Piccolo II

JN: 12630
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	45.5	47.9	44.0	47.7	47.4	46.9	46.7	45.9	45.3	44.4	44.3	44.1	45.5	10.0	55.5
	1	45.4	49.9	42.7	49.6	49.2	48.2	47.4	45.9	44.9	43.2	43.0	42.8	45.4	10.0	55.4
	2	44.0	45.8	42.7	45.6	45.4	45.0	44.8	44.3	43.9	43.1	42.9	42.8	44.0	10.0	54.0
	3	46.7	48.3	45.3	48.1	48.0	47.8	47.6	47.1	46.6	45.7	45.6	45.4	46.7	10.0	56.7
	4	49.3	51.0	48.3	50.9	50.7	50.4	50.2	49.5	49.1	48.7	48.5	48.4	49.3	10.0	59.3
	5	48.9	51.3	47.3	51.1	50.8	50.4	50.2	49.4	48.8	47.7	47.5	47.4	48.9	10.0	58.9
	6	49.0	53.9	47.3	53.4	53.1	51.8	51.0	49.0	48.4	47.7	47.5	47.4	49.0	10.0	59.0
Day	7	51.2	63.5	47.6	61.8	59.7	55.0	53.8	49.7	48.6	47.9	47.8	47.7	51.2	0.0	51.2
	8	48.5	53.8	46.7	53.2	52.6	51.2	50.0	48.6	47.9	47.1	46.9	46.8	48.5	0.0	48.5
	9	54.0	68.5	49.1	66.7	64.3	57.8	53.8	51.1	50.5	49.5	49.3	49.1	54.0	0.0	54.0
	10	50.0	55.9	46.7	55.5	55.1	54.1	53.0	50.5	48.6	47.4	47.1	46.8	50.0	0.0	50.0
	11	51.5	59.8	44.5	59.3	58.9	57.6	56.7	52.0	48.4	45.0	44.7	44.5	51.5	0.0	51.5
	12	49.3	58.7	44.4	57.6	56.7	54.3	52.6	49.6	47.2	44.9	44.7	44.5	49.3	0.0	49.3
	13	47.3	53.4	44.5	52.7	52.0	50.7	50.0	47.9	46.3	45.0	44.8	44.6	47.3	0.0	47.3
	14	59.6	79.3	60.8	79.0	78.5	77.3	76.6	72.9	68.8	63.6	62.7	61.1	59.6	0.0	59.6
	15	51.7	58.0	49.2	57.1	56.5	54.7	53.9	51.9	50.9	49.7	49.5	49.3	51.7	0.0	51.7
	16	51.4	53.7	49.7	53.5	53.3	52.8	52.6	51.9	51.3	50.2	50.1	49.8	51.4	0.0	51.4
	17	51.7	56.1	49.8	55.6	55.2	54.2	53.4	52.0	51.3	50.3	50.1	49.9	51.7	0.0	51.7
	18	48.8	54.9	46.5	54.1	53.4	52.2	51.6	48.7	47.8	46.8	46.7	46.5	48.8	0.0	48.8
Evening	19	47.4	50.7	45.9	50.5	50.2	49.4	48.8	47.7	47.1	46.3	46.2	46.0	47.4	5.0	52.4
	20	48.5	50.8	47.2	50.6	50.5	50.0	49.6	48.9	48.3	47.6	47.4	47.3	48.5	5.0	53.5
	21	48.4	52.0	46.9	51.5	51.0	50.1	49.6	48.6	48.1	47.3	47.2	47.0	48.4	5.0	53.4
Night	22	48.0	51.1	46.1	50.9	50.7	50.1	49.6	48.5	47.7	46.6	46.4	46.2	48.0	10.0	58.0
	23	47.3	50.4	45.5	50.2	49.9	49.5	49.0	47.9	46.9	45.9	45.7	45.6	47.3	10.0	57.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.3	53.4	44.4	52.7	52.0	50.7	50.0	47.9	46.3	44.9	44.7	44.5
	Max	59.6	79.3	60.8	79.0	78.5	77.3	76.6	72.9	68.8	63.6	62.7	61.1
Energy Average		52.7	Average:		58.8	58.0	56.0	54.8	52.2	50.6	48.9	48.7	48.4
Evening	Min	47.4	50.7	45.9	50.5	50.2	49.4	48.8	47.7	47.1	46.3	46.2	46.0
	Max	48.5	52.0	47.2	51.5	51.0	50.1	49.6	48.9	48.3	47.6	47.4	47.3
Energy Average		48.1	Average:		50.9	50.6	49.9	49.3	48.4	47.8	47.1	46.9	46.8
Night	Min	44.0	45.8	42.7	45.6	45.4	45.0	44.8	44.3	43.9	43.1	42.9	42.8
	Max	49.3	53.9	48.3	53.4	53.1	51.8	51.0	49.5	49.1	48.7	48.5	48.4
Energy Average		47.5	Average:		49.7	49.5	48.9	48.5	47.5	46.8	45.9	45.7	45.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
50.9	52.1	47.5

24-Hour CNEL (dBA)
55.2

24-Hour Noise Level Measurement Summary

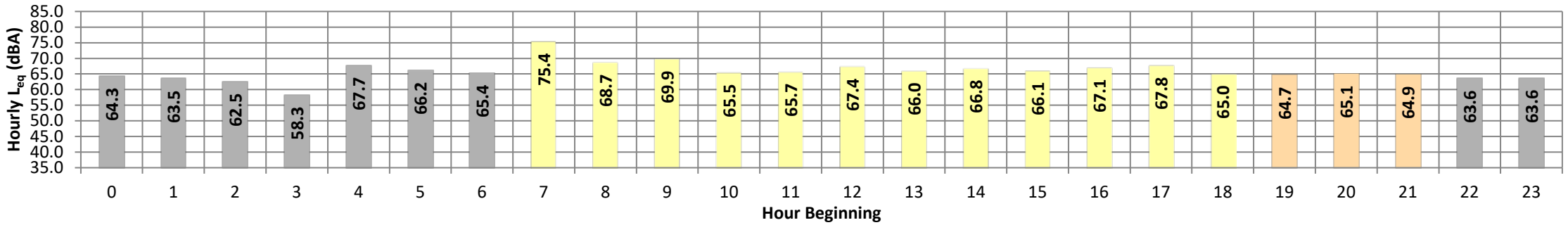
Date: Tuesday, November 03, 2020
Project: GREEN RIVER RANCH

L4 - Located west of the Project site on Green River Road by James Dawson indoor lodging at 19800 Lords Canyon.

Meter: Piccolo II

JN: 12630
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	64.3	71.5	60.3	70.9	69.9	67.5	66.2	64.9	63.6	60.9	60.7	60.4	64.3	10.0	74.3
	1	63.5	69.0	58.5	68.7	68.3	66.9	66.3	64.8	62.6	59.5	59.2	58.6	63.5	10.0	73.5
	2	62.5	75.9	53.1	74.8	74.2	69.8	65.6	57.2	56.0	53.8	53.5	53.2	62.5	10.0	72.5
	3	58.3	65.3	55.3	64.9	64.1	61.7	60.3	58.4	57.4	56.0	55.7	55.4	58.3	10.0	68.3
	4	67.7	74.8	64.0	74.4	73.6	71.5	70.4	68.0	66.2	64.9	64.6	64.2	67.7	10.0	77.7
	5	66.2	74.8	61.5	74.3	73.4	70.8	69.4	66.4	64.4	62.3	62.0	61.7	66.2	10.0	76.2
	6	65.4	74.4	60.3	73.8	72.8	69.9	68.4	65.4	63.5	61.1	60.8	60.4	65.4	10.0	75.4
Day	7	75.4	83.4	63.3	83.0	82.4	80.7	80.1	76.7	71.0	65.4	64.6	63.7	75.4	0.0	75.4
	8	68.7	77.0	59.2	76.6	75.9	74.0	72.9	69.9	66.2	60.1	59.8	59.4	68.7	0.0	68.7
	9	69.9	81.3	63.2	80.8	80.0	76.0	73.1	68.0	66.1	63.9	63.6	63.3	69.9	0.0	69.9
	10	65.5	71.9	62.4	71.5	70.9	69.0	68.1	65.7	64.4	63.0	62.7	62.5	65.5	0.0	65.5
	11	65.7	74.9	61.3	74.4	73.5	70.7	69.0	65.4	63.3	61.9	61.7	61.4	65.7	0.0	65.7
	12	67.4	78.1	61.3	77.8	77.0	73.4	70.5	66.3	64.3	61.9	61.7	61.4	67.4	0.0	67.4
	13	66.0	76.3	61.1	75.9	74.9	71.4	69.1	65.1	63.5	61.8	61.5	61.2	66.0	0.0	66.0
	14	66.8	77.4	61.6	76.8	75.6	71.8	69.9	65.9	64.2	62.5	62.1	61.7	66.8	0.0	66.8
	15	66.1	73.5	62.5	73.1	72.3	69.8	68.6	66.3	64.9	63.3	63.0	62.7	66.1	0.0	66.1
	16	67.1	77.1	62.6	76.3	75.3	72.1	69.7	66.4	65.1	63.4	63.1	62.7	67.1	0.0	67.1
	17	67.8	74.4	63.8	73.9	73.3	71.6	70.4	68.3	66.6	64.5	64.2	63.9	67.8	0.0	67.8
	18	65.0	72.2	61.4	71.8	71.1	68.9	67.8	65.3	63.8	62.1	61.8	61.5	65.0	0.0	65.0
Evening	19	64.7	73.0	60.7	72.5	71.7	69.1	67.5	64.5	63.1	61.4	61.1	60.9	64.7	5.0	69.7
	20	65.1	76.1	59.9	75.5	74.4	70.4	67.6	64.2	62.2	60.4	60.2	60.0	65.1	5.0	70.1
	21	64.9	72.2	60.7	71.8	71.1	68.7	67.6	65.2	63.7	61.6	61.3	61.0	64.9	5.0	69.9
Night	22	63.6	70.9	59.0	70.6	69.9	68.0	66.7	64.1	62.1	59.8	59.4	59.1	63.6	10.0	73.6
	23	63.6	70.4	59.9	70.0	69.4	67.8	66.8	63.9	62.2	60.9	60.4	60.0	63.6	10.0	73.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	65.0	71.9	59.2	71.5	70.9	68.9	67.8	65.1	63.3	60.1	59.8	59.4
	Max	75.4	83.4	63.8	83.0	82.4	80.7	80.1	76.7	71.0	65.4	64.6	63.9
Energy Average		68.8	Average:		76.0	75.2	72.5	70.8	67.4	65.3	62.8	62.5	62.1
Evening	Min	64.7	72.2	59.9	71.8	71.1	68.7	67.5	64.2	62.2	60.4	60.2	60.0
	Max	65.1	76.1	60.7	75.5	74.4	70.4	67.6	65.2	63.7	61.6	61.3	61.0
Energy Average		64.9	Average:		73.3	72.4	69.4	67.6	64.6	63.0	61.2	60.9	60.6
Night	Min	58.3	65.3	53.1	64.9	64.1	61.7	60.3	57.2	56.0	53.8	53.5	53.2
	Max	67.7	75.9	64.0	74.8	74.2	71.5	70.4	68.0	66.2	64.9	64.6	64.2
Energy Average		64.5	Average:		71.4	70.6	68.2	66.7	63.7	62.0	59.9	59.6	59.2

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
67.2	68.3	64.5

24-Hour CNEL (dBA)
71.9

24-Hour Noise Level Measurement Summary

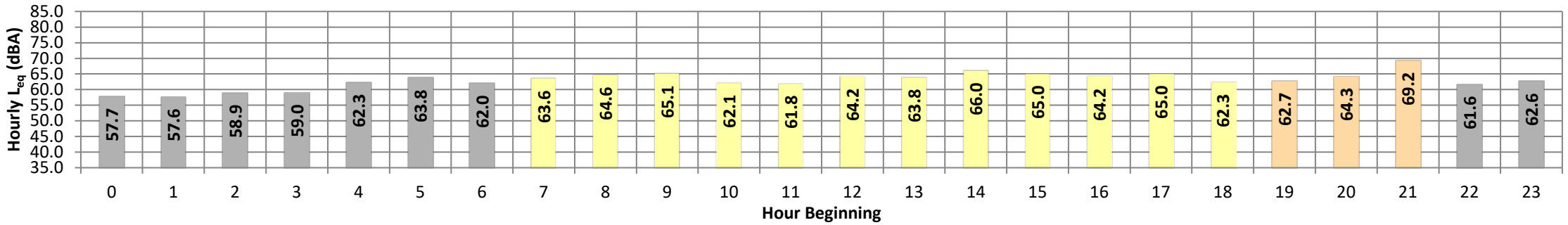
Date: Tuesday, November 03, 2020
Project: GREEN RIVER RANCH

Located northwest of the Project stie on Crestridge Drive near existing single-family residential home at 4717 Green River Road.

Meter: Piccolo II

JN: 12630
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	57.7	64.9	54.3	64.3	63.4	61.4	60.5	58.1	56.5	55.0	54.7	54.4	57.7	10.0	67.7
	1	57.6	64.5	53.1	63.7	63.1	61.6	60.5	58.1	56.5	53.9	53.6	53.2	57.6	10.0	67.6
	2	58.9	69.9	53.5	69.1	68.1	65.2	62.3	57.8	55.5	54.1	53.9	53.6	58.9	10.0	68.9
	3	59.0	63.5	56.8	63.3	63.0	62.0	61.1	59.3	58.4	57.3	57.1	56.9	59.0	10.0	69.0
	4	62.3	69.5	58.4	69.1	68.6	66.9	65.4	62.5	60.6	59.0	58.8	58.5	62.3	10.0	72.3
	5	63.8	74.0	57.0	73.5	72.7	69.9	68.0	63.2	60.3	57.8	57.4	57.1	63.8	10.0	73.8
	6	62.0	71.0	56.0	70.5	69.7	67.5	65.8	62.0	59.7	56.8	56.5	56.2	62.0	10.0	72.0
Day	7	63.6	72.5	56.7	71.9	71.2	69.7	68.2	63.2	60.6	57.7	57.2	56.8	63.6	0.0	63.6
	8	64.6	74.3	56.4	73.6	73.3	71.8	69.3	63.1	60.4	57.6	57.1	56.5	64.6	0.0	64.6
	9	65.1	75.0	56.9	74.4	73.6	71.3	70.1	64.9	60.9	57.8	57.4	57.0	65.1	0.0	65.1
	10	62.1	70.6	56.6	70.3	69.8	67.6	66.0	61.9	59.6	57.5	57.1	56.7	62.1	0.0	62.1
	11	61.8	69.5	56.8	69.1	68.5	67.1	66.0	61.8	59.8	57.6	57.2	56.9	61.8	0.0	61.8
	12	64.2	73.4	57.2	73.0	72.5	70.7	69.3	63.4	60.5	58.1	57.7	57.3	64.2	0.0	64.2
	13	63.8	73.5	56.5	72.9	72.1	70.1	68.5	63.3	60.5	58.2	57.8	56.7	63.8	0.0	63.8
	14	66.0	76.2	57.0	75.9	75.3	73.6	72.0	63.9	60.6	57.8	57.5	57.1	66.0	0.0	66.0
	15	65.0	75.5	57.3	74.7	73.9	71.7	70.1	63.0	60.6	58.2	57.8	57.5	65.0	0.0	65.0
	16	64.2	75.0	57.5	74.4	73.2	69.7	67.9	63.8	60.9	58.3	57.9	57.6	64.2	0.0	64.2
	17	65.0	74.7	58.3	74.2	73.5	71.5	69.6	64.5	61.7	59.3	58.9	58.5	65.0	0.0	65.0
	18	62.3	70.5	56.3	70.1	69.5	67.8	66.3	62.4	60.0	57.2	56.8	56.4	62.3	0.0	62.3
Evening	19	62.7	71.8	56.8	71.4	70.6	68.4	66.8	62.3	60.0	57.6	57.2	56.9	62.7	5.0	67.7
	20	64.3	74.1	58.5	73.7	72.9	70.3	68.3	63.2	61.5	59.3	58.9	58.6	64.3	5.0	69.3
	21	69.2	83.3	59.1	82.4	81.1	76.5	72.3	63.0	61.3	59.7	59.4	59.2	69.2	5.0	74.2
Night	22	61.6	68.2	57.4	67.9	67.3	66.0	64.9	61.9	60.1	58.3	57.9	57.5	61.6	10.0	71.6
	23	62.6	73.5	56.1	72.9	71.9	69.2	66.8	61.2	59.0	56.9	56.5	56.2	62.6	10.0	72.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	61.8	69.5	56.3	69.1	68.5	67.1	66.0	61.8	59.6	57.2	56.8	56.4
	Max	66.0	76.2	58.3	75.9	75.3	73.6	72.0	64.9	61.7	59.3	58.9	58.5
Energy Average		64.2	Average:		72.9	72.2	70.2	68.6	63.3	60.5	57.9	57.5	57.1
Evening	Min	62.7	71.8	56.8	71.4	70.6	68.4	66.8	62.3	60.0	57.6	57.2	56.9
	Max	69.2	83.3	59.1	82.4	81.1	76.5	72.3	63.2	61.5	59.7	59.4	59.2
Energy Average		66.3	Average:		75.9	74.8	71.7	69.2	62.8	60.9	58.9	58.5	58.2
Night	Min	57.6	63.5	53.1	63.3	63.0	61.4	60.5	57.8	55.5	53.9	53.6	53.2
	Max	63.8	74.0	58.4	73.5	72.7	69.9	68.0	63.2	60.6	59.0	58.8	58.5
Energy Average		61.1	Average:		68.3	67.5	65.5	63.9	60.4	58.5	56.6	56.3	56.0

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
63.7	**64.7**	**61.1**
24-Hour CNEL (dBA)		
69.0		

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Green River
Road Name: Palisades Dr. | Job Number: 12630
Road Segment: n/o Green River Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,349 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	258 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-8.23	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-28.01	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-33.25	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.5	61.3	59.4	56.7	64.1	64.4
Medium Trucks:	53.5	52.7	48.0	47.3	54.8	55.1
Heavy Trucks:	52.7	51.3	47.8	48.3	55.2	55.4
Vehicle Noise:	63.4	62.2	59.9	57.7	65.0	65.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	38	82	177
CNEL:	19	40	87	187

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P1 | Project Name: Green River
Road Name: Palisades Dr. | Job Number: 12630
Road Segment: n/o Green River Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,561 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	275 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.73%
Medium Trucks:	76.9%	6.4%	16.7%	0.98%
Heavy Trucks:	67.1%	7.6%	25.3%	0.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-7.96	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-28.01	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-33.25	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	61.5	59.6	57.0	64.3	64.7
Medium Trucks:	53.5	52.7	48.0	47.3	54.8	55.1
Heavy Trucks:	52.7	51.3	47.8	48.3	55.2	55.4
Vehicle Noise:	63.6	62.4	60.2	58.0	65.2	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	39	85	183
CNEL:	19	42	90	193

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P2 | Project Name: Green River
Road Name: Palisades Dr. | Job Number: 12630
Road Segment: n/o Green River Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,815 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	294 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.82%
Medium Trucks:	76.9%	6.4%	16.7%	0.91%
Heavy Trucks:	67.1%	7.6%	25.3%	0.27%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-7.66	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-28.01	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-33.25	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.1	61.9	59.9	57.3	64.6	65.0
Medium Trucks:	53.5	52.7	48.0	47.3	54.8	55.1
Heavy Trucks:	52.7	51.3	47.8	48.3	55.2	55.4
Vehicle Noise:	63.9	62.7	60.4	58.2	65.5	65.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	88	190
CNEL:	20	43	93	201

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+BO | Project Name: Green River
Road Name: Palisades Dr. | Job Number: 12630
Road Segment: n/o Green River Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,279 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	330 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.83%
Medium Trucks:	76.9%	6.4%	16.7%	0.90%
Heavy Trucks:	67.1%	7.6%	25.3%	0.27%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-7.16	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-27.57	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-32.80	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.6	62.4	60.4	57.8	65.1	65.5
Medium Trucks:	54.0	53.2	48.4	47.8	55.3	55.5
Heavy Trucks:	53.1	51.7	48.3	48.7	55.6	55.8
Vehicle Noise:	64.3	63.2	60.9	58.7	66.0	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	44	95	205
CNEL:	22	47	101	217

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC | Project Name: Green River
Road Name: Palisades Dr. | Job Number: 12630
Road Segment: n/o Green River Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,279 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	330 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-7.17	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-26.95	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-32.18	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	62.3	60.4	57.8	65.1	65.5
Medium Trucks:	54.6	53.8	49.0	48.4	55.9	56.1
Heavy Trucks:	53.7	52.3	48.9	49.4	56.2	56.4
Vehicle Noise:	64.5	63.3	61.0	58.8	66.1	66.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	45	97	209
CNEL:	22	47	102	220

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P1 | Project Name: Green River
Road Name: Palisades Dr. | Job Number: 12630
Road Segment: n/o Green River Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,492 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	346 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.71%
Medium Trucks:	76.9%	6.4%	16.7%	0.99%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-6.96	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-26.95	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-32.18	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.8	62.6	60.6	58.0	65.3	65.7
Medium Trucks:	54.6	53.8	49.0	48.4	55.9	56.1
Heavy Trucks:	53.7	52.3	48.9	49.4	56.2	56.4
Vehicle Noise:	64.6	63.4	61.2	59.0	66.3	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	46	99	214
CNEL:	23	49	105	226

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P2 | Project Name: Green River
Road Name: Palisades Dr. | Job Number: 12630
Road Segment: n/o Green River Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,745 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	366 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.78%
Medium Trucks:	76.9%	6.4%	16.7%	0.94%
Heavy Trucks:	67.1%	7.6%	25.3%	0.28%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-6.72	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-26.95	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-32.18	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.0	62.8	60.9	58.3	65.6	66.0
Medium Trucks:	54.6	53.8	49.0	48.4	55.9	56.1
Heavy Trucks:	53.7	52.3	48.9	49.4	56.2	56.4
Vehicle Noise:	64.8	63.6	61.4	59.2	66.5	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	102	221
CNEL:	23	50	108	233

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+BO | Project Name: Green River
Road Name: Palisades Dr. | Job Number: 12630
Road Segment: n/o Green River Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,794 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	370 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.80%
Medium Trucks:	76.9%	6.4%	16.7%	0.93%
Heavy Trucks:	67.1%	7.6%	25.3%	0.28%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-6.67	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-26.95	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-32.18	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.0	62.8	60.9	58.3	65.6	66.0
Medium Trucks:	54.6	53.8	49.0	48.4	55.9	56.1
Heavy Trucks:	53.7	52.3	48.9	49.4	56.2	56.4
Vehicle Noise:	64.9	63.7	61.4	59.2	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	103	222
CNEL:	23	50	109	234

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY
Road Name: Palisades Dr.
Road Segment: n/o Green River Rd.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,279 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	330 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-7.17	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-26.95	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-32.18	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	62.3	60.4	57.8	65.1	65.5
Medium Trucks:	54.6	53.8	49.0	48.4	55.9	56.1
Heavy Trucks:	53.7	52.3	48.9	49.4	56.2	56.4
Vehicle Noise:	64.5	63.3	61.0	58.8	66.1	66.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	45	97	209
CNEL:	22	47	102	220

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+BO
Road Name: Palisades Dr.
Road Segment: n/o Green River Rd.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,794 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	370 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	38.0 feet
Centerline Dist. to Observer:	38.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.80%
Medium Trucks:	76.9%	6.4%	16.7%	0.93%
Heavy Trucks:	67.1%	7.6%	25.3%	0.28%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.855
Medium Trucks:	37.621
Heavy Trucks:	37.643

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-6.67	1.71	-1.20	-4.57	0.000	0.000
Medium Trucks:	81.00	-26.95	1.75	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-32.18	1.75	-1.20	-5.59	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.0	62.8	60.9	58.3	65.6	66.0
Medium Trucks:	54.6	53.8	49.0	48.4	55.9	56.1
Heavy Trucks:	53.7	52.3	48.9	49.4	56.2	56.4
Vehicle Noise:	64.9	63.7	61.4	59.2	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	103	222
CNEL:	23	50	109	234

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Green River Rd.
Road Segment: w/o Street A
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,234 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,177 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.48	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-18.30	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-23.53	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.3	67.1	65.2	62.6	69.9	70.3
Medium Trucks:	59.5	58.7	54.0	53.3	60.8	61.1
Heavy Trucks:	59.1	57.7	54.3	54.7	61.6	61.8
Vehicle Noise:	69.3	68.1	65.8	63.7	70.9	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	162	349	751
CNEL:	79	171	368	792

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P1
Road Name: Green River Rd.
Road Segment: w/o Street A
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,647 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,286 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	97.20%
Medium Trucks:	76.9%	6.4%	16.7%	1.29%
Heavy Trucks:	67.1%	7.6%	25.3%	1.51%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.63	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-17.14	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.47	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.5	67.3	65.3	62.7	70.0	70.4
Medium Trucks:	60.7	59.9	55.1	54.5	62.0	62.2
Heavy Trucks:	66.2	64.8	61.3	61.8	68.6	68.9
Vehicle Noise:	70.9	69.7	67.1	65.6	72.8	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	215	463	998
CNEL:	105	225	485	1,045

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P2 *Project Name:* Green River
Road Name: Green River Rd. *Job Number:* 12630
Road Segment: w/o Street A

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,238 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,331 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	97.26%
Medium Trucks:	76.9%	6.4%	16.7%	1.27%
Heavy Trucks:	67.1%	7.6%	25.3%	1.48%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.72	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-17.14	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.47	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	67.3	65.4	62.8	70.1	70.5
Medium Trucks:	60.7	59.9	55.1	54.5	62.0	62.2
Heavy Trucks:	66.2	64.8	61.3	61.8	68.6	68.9
Vehicle Noise:	71.0	69.7	67.1	65.7	72.8	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	100	216	466	1,005
CNEL:	105	227	489	1,053

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+BO *Project Name:* Green River
Road Name: Green River Rd. *Job Number:* 12630
Road Segment: w/o Street A

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,925 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,384 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	97.28%
Medium Trucks:	76.9%	6.4%	16.7%	1.26%
Heavy Trucks:	67.1%	7.6%	25.3%	1.47%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.82	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-17.07	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.40	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.6	67.4	65.5	62.9	70.2	70.6
Medium Trucks:	60.8	60.0	55.2	54.6	62.1	62.3
Heavy Trucks:	66.2	64.8	61.4	61.9	68.7	68.9
Vehicle Noise:	71.0	69.8	67.2	65.8	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	102	219	473	1,018
CNEL:	107	230	495	1,067

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC *Project Name:* Green River
Road Name: Green River Rd. *Job Number:* 12630
Road Segment: w/o Street A

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,925 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,384 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.88	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-17.90	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.14	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.5	65.6	63.0	70.3	70.7
Medium Trucks:	59.9	59.1	54.4	53.7	61.2	61.5
Heavy Trucks:	59.5	58.1	54.7	55.1	62.0	62.2
Vehicle Noise:	69.7	68.5	66.2	64.1	71.3	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	80	172	370	798
CNEL:	84	181	391	842

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P1 *Project Name:* Green River
Road Name: Green River Rd. *Job Number:* 12630
Road Segment: w/o Street A

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,338 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,493 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	97.32%
Medium Trucks:	76.9%	6.4%	16.7%	1.27%
Heavy Trucks:	67.1%	7.6%	25.3%	1.41%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.01	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-16.83	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.39	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	67.6	65.7	63.1	70.4	70.8
Medium Trucks:	61.0	60.2	55.4	54.8	62.3	62.5
Heavy Trucks:	66.2	64.8	61.4	61.9	68.7	68.9
Vehicle Noise:	71.2	70.0	67.4	65.9	73.1	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	104	224	482	1,039
CNEL:	109	235	505	1,089

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P2 | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: w/o Street A

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,930 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,539 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	97.37%
Medium Trucks:	76.9%	6.4%	16.7%	1.25%
Heavy Trucks:	67.1%	7.6%	25.3%	1.38%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.09	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.83	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.39	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	67.7	65.8	63.2	70.5	70.9
Medium Trucks:	61.0	60.2	55.4	54.8	62.3	62.5
Heavy Trucks:	66.2	64.8	61.4	61.9	68.7	68.9
Vehicle Noise:	71.2	70.0	67.4	65.9	73.1	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	225	485	1,046
CNEL:	110	236	509	1,096

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+BO | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: w/o Street A

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,111 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,553 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	97.39%
Medium Trucks:	76.9%	6.4%	16.7%	1.24%
Heavy Trucks:	67.1%	7.6%	25.3%	1.37%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.12	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.83	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.39	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	67.7	65.8	63.2	70.5	70.9
Medium Trucks:	61.0	60.2	55.4	54.8	62.3	62.5
Heavy Trucks:	66.2	64.8	61.4	61.9	68.7	68.9
Vehicle Noise:	71.2	70.0	67.5	65.9	73.1	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	226	486	1,048
CNEL:	110	237	510	1,099

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: w/o Street A

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,018 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,623 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.29	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-17.49	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-22.72	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.9	66.0	63.4	70.7	71.1
Medium Trucks:	60.3	59.5	54.8	54.2	61.7	61.9
Heavy Trucks:	59.9	58.5	55.1	55.5	62.4	62.6
Vehicle Noise:	70.1	68.9	66.6	64.5	71.8	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	183	395	850
CNEL:	90	193	416	897

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+BO | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: w/o Street A

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,204 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,791 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	97.49%
Medium Trucks:	76.9%	6.4%	16.7%	1.22%
Heavy Trucks:	67.1%	7.6%	25.3%	1.28%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.51	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.51	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.30	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	68.1	66.2	63.6	70.9	71.3
Medium Trucks:	61.3	60.5	55.8	55.1	62.6	62.9
Heavy Trucks:	66.3	64.9	61.5	62.0	68.8	69.0
Vehicle Noise:	71.5	70.3	67.8	66.2	73.4	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	109	236	508	1,094
CNEL:	115	247	532	1,147

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Green River Rd.
Road Segment: e/o Dominguez Ranch Rd.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,858 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,071 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.26	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-18.51	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.75	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	66.9	65.0	62.4	69.7	70.1
Medium Trucks:	59.3	58.5	53.8	53.1	60.6	60.9
Heavy Trucks:	58.9	57.5	54.1	54.5	61.4	61.6
Vehicle Noise:	69.1	67.9	65.6	63.4	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	73	157	337	726
CNEL:	77	165	356	766

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P1
Road Name: Green River Rd.
Road Segment: e/o Dominguez Ranch Rd.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,746 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,139 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.69%
Medium Trucks:	76.9%	6.4%	16.7%	1.00%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.41	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-18.51	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.75	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.0	65.1	62.5	69.8	70.2
Medium Trucks:	59.3	58.5	53.8	53.1	60.6	60.9
Heavy Trucks:	58.9	57.5	54.1	54.5	61.4	61.6
Vehicle Noise:	69.2	68.0	65.7	63.6	70.8	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	74	159	343	739
CNEL:	78	168	362	780

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P2
Road Name: Green River Rd.
Road Segment: e/o Dominguez Ranch Rd.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,676 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,211 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.74%
Medium Trucks:	76.9%	6.4%	16.7%	0.97%
Heavy Trucks:	67.1%	7.6%	25.3%	0.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.55	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-18.51	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.75	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	67.2	65.3	62.6	70.0	70.3
Medium Trucks:	59.3	58.5	53.8	53.1	60.6	60.9
Heavy Trucks:	58.9	57.5	54.1	54.5	61.4	61.6
Vehicle Noise:	69.3	68.1	65.9	63.7	71.0	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	75	162	349	752
CNEL:	79	171	368	794

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+BO
Road Name: Green River Rd.
Road Segment: e/o Dominguez Ranch Rd.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,149 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,247 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.74%
Medium Trucks:	76.9%	6.4%	16.7%	0.97%
Heavy Trucks:	67.1%	7.6%	25.3%	0.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.62	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-18.46	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.69	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	67.3	65.3	62.7	70.0	70.4
Medium Trucks:	59.4	58.6	53.8	53.2	60.7	60.9
Heavy Trucks:	58.9	57.5	54.1	54.6	61.4	61.6
Vehicle Noise:	69.4	68.2	65.9	63.7	71.0	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	76	164	353	760
CNEL:	80	173	372	802

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: e/o Dominguez Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,149 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,247 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.62	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-18.16	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-23.39	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.4	67.2	65.3	62.7	70.0	70.4
Medium Trucks:	59.7	58.9	54.1	53.5	61.0	61.2
Heavy Trucks:	59.2	57.8	54.4	54.9	61.7	61.9
Vehicle Noise:	69.4	68.3	66.0	63.8	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	165	356	767
CNEL:	81	174	376	809

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P1 | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: e/o Dominguez Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,037 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,316 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.69%
Medium Trucks:	76.9%	6.4%	16.7%	1.01%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.75	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-18.16	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-23.39	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	67.4	65.5	62.8	70.2	70.5
Medium Trucks:	59.7	58.9	54.1	53.5	61.0	61.2
Heavy Trucks:	59.2	57.8	54.4	54.9	61.7	61.9
Vehicle Noise:	69.5	68.4	66.1	63.9	71.2	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	168	362	780
CNEL:	82	177	382	822

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P2 | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: e/o Dominguez Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,967 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,388 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.73%
Medium Trucks:	76.9%	6.4%	16.7%	0.98%
Heavy Trucks:	67.1%	7.6%	25.3%	0.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.89	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-18.16	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-23.39	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	67.5	65.6	63.0	70.3	70.7
Medium Trucks:	59.7	58.9	54.1	53.5	61.0	61.2
Heavy Trucks:	59.2	57.8	54.4	54.9	61.7	61.9
Vehicle Noise:	69.6	68.5	66.2	64.0	71.3	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	171	368	792
CNEL:	84	180	388	836

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+BO | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: e/o Dominguez Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,082 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,396 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.73%
Medium Trucks:	76.9%	6.4%	16.7%	0.97%
Heavy Trucks:	67.1%	7.6%	25.3%	0.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.90	-0.43	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-18.16	-0.41	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-23.39	-0.42	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	67.5	65.6	63.0	70.3	70.7
Medium Trucks:	59.7	58.9	54.1	53.5	61.0	61.2
Heavy Trucks:	59.2	57.8	54.4	54.9	61.7	61.9
Vehicle Noise:	69.7	68.5	66.2	64.0	71.3	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	171	369	794
CNEL:	84	180	389	838

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY
Road Name: Green River Rd.
Road Segment: e/o Dominguez Ranch Rd.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,064 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,472 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.03	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-17.74	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.98	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.7	65.7	63.1	70.4	70.8
Medium Trucks:	60.1	59.3	54.5	53.9	61.4	61.6
Heavy Trucks:	59.7	58.3	54.8	55.3	62.1	62.4
Vehicle Noise:	69.8	68.7	66.4	64.2	71.5	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	82	176	379	818
CNEL:	86	186	400	862

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+BO
Road Name: Green River Rd.
Road Segment: e/o Dominguez Ranch Rd.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,996 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,621 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.73%
Medium Trucks:	76.9%	6.4%	16.7%	0.98%
Heavy Trucks:	67.1%	7.6%	25.3%	0.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	52.609
Medium Trucks:	52.441
Heavy Trucks:	52.457

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.29	-0.43	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-17.74	-0.41	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.98	-0.42	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	67.9	66.0	63.4	70.7	71.1
Medium Trucks:	60.1	59.3	54.5	53.9	61.4	61.6
Heavy Trucks:	59.7	58.3	54.8	55.3	62.1	62.4
Vehicle Noise:	70.0	68.9	66.6	64.4	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	84	182	392	843
CNEL:	89	192	413	890

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Green River Rd.
Road Segment: e/o Palisades Dr.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,444 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	1,962 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.03	0.42	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	79.45	-18.75	0.44	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.98	0.44	-1.20	*-5.40*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.5	65.6	63.0	70.3	70.7
Medium Trucks:	59.9	59.1	54.4	53.7	61.2	61.5
Heavy Trucks:	59.5	58.1	54.7	55.1	62.0	62.2
Vehicle Noise:	69.7	68.5	66.2	64.1	71.3	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	65	140	302	651
CNEL:	69	148	319	687

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P1
Road Name: Green River Rd.
Road Segment: e/o Palisades Dr.
Project Name: Green River
Job Number: 12630

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,120 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,014 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.69%
Medium Trucks:	76.9%	6.4%	16.7%	1.01%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.15	0.42	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	79.45	-18.75	0.44	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.98	0.44	-1.20	*-5.40*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	67.6	65.7	63.1	70.4	70.8
Medium Trucks:	59.9	59.1	54.4	53.7	61.2	61.5
Heavy Trucks:	59.5	58.1	54.7	55.1	62.0	62.2
Vehicle Noise:	69.8	68.6	66.3	64.1	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	142	306	660
CNEL:	70	150	323	697

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P2 *Project Name:* Green River
Road Name: Green River Rd. *Job Number:* 12630
Road Segment: e/o Palisades Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,796 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,066 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.72%
Medium Trucks:	76.9%	6.4%	16.7%	0.99%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.26	0.42	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	79.45	-18.75	0.44	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.98	0.44	-1.20	*-5.40*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.7	65.8	63.2	70.5	70.9
Medium Trucks:	59.9	59.1	54.4	53.7	61.2	61.5
Heavy Trucks:	59.5	58.1	54.7	55.1	62.0	62.2
Vehicle Noise:	69.9	68.7	66.4	64.2	71.5	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	311	669
CNEL:	71	152	328	706

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+BO *Project Name:* Green River
Road Name: Green River Rd. *Job Number:* 12630
Road Segment: e/o Palisades Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,560 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,125 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.72%
Medium Trucks:	76.9%	6.4%	16.7%	0.98%
Heavy Trucks:	67.1%	7.6%	25.3%	0.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.38	0.42	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	79.45	-18.64	0.44	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.87	0.44	-1.20	*-5.40*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	67.9	65.9	63.3	70.6	71.0
Medium Trucks:	60.1	59.3	54.5	53.9	61.4	61.6
Heavy Trucks:	59.6	58.2	54.8	55.2	62.1	62.3
Vehicle Noise:	70.0	68.8	66.5	64.4	71.6	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	147	316	682
CNEL:	72	155	334	719

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC *Project Name:* Green River
Road Name: Green River Rd. *Job Number:* 12630
Road Segment: e/o Palisades Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,560 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,125 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.38	0.42	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	79.45	-18.40	0.44	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.64	0.44	-1.20	*-5.40*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	67.9	65.9	63.3	70.6	71.0
Medium Trucks:	60.3	59.5	54.7	54.1	61.6	61.8
Heavy Trucks:	59.9	58.5	55.0	55.5	62.3	62.6
Vehicle Noise:	70.0	68.9	66.6	64.4	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	69	148	319	687
CNEL:	72	156	336	724

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P1 *Project Name:* Green River
Road Name: Green River Rd. *Job Number:* 12630
Road Segment: e/o Palisades Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,236 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,177 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	70.2%	11.3%	18.5%	98.68%
Medium Trucks:	76.9%	6.4%	16.7%	1.01%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.48	0.42	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	79.45	-18.40	0.44	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.64	0.44	-1.20	*-5.40*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.2	68.0	66.0	63.4	70.7	71.1
Medium Trucks:	60.3	59.5	54.7	54.1	61.6	61.8
Heavy Trucks:	59.9	58.5	55.0	55.5	62.3	62.6
Vehicle Noise:	70.1	68.9	66.7	64.5	71.8	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	150	323	696
CNEL:	73	158	341	734

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P2 | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: e/o Palisades Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,912 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,229 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.71%
Medium Trucks:	76.9%	6.4%	16.7%	0.99%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.59	0.42	-1.20	-4.66	0.000	0.000
Medium Trucks:	79.45	-18.40	0.44	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.64	0.44	-1.20	-5.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	68.1	66.1	63.5	70.9	71.2
Medium Trucks:	60.3	59.5	54.7	54.1	61.6	61.8
Heavy Trucks:	59.9	58.5	55.0	55.5	62.3	62.6
Vehicle Noise:	70.2	69.0	66.8	64.6	71.9	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	152	327	705
CNEL:	74	160	345	743

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+BO | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: e/o Palisades Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,978 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,234 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.72%
Medium Trucks:	76.9%	6.4%	16.7%	0.99%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.60	0.42	-1.20	-4.66	0.000	0.000
Medium Trucks:	79.45	-18.40	0.44	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.64	0.44	-1.20	-5.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	68.1	66.2	63.5	70.9	71.2
Medium Trucks:	60.3	59.5	54.7	54.1	61.6	61.8
Heavy Trucks:	59.9	58.5	55.0	55.5	62.3	62.6
Vehicle Noise:	70.2	69.0	66.8	64.6	71.9	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	152	327	705
CNEL:	74	160	345	744

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: e/o Palisades Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,316 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,337 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.65%
Medium Trucks:	76.9%	6.4%	16.7%	1.04%
Heavy Trucks:	67.1%	7.6%	25.3%	0.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.79	0.42	-1.20	-4.66	0.000	0.000
Medium Trucks:	79.45	-17.99	0.44	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.22	0.44	-1.20	-5.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	68.3	66.4	63.7	71.1	71.4
Medium Trucks:	60.7	59.9	55.2	54.5	62.0	62.2
Heavy Trucks:	60.3	58.9	55.4	55.9	62.8	63.0
Vehicle Noise:	70.4	69.3	67.0	64.8	72.1	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	158	340	732
CNEL:	77	166	358	772

Tuesday, June 4, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+BO | Project Name: Green River
Road Name: Green River Rd. | Job Number: 12630
Road Segment: e/o Palisades Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,734 vehicles
Peak Hour Percentage:	7.71%
Peak Hour Volume:	2,447 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	53.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.2%	11.3%	18.5%	98.71%
Medium Trucks:	76.9%	6.4%	16.7%	0.99%
Heavy Trucks:	67.1%	7.6%	25.3%	0.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.171
Medium Trucks:	45.979
Heavy Trucks:	45.998

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.99	0.42	-1.20	-4.66	0.000	0.000
Medium Trucks:	79.45	-17.99	0.44	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.22	0.44	-1.20	-5.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	68.5	66.6	63.9	71.3	71.6
Medium Trucks:	60.7	59.9	55.2	54.5	62.0	62.2
Heavy Trucks:	60.3	58.9	55.4	55.9	62.8	63.0
Vehicle Noise:	70.6	69.4	67.2	65.0	72.3	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	162	348	750
CNEL:	79	170	367	791

Tuesday, June 4, 2024

APPENDIX 8.1:

CADNAA ON-SITE TRAFFIC NOISE MODEL

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12630 - Green River Ranch Specific Plan Amendment

CadnaA Noise Prediction Model: 12630-11 OnSite.cna
Date: 30.05.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
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	
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	**0.00**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
ESTATERES		ES1	61.4	57.1	64.6	0.0	0.0	65.0				5.00	r	6134781.66	2264681.74	761.67
ESTATERES		ES2	53.2	49.0	56.5	0.0	0.0	65.0				5.00	r	6135322.31	2264841.27	664.03
ESTATERES		ES3	49.6	45.3	52.8	0.0	0.0	65.0				5.00	r	6136357.92	2264890.29	622.10

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						6.00	r		6136908.35	2265154.77	706.00	700.00
												6136903.18	2265149.35	703.88	697.88
												6136858.40	2265196.11	701.36	695.36
												6136850.52	2265233.02	699.74	693.74
												6136884.48	2265246.06	706.00	700.00
												6136906.63	2265249.26	706.00	700.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BLDG_01	x	0		40.00	r	6134445.22	2265600.50	611.84	571.84
									6134499.86	2265604.20	611.84	571.73
									6134500.32	2265607.90	611.84	571.68
									6134774.42	2265635.68	611.84	571.62
									6134776.73	2265638.00	611.84	571.59

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6134780.90	2265638.46	611.84	571.59
									6134779.97	2265634.76	611.84	571.64
									6134799.42	2265634.76	611.84	571.67
									6134798.96	2265639.85	611.84	571.59
									6134855.44	2265642.63	611.84	571.63
									6134863.78	2265646.33	611.84	571.58
									6134864.70	2265642.17	611.84	571.65
									6134882.76	2265642.17	611.84	571.67
									6134882.30	2265648.19	611.84	571.57
									6134889.70	2265647.26	611.84	571.60
									6135163.34	2265673.65	611.84	571.57
									6135163.80	2265670.41	611.84	571.62
									6135214.27	2265674.11	611.84	571.64
									6135218.90	2265676.43	611.84	571.61
									6135220.29	2265666.71	611.84	571.78
									6135226.77	2265666.71	611.84	571.78
									6135228.16	2265671.34	611.84	571.70
									6135233.25	2265671.80	611.84	571.61
									6135232.32	2265667.17	611.84	571.69
									6135249.46	2265668.09	611.84	571.39
									6135252.23	2265673.19	611.84	571.27
									6135256.40	2265673.65	611.84	571.20
									6135258.72	2265646.80	611.84	571.54
									6135255.01	2265645.87	611.84	571.61
									6135256.40	2265639.39	611.84	571.68
									6135266.12	2265639.85	611.84	571.52
									6135268.90	2265610.22	611.84	571.89
									6135304.09	2265611.15	611.84	571.30
									6135330.94	2265329.64	611.84	573.53
									6135228.16	2265320.38	611.84	576.66
									6135221.68	2265379.18	611.84	575.94
									6134499.39	2265307.42	611.84	576.87
									6134506.34	2265247.69	611.84	577.92
									6134420.68	2265238.89	611.84	578.88
									6134399.85	2265255.10	611.84	578.86
									6134373.92	2265519.47	611.84	575.64
									6134409.57	2265522.71	611.84	573.70
									6134406.79	2265553.27	611.84	573.15
									6134416.52	2265555.12	611.84	573.02
									6134416.05	2265561.14	611.84	572.91
									6134412.81	2265560.68	611.84	572.95
									6134411.89	2265590.77	611.84	572.39
									6134416.05	2265591.24	611.84	572.34
									6134416.52	2265588.00	611.84	572.39
									6134433.65	2265589.38	611.84	572.15
									6134433.19	2265593.09	611.84	572.09
									6134438.74	2265594.48	611.84	572.00
									6134439.20	2265588.46	611.84	572.11
									6134445.69	2265589.38	611.84	572.04
BUILDING			BLDG_02	x	0		37.00	r	6135731.90	2266016.27	597.00	560.00
									6135944.88	2266015.35	597.00	560.00
									6135945.81	2265913.95	597.00	560.55
									6135883.30	2265913.95	597.00	560.00
									6135884.23	2265602.81	597.00	563.03
									6135943.96	2265603.27	597.00	563.65
									6135944.42	2265537.53	597.00	564.31
									6135703.20	2265537.07	597.00	561.80
									6135703.20	2265541.70	597.00	561.76
									6135699.03	2265541.23	597.00	561.72
									6135697.64	2265543.55	597.00	561.68
									6135691.16	2265542.16	597.00	561.62
									6135689.77	2265540.31	597.00	561.63
									6135682.36	2265540.31	597.00	561.55
									6135682.36	2265544.47	597.00	561.51
									6135680.51	2265544.01	597.00	561.50
									6135677.27	2265541.23	597.00	561.49
									6135673.56	2265541.23	597.00	561.45
									6135671.71	2265548.18	597.00	561.36
									6135663.84	2265548.18	597.00	561.28
									6135663.38	2265544.94	597.00	561.31
									6135636.99	2265544.01	597.00	561.04
									6135635.60	2265549.57	597.00	560.97
									6135638.84	2265549.57	597.00	561.00
									6135639.77	2265566.23	597.00	560.85
									6135635.14	2265566.70	597.00	560.79
									6135634.21	2265572.72	597.00	560.72
									6135640.23	2265573.18	597.00	560.78

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6135639.30	2265580.12	597.00	560.70
									6135630.97	2265580.12	597.00	560.62
									6135630.97	2265638.00	597.00	560.03
									6135626.80	2265637.54	597.00	560.00
									6135627.26	2265862.56	597.00	560.00
									6135636.99	2265863.02	597.00	560.00
									6135636.99	2265918.58	597.00	560.00
									6135648.10	2265919.97	597.00	560.00
									6135647.64	2265926.91	597.00	560.00
									6135641.62	2265926.91	597.00	560.00
									6135641.62	2265930.62	597.00	560.00
									6135647.64	2265931.08	597.00	560.00
									6135647.17	2265949.14	597.00	560.00
									6135642.54	2265949.60	597.00	560.00
									6135642.54	2265954.23	597.00	560.00
									6135666.16	2265953.77	597.00	560.00
									6135668.47	2265955.62	597.00	560.00
									6135672.18	2265956.08	597.00	560.00
									6135671.25	2265952.38	597.00	560.00
									6135680.05	2265952.38	597.00	560.00
									6135679.12	2265961.64	597.00	560.00
									6135710.14	2265961.17	597.00	560.00
									6135709.68	2265965.80	597.00	560.00
									6135731.90	2265965.34	597.00	560.00
BUILDING			BLDG_03	x	0		37.00	r	6136110.17	2266015.35	598.24	561.24
									6136345.84	2266015.81	598.24	560.00
									6136346.77	2266012.10	598.24	560.00
									6136378.25	2266011.64	598.24	560.00
									6136377.33	2266003.77	598.24	560.00
									6136384.27	2266003.77	598.24	560.00
									6136385.66	2266009.33	598.24	560.00
									6136414.83	2266007.94	598.24	560.00
									6136414.83	2266003.31	598.24	560.00
									6136408.81	2266002.84	598.24	560.00
									6136410.20	2265987.57	598.24	560.00
									6136414.83	2265987.10	598.24	560.00
									6136414.37	2265980.62	598.24	560.00
									6136410.20	2265981.08	598.24	560.00
									6136409.27	2265972.75	598.24	560.00
									6136420.85	2265972.29	598.24	560.00
									6136419.46	2265968.12	598.24	560.00
									6136417.14	2265968.12	598.24	560.00
									6136418.07	2265960.25	598.24	560.00
									6136420.38	2265959.32	598.24	560.00
									6136420.38	2265956.54	598.24	560.00
									6136417.61	2265956.54	598.24	560.00
									6136418.53	2265945.43	598.24	560.00
									6136419.92	2265945.43	598.24	560.00
									6136419.46	2265940.80	598.24	560.00
									6136418.07	2265940.80	598.24	560.00
									6136416.68	2265937.10	598.24	560.00
									6136419.00	2265933.86	598.24	560.00
									6136419.92	2265929.69	598.24	560.00
									6136417.14	2265928.30	598.24	560.00
									6136417.61	2265922.75	598.24	560.00
									6136419.92	2265916.26	598.24	560.00
									6136422.24	2265915.34	598.24	560.00
									6136422.70	2265650.96	598.24	566.61
									6136418.07	2265649.57	598.24	566.91
									6136418.53	2265645.41	598.24	567.11
									6136417.14	2265644.94	598.24	567.20
									6136418.53	2265592.16	598.24	568.71
									6136407.88	2265592.16	598.24	568.60
									6136409.27	2265585.22	598.24	568.69
									6136411.59	2265585.22	598.24	568.71
									6136412.05	2265579.20	598.24	568.78
									6136408.81	2265580.12	598.24	568.73
									6136410.20	2265561.60	598.24	568.93
									6136412.05	2265561.60	598.24	568.95
									6136411.59	2265556.05	598.24	569.00
									6136408.81	2265556.97	598.24	568.97
									6136407.88	2265559.75	598.24	568.93
									6136385.20	2265557.90	598.24	568.71
									6136385.66	2265562.99	598.24	568.66
									6136378.71	2265562.07	598.24	568.60
									6136375.94	2265555.12	598.24	568.64
									6136345.84	2265554.20	598.24	568.34

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6136345.84	2265551.88	598.24	568.36
									6136109.25	2265551.42	598.24	565.89
									6136109.71	2265603.27	598.24	565.38
									6136168.98	2265602.81	598.24	566.00
									6136169.90	2265913.95	598.24	562.89
									6136109.71	2265915.80	598.24	562.24
BUILDING			BLDG_04	x	0		37.00	r	6135613.42	2265472.85	599.78	562.78
									6135618.25	2265472.85	599.78	562.81
									6135618.56	2265470.74	599.78	562.89
									6135636.08	2265470.74	599.78	563.02
									6135635.78	2265473.16	599.78	562.94
									6135641.22	2265473.16	599.78	562.98
									6135641.52	2265469.23	599.78	563.11
									6135647.86	2265469.23	599.78	563.15
									6135648.47	2265476.18	599.78	562.93
									6135680.49	2265474.97	599.78	563.21
									6135680.49	2265478.59	599.78	563.09
									6135924.00	2265477.99	599.78	564.93
									6135923.70	2265412.13	599.78	567.09
									6135862.67	2265411.83	599.78	566.64
									6135862.67	2265205.48	599.78	573.40
									6135922.49	2265203.97	599.78	573.90
									6135922.49	2265139.31	599.78	576.01
									6135678.68	2265139.31	599.78	576.06
									6135679.28	2265143.85	599.78	575.88
									6135649.07	2265142.94	599.78	575.93
									6135649.07	2265150.79	599.78	575.61
									6135640.01	2265150.79	599.78	575.62
									6135640.31	2265146.26	599.78	575.80
									6135612.82	2265146.57	599.78	575.77
									6135611.91	2265151.70	599.78	575.56
									6135616.14	2265151.70	599.78	575.56
									6135616.14	2265170.73	599.78	574.80
									6135613.12	2265169.83	599.78	574.84
									6135611.91	2265174.36	599.78	574.65
									6135616.74	2265174.36	599.78	574.66
									6135616.74	2265181.91	599.78	574.35
									6135607.08	2265182.52	599.78	574.32
									6135606.17	2265239.01	599.78	572.06
									6135602.85	2265239.62	599.78	572.04
									6135604.66	2265378.29	599.78	566.46
									6135606.47	2265380.41	599.78	566.37
									6135607.38	2265435.39	599.78	564.16
									6135617.35	2265435.39	599.78	564.15
									6135617.65	2265443.25	599.78	563.83
									6135613.72	2265443.85	599.78	563.81
									6135613.72	2265448.68	599.78	563.62
									6135618.25	2265448.68	599.78	563.62
									6135617.05	2265465.91	599.78	563.03
									6135613.12	2265467.11	599.78	562.96
BUILDING			BLDG_05	x	0		37.00	r	6136089.26	2265461.68	603.70	566.70
									6136305.58	2265461.98	603.70	568.30
									6136305.27	2265458.65	603.70	568.41
									6136337.30	2265458.35	603.70	568.66
									6136337.30	2265451.71	603.70	568.88
									6136343.94	2265451.71	603.70	568.93
									6136344.25	2265455.03	603.70	568.82
									6136372.34	2265454.73	603.70	569.04
									6136373.55	2265448.99	603.70	569.24
									6136368.72	2265449.29	603.70	569.19
									6136369.02	2265433.88	603.70	569.70
									6136372.65	2265432.97	603.70	569.76
									6136372.34	2265426.93	603.70	569.95
									6136368.72	2265426.93	603.70	569.92
									6136368.42	2265419.98	603.70	570.15
									6136378.39	2265419.38	603.70	570.24
									6136378.69	2265364.39	603.70	572.02
									6136381.71	2265364.09	603.70	572.03
									6136381.41	2265237.50	603.70	579.89
									6136376.88	2265237.50	603.70	579.66
									6136378.39	2265180.40	603.70	580.00
									6136367.21	2265179.80	603.70	580.00
									6136367.51	2265172.55	603.70	580.00
									6136371.74	2265172.55	603.70	580.00
									6136371.14	2265167.71	603.70	580.00
									6136367.21	2265167.71	603.70	580.00
									6136368.11	2265149.89	603.70	580.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6136370.83	2265149.28	603.70	580.00
									6136370.83	2265143.54	603.70	580.00
									6136366.30	2265143.24	603.70	580.00
									6136365.70	2265145.96	603.70	580.00
									6136348.17	2265146.26	603.70	580.00
									6136348.17	2265143.85	603.70	580.00
									6136343.64	2265144.45	603.70	580.00
									6136344.25	2265148.08	603.70	580.00
									6136335.18	2265148.38	603.70	580.00
									6136335.18	2265141.13	603.70	580.00
									6136305.27	2265141.43	603.70	580.00
									6136303.46	2265139.01	603.70	580.00
									6136088.05	2265138.11	603.70	577.29
									6136088.65	2265203.97	603.70	575.14
									6136147.27	2265203.67	603.70	575.58
									6136147.87	2265411.22	603.70	568.79
									6136088.96	2265410.92	603.70	568.36
BUILDING			BLDG_06	x	0		15.00	r	6135486.39	2266347.86	522.41	507.41
									6135608.94	2266374.45	522.41	506.20
									6135628.24	2266303.70	522.41	510.73
									6135507.64	2266269.94	522.41	512.40
BUILDING			BLDG_07	x	0		15.00	r	6135327.11	2266194.36	532.13	517.13
									6135380.28	2266222.10	532.13	515.24
									6135428.82	2266145.82	532.13	520.74
									6135375.65	2266115.78	532.13	522.20
BUILDING			BUILDING00008	x	0		25.00	r	6136919.42	2265208.17	725.97	700.97
									6136965.20	2265171.75	725.97	710.50
									6136945.26	2265146.40	725.97	705.13
									6136934.19	2265154.77	725.97	704.91
									6136928.28	2265148.86	725.97	702.70
									6136916.23	2265156.98	725.97	701.24
									6136912.53	2265153.78	725.97	700.57
									6136891.13	2265173.72	725.97	700.00
BUILDING			BUILDING00009	x	0		25.00	r	6136927.30	2265210.38	727.47	702.47
									6136957.57	2265244.83	727.47	705.13
									6136980.95	2265229.33	727.47	709.11
									6136977.50	2265224.90	727.47	709.83
									6136984.39	2265219.73	727.47	711.12
									6136976.52	2265207.67	727.47	712.08
									6136993.99	2265193.40	727.47	715.72
									6136977.99	2265173.47	727.47	712.96

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)
CA-91			0	78.2	75.0	74.0			8376.0	3962.0	3156.0	2.8	2.8	2.8	65		55	0.0	1	0.0	0.0		
GREEN RIVER RD.			0	71.4	68.1	67.1			2142.0	1013.0	807.0	1.0	1.0	1.0	62		20	0.0	1	0.0	0.0		

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APPENDIX 10.1:

CADNAA OPERATIONAL NOISE MODEL

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12630 - Green River Ranch Specific Plan Amendment

CadnaA Noise Prediction Model: 12630-11 Operational.cna
Date: 30.05.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
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	
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	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	53.6	46.7	54.8	55.0	50.0	0.0				5.00	r	6135105.88	2267079.74	469.43
RECEIVERS		R2	43.0	42.0	48.7	55.0	50.0	0.0				5.00	r	6137172.64	2265502.57	592.28
RECEIVERS		R3	50.2	49.6	56.3	55.0	50.0	0.0				5.00	r	6136892.11	2265193.54	705.00
RECEIVERS		R4	32.2	30.6	37.5	55.0	50.0	0.0				5.00	r	6133179.58	2265806.24	458.00
RECEIVERS		R5	46.6	43.5	50.6	55.0	50.0	0.0				5.00	r	6133368.82	2266157.81	545.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6135338.76	2266113.23	528.53
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6135612.54	2266395.61	510.12
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6135341.62	2266365.51	510.54
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6134986.14	2266177.73	529.41
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6135632.22	2265225.87	604.78
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6135643.78	2265440.84	604.78
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6135265.48	2265621.04	623.34
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6134907.44	2265587.27	623.34
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6134825.83	2265578.97	623.34
POINTSOURCE		AC10	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6134465.03	2265529.48	623.34
POINTSOURCE		AC11	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6135657.65	2265607.26	602.00
POINTSOURCE		AC12	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6135673.83	2265926.24	602.00
POINTSOURCE		AC13	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6136388.06	2265944.73	603.24
POINTSOURCE		AC14	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6136385.75	2265623.44	603.24
POINTSOURCE		AC15	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6136348.77	2265200.45	608.70

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC16	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6136341.83	2265426.97	608.70
POINTSOURCE		DT01	83.2	83.2	83.2	Lw	83.2					3.00	r	6135308.66	2266113.23	527.00
POINTSOURCE		DT02	83.2	83.2	83.2	Lw	83.2					3.00	r	6135639.77	2266388.44	508.76
POINTSOURCE		DT03	83.2	83.2	83.2	Lw	83.2					3.00	r	6135383.19	2266417.11	505.55
POINTSOURCE		DT04	83.2	83.2	83.2	Lw	83.2					3.00	r	6134953.17	2266172.00	528.66
POINTSOURCE		GAS01	79.9	79.9	79.9	Lw	79.9					5.00	r	6135695.68	2266394.17	510.38
POINTSOURCE		GAS02	79.9	79.9	79.9	Lw	79.9					5.00	r	6135317.26	2266391.31	508.64
POINTSOURCE		GAS03	79.9	79.9	79.9	Lw	79.9					5.00	r	6135292.89	2266156.23	525.56
POINTSOURCE		GAS04	79.9	79.9	79.9	Lw	79.9					5.00	r	6135011.94	2266140.46	530.59
POINTSOURCE		PARK01	87.8	87.8	87.8	Lw	87.8					5.00	r	6135295.91	2265257.79	580.03
POINTSOURCE		PARK02	87.8	87.8	87.8	Lw	87.8					5.00	r	6135340.93	2265190.26	581.37
POINTSOURCE		PARK03	87.8	87.8	87.8	Lw	87.8					5.00	r	6135257.16	2265204.28	581.59
POINTSOURCE		PARK04	87.8	87.8	87.8	Lw	87.8					5.00	r	6135155.31	2265204.28	584.23
POINTSOURCE		PARK05	87.8	87.8	87.8	Lw	87.8					5.00	r	6135060.10	2265196.90	584.20
POINTSOURCE		PARK06	87.8	87.8	87.8	Lw	87.8					5.00	r	6134943.49	2265183.61	584.23
POINTSOURCE		PARK07	87.8	87.8	87.8	Lw	87.8					5.00	r	6134831.31	2265172.54	584.24
POINTSOURCE		PARK08	87.8	87.8	87.8	Lw	87.8					5.00	r	6134707.32	2265159.63	584.25
POINTSOURCE		PARK09	87.8	87.8	87.8	Lw	87.8					5.00	r	6134589.60	2265148.19	584.39
POINTSOURCE		PARK10	87.8	87.8	87.8	Lw	87.8					5.00	r	6136030.78	2265211.77	579.45
POINTSOURCE		PARK11	87.8	87.8	87.8	Lw	87.8					5.00	r	6135997.71	2265256.92	577.72
POINTSOURCE		PARK12	87.8	87.8	87.8	Lw	87.8					5.00	r	6136028.24	2265326.88	575.66
POINTSOURCE		PARK13	87.8	87.8	87.8	Lw	87.8					5.00	r	6135995.81	2265394.93	573.19
POINTSOURCE		PARK14	87.8	87.8	87.8	Lw	87.8					5.00	r	6136027.60	2265449.62	571.63
POINTSOURCE		PARK15	87.8	87.8	87.8	Lw	87.8					5.00	r	6136012.98	2265592.71	569.48
POINTSOURCE		PARK16	87.8	87.8	87.8	Lw	87.8					5.00	r	6136048.59	2265651.22	569.26
POINTSOURCE		PARK17	87.8	87.8	87.8	Lw	87.8					5.00	r	6136011.07	2265712.27	568.25
POINTSOURCE		PARK18	87.8	87.8	87.8	Lw	87.8					5.00	r	6136044.77	2265773.33	567.99
POINTSOURCE		PARK19	87.8	87.8	87.8	Lw	87.8					5.00	r	6136011.70	2265829.29	567.09
POINTSOURCE		PARK20	87.8	87.8	87.8	Lw	87.8					5.00	r	6136042.87	2265876.35	566.94
POINTSOURCE		PARK21	87.8	87.8	87.8	Lw	87.8					5.00	r	6136012.34	2265938.04	566.00
POINTSOURCE		PARK22	87.8	87.8	87.8	Lw	87.8					5.00	r	6136082.93	2265971.11	566.40
POINTSOURCE		PARK23	87.8	87.8	87.8	Lw	87.8					5.00	r	6135971.64	2265974.93	565.20
POINTSOURCE		PARK24	87.8	87.8	87.8	Lw	87.8					5.00	r	6135278.55	2266094.59	531.35
POINTSOURCE		PARK25	87.8	87.8	87.8	Lw	87.8					5.00	r	6135616.84	2266362.64	512.09
POINTSOURCE		PARK26	87.8	87.8	87.8	Lw	87.8					5.00	r	6135377.46	2266366.94	510.77
POINTSOURCE		PARK27	87.8	87.8	87.8	Lw	87.8					5.00	r	6134980.41	2266137.59	531.44
POINTSOURCE		PARK28	87.8	87.8	87.8	Lw	87.8					5.00	r	6136464.19	2265716.78	566.15
POINTSOURCE		PARK29	87.8	87.8	87.8	Lw	87.8					5.00	r	6136463.13	2265783.43	565.00
POINTSOURCE		PARK30	87.8	87.8	87.8	Lw	87.8					5.00	r	6136463.13	2265841.61	565.00
POINTSOURCE		PARK31	87.8	87.8	87.8	Lw	87.8					5.00	r	6136463.13	2265924.13	565.00
POINTSOURCE		PARK32	87.8	87.8	87.8	Lw	87.8					5.00	r	6136371.09	2266064.84	565.00
POINTSOURCE		PARK33	87.8	87.8	87.8	Lw	87.8					5.00	r	6136283.29	2266065.90	565.00
POINTSOURCE		PARK34	87.8	87.8	87.8	Lw	87.8					5.00	r	6136194.42	2266063.78	565.00
POINTSOURCE		PARK35	87.8	87.8	87.8	Lw	87.8					5.00	r	6136098.15	2266062.72	565.64
POINTSOURCE		PARK36	87.8	87.8	87.8	Lw	87.8					5.00	r	6136006.11	2266063.78	565.00
POINTSOURCE		PARK37	87.8	87.8	87.8	Lw	87.8					5.00	r	6135903.49	2266065.90	565.00
POINTSOURCE		PARK38	87.8	87.8	87.8	Lw	87.8					5.00	r	6135809.33	2266064.84	565.00
POINTSOURCE		PARK39	87.8	87.8	87.8	Lw	87.8					5.00	r	6135726.81	2266043.68	565.00
POINTSOURCE		PARK40	87.8	87.8	87.8	Lw	87.8					5.00	r	6135649.58	2265985.49	565.00
POINTSOURCE		PARK41	87.8	87.8	87.8	Lw	87.8					5.00	r	6135579.76	2265935.77	565.00
POINTSOURCE		PARK42	87.8	87.8	87.8	Lw	87.8					5.00	r	6135550.14	2265879.70	565.00
POINTSOURCE		PARK43	87.8	87.8	87.8	Lw	87.8					5.00	r	6135581.88	2265815.17	565.00
POINTSOURCE		PARK44	87.8	87.8	87.8	Lw	87.8					5.00	r	6135596.69	2265698.79	565.00
POINTSOURCE		PARK45	87.8	87.8	87.8	Lw	87.8					5.00	r	6135595.63	2265605.69	565.00
POINTSOURCE		PARK46	87.8	87.8	87.8	Lw	87.8					5.00	r	6136169.03	2265507.31	571.80
POINTSOURCE		PARK47	87.8	87.8	87.8	Lw	87.8					5.00	r	6136257.90	2265507.31	572.74
POINTSOURCE		PARK48	87.8	87.8	87.8	Lw	87.8					5.00	r	6136341.47	2265507.31	573.63
POINTSOURCE		PARK49	87.8	87.8	87.8	Lw	87.8					5.00	r	6136426.11	2265448.06	574.66
POINTSOURCE		PARK50	87.8	87.8	87.8	Lw	87.8					5.00	r	6136422.93	2265376.12	577.63
POINTSOURCE		PARK51	87.8	87.8	87.8	Lw	87.8					5.00	r	6136426.11	2265286.20	583.93
POINTSOURCE		PARK52	87.8	87.8	87.8	Lw	87.8					5.00	r	6136428.22	2265208.97	585.00
POINTSOURCE		PARK53	87.8	87.8	87.8	Lw	87.8					5.00	r	6136275.88	2265103.18	585.00
POINTSOURCE		PARK54	87.8	87.8	87.8	Lw	87.8					5.00	r	6136189.13	2265102.12	583.99
POINTSOURCE		PARK55	87.8	87.8	87.8	Lw	87.8					5.00	r	6136090.74	2265100.00	583.50
POINTSOURCE		PARK56	87.8	87.8	87.8	Lw	87.8					5.00	r	6135987.07	2265095.77	582.92
POINTSOURCE		PARK57	87.8	87.8	87.8	Lw	87.8					5.00	r	6135864.34	2265096.83	582.70
POINTSOURCE		PARK58	87.8	87.8	87.8	Lw	87.8					5.00	r	6135775.48	2265093.66	582.86
POINTSOURCE		PARK59	87.8	87.8	87.8	Lw	87.8					5.00	r	6135667.57	2265090.48	583.04
POINTSOURCE		PARK60	87.8	87.8	87.8	Lw	87.8					5.00	r	6135560.72	2265146.55	580.76
POINTSOURCE		PARK61	87.8	87.8	87.8	Lw	87.8					5.00	r	6135574.47	2265247.06	576.72
POINTSOURCE		PARK62	87.8	87.8	87.8	Lw	87.8					5.00	r	6135574.47	2265414.21	570.02
POINTSOURCE		PARK63	87.8	87.8	87.8	Lw	87.8					5.00	r	6135399.91	2265299.95	576.23
POINTSOURCE		PARK64	87.8	87.8	87.8	Lw	87.8					5.00	r	6135387.22	2265382.47	576.35
POINTSOURCE		PARK65	87.8	87.8	87.8	Lw	87.8					5.00	r	6135379.81	2265468.16	576.28
POINTSOURCE		PARK66	87.8	87.8	87.8	Lw	87.8					5.00	r	6135372.41	2265545.39	576.10
POINTSOURCE		PARK67	87.8	87.8	87.8	Lw	87.8					5.00	r	6135362.88	2265618.39	575.23
POINTSOURCE		PARK68	87.8	87.8	87.8	Lw	87.8					5.00	r	6135315.28	2265678.69	575.16

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		PARK69	87.8	87.8	87.8	Lw	87.8					5.00	r	6135236.99	2265687.16	576.33
POINTSOURCE		PARK70	87.8	87.8	87.8	Lw	87.8					5.00	r	6135149.18	2265677.63	576.48
POINTSOURCE		PARK71	87.8	87.8	87.8	Lw	87.8					5.00	r	6135053.97	2265663.88	576.57
POINTSOURCE		PARK72	87.8	87.8	87.8	Lw	87.8					5.00	r	6134971.45	2265656.48	576.57
POINTSOURCE		PARK73	87.8	87.8	87.8	Lw	87.8					5.00	r	6134889.99	2265649.07	576.57
POINTSOURCE		PARK74	87.8	87.8	87.8	Lw	87.8					5.00	r	6134785.25	2265636.37	576.63
POINTSOURCE		PARK75	87.8	87.8	87.8	Lw	87.8					5.00	r	6134708.02	2265628.97	576.63
POINTSOURCE		PARK76	87.8	87.8	87.8	Lw	87.8					5.00	r	6134620.22	2265620.51	576.64
POINTSOURCE		PARK77	87.8	87.8	87.8	Lw	87.8					5.00	r	6134527.12	2265609.93	576.68
POINTSOURCE		PARK78	87.8	87.8	87.8	Lw	87.8					5.00	r	6134448.83	2265598.29	576.86
POINTSOURCE		PARK79	87.8	87.8	87.8	Lw	87.8					5.00	r	6134394.88	2265544.33	578.55
POINTSOURCE		PARK80	87.8	87.8	87.8	Lw	87.8					5.00	r	6134389.59	2265463.93	580.02
POINTSOURCE		PARK81	87.8	87.8	87.8	Lw	87.8					5.00	r	6134399.11	2265385.64	581.41
POINTSOURCE		PARK82	87.8	87.8	87.8	Lw	87.8					5.00	r	6134407.57	2265281.97	583.26
POINTSOURCE		PARK83	87.8	87.8	87.8	Lw	87.8					5.00	r	6134483.74	2265208.97	583.76
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6135312.96	2266081.69	531.69
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6135691.37	2266364.07	512.41
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6135338.76	2266424.27	506.69
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6134983.27	2266103.19	533.15
POINTSOURCE		TRASH05	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6136039.22	2265965.32	566.01
POINTSOURCE		TRASH06	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6136017.02	2266000.29	565.42
POINTSOURCE		TRASH07	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6136026.83	2265193.20	580.03
POINTSOURCE		TRASH08	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6135993.92	2265158.31	580.92
POINTSOURCE		TRASH09	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6135338.53	2265273.52	578.48
POINTSOURCE		TRASH10	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6134526.45	2265236.33	583.03
POINTSOURCE		TUNNEL02	106.0	106.0	106.0	Lw	106		900.00	0.00	0.00	8.00	r	6135632.06	2266338.03	516.91
POINTSOURCE		TUNNEL04	106.0	106.0	106.0	Lw	106		900.00	0.00	0.00	8.00	r	6135011.03	2266103.25	535.78
POINTSOURCE		VAC02	86.3	86.3	86.3	Lw	86.3		900.00	0.00	0.00	3.00	r	6135656.97	2266361.21	510.60
POINTSOURCE		VAC04	86.3	86.3	86.3	Lw	86.3		900.00	0.00	0.00	3.00	r	6134946.00	2266140.46	530.26

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		DWY01	99.3	89.8	95.1	74.5	65.0	70.2	PWL-Pt	89.7					301.0	34.0	113.0	6.2	8	r
LINESOURCE		DWY02	95.4	86.0	91.2	74.5	65.0	70.2	PWL-Pt	89.7					301.0	34.0	113.0	6.2	8	r
LINESOURCE		DWY03	94.4	84.9	90.1	74.5	65.0	70.2	PWL-Pt	89.7					301.0	34.0	113.0	6.2	8	r
LINESOURCE		DWY04	94.8	85.4	90.6	74.5	65.0	70.2	PWL-Pt	89.7					301.0	34.0	113.0	6.2	8	r
LINESOURCE		DWY05	98.9	89.4	94.6	74.5	65.0	70.2	PWL-Pt	89.7					301.0	34.0	113.0	6.2	8	r

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	DWY01	8.00	r			6136071.49	2265917.69	569.82	561.82
						6136074.06	2265507.94	573.79	565.79
						6135488.22	2265505.72	568.19	560.19
LINESOURCE	DWY02	8.00	r			6135986.27	2265915.78	568.95	560.95
						6135986.50	2265507.63	572.86	564.86
LINESOURCE	DWY03	8.00	r			6135972.27	2265185.06	582.89	574.89
						6135970.37	2265503.68	572.69	564.69
LINESOURCE	DWY04	8.00	r			6136057.49	2265151.99	584.61	576.61
						6136046.94	2265507.85	573.50	565.50
LINESOURCE	DWY05	8.00	r			6135388.03	2265868.58	551.70	543.70
						6135455.21	2265758.92	558.00	550.00
						6135480.89	2265691.74	558.00	550.00
						6135488.80	2265589.00	562.67	554.67
						6135490.77	2265233.35	580.21	572.21
						6135472.00	2265215.57	581.18	573.18
						6135454.22	2265206.68	582.02	574.02
						6135406.80	2265213.60	582.30	574.30
						6135258.62	2265238.29	584.41	576.41

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		DOCK01	111.5	111.5	111.5	73.2	73.2	73.2	Lw	111.5					8	r
AREASOURCE		DOCK02	111.5	111.5	111.5	79.3	79.3	79.3	Lw	111.5					8	r
AREASOURCE		DOCK03	111.5	111.5	111.5	79.5	79.5	79.5	Lw	111.5					8	r
AREASOURCE		DOCK04	111.5	111.5	111.5	81.0	81.0	81.0	Lw	111.5					8	r
AREASOURCE		DOCK05	111.5	111.5	111.5	81.4	81.4	81.4	Lw	111.5					8	r

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	DOCK01	8.00	r			6134501.19	2265254.55	585.83	577.83
						6135242.29	2265334.85	584.22	576.22
						6135252.06	2265277.34	584.49	576.49
						6135258.62	2265238.29	584.41	576.41
						6134513.13	2265160.15	587.48	579.48
AREASOURCE	DOCK02	8.00	r			6135890.24	2265913.24	568.00	560.00
						6135946.84	2265913.24	568.57	560.57
						6135948.11	2265607.34	571.65	563.65
						6135888.33	2265606.07	571.04	563.04
AREASOURCE	DOCK03	8.00	r			6136110.91	2265913.24	570.28	562.28
						6136166.24	2265913.24	570.86	562.86
						6136167.52	2265606.07	573.95	565.95
						6136111.55	2265607.34	573.36	565.36
AREASOURCE	DOCK04	8.00	r			6135867.34	2265408.92	574.77	566.77
						6135925.85	2265408.92	575.21	567.21
						6135925.85	2265207.32	581.81	573.81
						6135865.43	2265207.95	581.34	573.34
AREASOURCE	DOCK05	8.00	r			6136091.20	2265407.01	576.50	568.50
						6136145.89	2265409.55	576.83	568.83
						6136143.99	2265205.41	583.50	575.50
						6136090.56	2265206.68	583.06	575.06

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						6.00	r		6136908.35	2265154.77	706.00	700.00
												6136903.18	2265149.35	703.88	697.88
												6136858.40	2265196.11	701.36	695.36
												6136850.52	2265233.02	699.74	693.74
												6136884.48	2265246.06	706.00	700.00
												6136906.63	2265249.26	706.00	700.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		37.00	r	6135731.90	2266016.27	597.00	560.00
									6135944.88	2266015.35	597.00	560.00
									6135945.81	2265913.95	597.00	560.55
									6135883.30	2265913.95	597.00	560.00
									6135884.23	2265602.81	597.00	563.03
									6135943.96	2265603.27	597.00	563.65
									6135944.42	2265537.53	597.00	564.31
									6135703.20	2265537.07	597.00	561.80
									6135703.20	2265541.70	597.00	561.76
									6135699.03	2265541.23	597.00	561.72
									6135697.64	2265543.55	597.00	561.68
									6135691.16	2265542.16	597.00	561.62
									6135689.77	2265540.31	597.00	561.63
									6135682.36	2265540.31	597.00	561.55
									6135682.36	2265544.47	597.00	561.51
									6135680.51	2265544.01	597.00	561.50
									6135677.27	2265541.23	597.00	561.49
									6135673.56	2265541.23	597.00	561.45
									6135671.71	2265548.18	597.00	561.36
									6135663.84	2265548.18	597.00	561.28
									6135663.38	2265544.94	597.00	561.31
									6135636.99	2265544.01	597.00	561.04
									6135635.60	2265549.57	597.00	560.97
									6135638.84	2265549.57	597.00	561.00
									6135639.77	2265566.23	597.00	560.85
									6135635.14	2265566.70	597.00	560.79
									6135634.21	2265572.72	597.00	560.72
									6135640.23	2265573.18	597.00	560.78
									6135639.30	2265580.12	597.00	560.70
									6135630.97	2265580.12	597.00	560.62
									6135630.97	2265638.00	597.00	560.03
									6135626.80	2265637.54	597.00	560.00
									6135627.26	2265862.56	597.00	560.00
									6135636.99	2265863.02	597.00	560.00
									6135636.99	2265918.58	597.00	560.00
									6135648.10	2265919.97	597.00	560.00
									6135647.64	2265926.91	597.00	560.00
									6135641.62	2265926.91	597.00	560.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6135641.62	2265930.62	597.00	560.00
									6135647.64	2265931.08	597.00	560.00
									6135647.17	2265949.14	597.00	560.00
									6135642.54	2265949.60	597.00	560.00
									6135642.54	2265954.23	597.00	560.00
									6135666.16	2265953.77	597.00	560.00
									6135668.47	2265955.62	597.00	560.00
									6135672.18	2265956.08	597.00	560.00
									6135671.25	2265952.38	597.00	560.00
									6135680.05	2265952.38	597.00	560.00
									6135679.12	2265961.64	597.00	560.00
									6135710.14	2265961.17	597.00	560.00
									6135709.68	2265965.80	597.00	560.00
									6135731.90	2265965.34	597.00	560.00
BUILDING			BUILDING00002	x	0		37.00	r	6136110.17	2266015.35	598.24	561.24
									6136345.84	2266015.81	598.24	560.00
									6136346.77	2266012.10	598.24	560.00
									6136378.25	2266011.64	598.24	560.00
									6136377.33	2266003.77	598.24	560.00
									6136384.27	2266003.77	598.24	560.00
									6136385.66	2266009.33	598.24	560.00
									6136414.83	2266007.94	598.24	560.00
									6136414.83	2266003.31	598.24	560.00
									6136408.81	2266002.84	598.24	560.00
									6136410.20	2265987.57	598.24	560.00
									6136414.83	2265987.10	598.24	560.00
									6136414.37	2265980.62	598.24	560.00
									6136410.20	2265981.08	598.24	560.00
									6136409.27	2265972.75	598.24	560.00
									6136420.85	2265972.29	598.24	560.00
									6136419.46	2265968.12	598.24	560.00
									6136417.14	2265968.12	598.24	560.00
									6136418.07	2265960.25	598.24	560.00
									6136420.38	2265959.32	598.24	560.00
									6136420.38	2265956.54	598.24	560.00
									6136417.61	2265956.54	598.24	560.00
									6136418.53	2265945.43	598.24	560.00
									6136419.92	2265945.43	598.24	560.00
									6136419.46	2265940.80	598.24	560.00
									6136418.07	2265940.80	598.24	560.00
									6136416.68	2265937.10	598.24	560.00
									6136419.00	2265933.86	598.24	560.00
									6136419.92	2265929.69	598.24	560.00
									6136417.14	2265928.30	598.24	560.00
									6136417.61	2265922.75	598.24	560.00
									6136419.92	2265916.26	598.24	560.00
									6136422.24	2265915.34	598.24	560.00
									6136422.70	2265650.96	598.24	566.61
									6136418.07	2265649.57	598.24	566.91
									6136418.53	2265645.41	598.24	567.11
									6136417.14	2265644.94	598.24	567.20
									6136418.53	2265592.16	598.24	568.71
									6136407.88	2265592.16	598.24	568.60
									6136409.27	2265585.22	598.24	568.69
									6136411.59	2265585.22	598.24	568.71
									6136412.05	2265579.20	598.24	568.78
									6136408.81	2265580.12	598.24	568.73
									6136410.20	2265561.60	598.24	568.93
									6136412.05	2265561.60	598.24	568.95
									6136411.59	2265556.05	598.24	569.00
									6136408.81	2265556.97	598.24	568.97
									6136407.88	2265559.75	598.24	568.93
									6136385.20	2265557.90	598.24	568.71
									6136385.66	2265562.99	598.24	568.66
									6136378.71	2265562.07	598.24	568.60
									6136375.94	2265555.12	598.24	568.64
									6136345.84	2265554.20	598.24	568.34
									6136345.84	2265551.88	598.24	568.36
									6136109.25	2265551.42	598.24	565.89
									6136109.71	2265603.27	598.24	565.38
									6136168.98	2265602.81	598.24	566.00
									6136169.90	2265913.95	598.24	562.89
									6136109.71	2265915.80	598.24	562.24
BUILDING			BUILDING00003	x	0		37.00	r	6135613.42	2265472.85	599.78	562.78
									6135618.25	2265472.85	599.78	562.81
									6135618.56	2265470.74	599.78	562.89
									6135636.08	2265470.74	599.78	563.02

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6135635.78	2265473.16	599.78	562.94
									6135641.22	2265473.16	599.78	562.98
									6135641.52	2265469.23	599.78	563.11
									6135647.86	2265469.23	599.78	563.15
									6135648.47	2265476.18	599.78	562.93
									6135680.49	2265474.97	599.78	563.21
									6135680.49	2265478.59	599.78	563.09
									6135924.00	2265477.99	599.78	564.93
									6135923.70	2265412.13	599.78	567.09
									6135862.67	2265411.83	599.78	566.64
									6135862.67	2265205.48	599.78	573.40
									6135922.49	2265203.97	599.78	573.90
									6135922.49	2265139.31	599.78	576.01
									6135678.68	2265139.31	599.78	576.06
									6135679.28	2265143.85	599.78	575.88
									6135649.07	2265142.94	599.78	575.93
									6135649.07	2265150.79	599.78	575.61
									6135640.01	2265150.79	599.78	575.62
									6135640.31	2265146.26	599.78	575.80
									6135612.82	2265146.57	599.78	575.77
									6135611.91	2265151.70	599.78	575.56
									6135616.14	2265151.70	599.78	575.56
									6135616.14	2265170.73	599.78	574.80
									6135613.12	2265169.83	599.78	574.84
									6135611.91	2265174.36	599.78	574.65
									6135616.74	2265174.36	599.78	574.66
									6135616.74	2265181.91	599.78	574.35
									6135607.08	2265182.52	599.78	574.32
									6135606.17	2265239.01	599.78	572.06
									6135602.85	2265239.62	599.78	572.04
									6135604.66	2265378.29	599.78	566.46
									6135606.47	2265380.41	599.78	566.37
									6135607.38	2265435.39	599.78	564.16
									6135617.35	2265435.39	599.78	564.15
									6135617.65	2265443.25	599.78	563.83
									6135613.72	2265443.85	599.78	563.81
									6135613.72	2265448.68	599.78	563.62
									6135618.25	2265448.68	599.78	563.62
									6135617.05	2265465.91	599.78	563.03
									6135613.12	2265467.11	599.78	562.96
BUILDING			BUILDING00004	x	0		37.00	r	6136089.26	2265461.68	603.70	566.70
									6136305.58	2265461.98	603.70	568.30
									6136305.27	2265458.65	603.70	568.41
									6136337.30	2265458.35	603.70	568.66
									6136337.30	2265451.71	603.70	568.88
									6136343.94	2265451.71	603.70	568.93
									6136344.25	2265455.03	603.70	568.82
									6136372.34	2265454.73	603.70	569.04
									6136373.55	2265448.99	603.70	569.24
									6136368.72	2265449.29	603.70	569.19
									6136369.02	2265433.88	603.70	569.70
									6136372.65	2265432.97	603.70	569.76
									6136372.34	2265426.93	603.70	569.95
									6136368.72	2265426.93	603.70	569.92
									6136368.42	2265419.98	603.70	570.15
									6136378.39	2265419.38	603.70	570.24
									6136378.69	2265364.39	603.70	572.02
									6136381.71	2265364.09	603.70	572.03
									6136381.41	2265237.50	603.70	579.89
									6136376.88	2265237.50	603.70	579.66
									6136378.39	2265180.40	603.70	580.00
									6136367.21	2265179.80	603.70	580.00
									6136367.51	2265172.55	603.70	580.00
									6136371.74	2265172.55	603.70	580.00
									6136371.14	2265167.71	603.70	580.00
									6136367.21	2265167.71	603.70	580.00
									6136368.11	2265149.89	603.70	580.00
									6136370.83	2265149.28	603.70	580.00
									6136370.83	2265143.54	603.70	580.00
									6136366.30	2265143.24	603.70	580.00
									6136365.70	2265145.96	603.70	580.00
									6136348.17	2265146.26	603.70	580.00
									6136348.17	2265143.85	603.70	580.00
									6136343.64	2265144.45	603.70	580.00
									6136344.25	2265148.08	603.70	580.00
									6136335.18	2265148.38	603.70	580.00
									6136335.18	2265141.13	603.70	580.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6136305.27	2265141.43	603.70	580.00
									6136303.46	2265139.01	603.70	580.00
									6136088.05	2265138.11	603.70	577.29
									6136088.65	2265203.97	603.70	575.14
									6136147.27	2265203.67	603.70	575.58
									6136147.87	2265411.22	603.70	568.79
									6136088.96	2265410.92	603.70	568.36
BUILDING			BUILDING00005	x	0		15.00	r	6136919.42	2265208.17	715.97	700.97
									6136965.20	2265171.75	715.97	710.50
									6136945.26	2265146.40	715.97	705.13
									6136934.19	2265154.77	715.97	704.91
									6136928.28	2265148.86	715.97	702.70
									6136916.23	2265156.98	715.97	701.24
									6136912.53	2265153.78	715.97	700.57
									6136891.13	2265173.72	715.97	700.00
BUILDING			BUILDING00006	x	0		15.00	r	6136927.30	2265210.38	717.47	702.47
									6136957.57	2265244.83	717.47	705.13
									6136980.95	2265229.33	717.47	709.11
									6136977.50	2265224.90	717.47	709.83
									6136984.39	2265219.73	717.47	711.12
									6136976.52	2265207.67	717.47	712.08
									6136993.99	2265193.40	717.47	715.72
									6136977.99	2265173.47	717.47	712.96
BUILDING			BUILDING00007	x	0		40.00	r	6134455.23	2265245.29	618.34	578.34
									6134430.68	2265479.57	618.34	574.25
									6134448.09	2265481.80	618.34	574.01
									6134447.19	2265511.70	618.34	573.47
									6134453.00	2265513.04	618.34	573.39
									6134450.32	2265549.64	618.34	572.74
									6134484.23	2265552.31	618.34	572.56
									6134484.23	2265558.11	618.34	572.46
									6134540.46	2265564.36	618.34	572.44
									6134539.57	2265567.04	618.34	572.39
									6135185.75	2265637.55	618.34	572.20
									6135187.08	2265634.87	618.34	572.24
									6135242.87	2265640.22	618.34	571.89
									6135243.76	2265630.85	618.34	572.01
									6135276.78	2265635.32	618.34	571.40
									6135279.46	2265603.63	618.34	571.81
									6135288.38	2265604.52	618.34	571.65
									6135292.85	2265573.29	618.34	572.02
									6135325.87	2265577.30	618.34	571.42
									6135356.23	2265283.94	618.34	572.82
									6135255.29	2265273.85	618.34	576.39
									6135247.95	2265332.58	618.34	576.16
									6134509.75	2265253.25	618.34	577.80

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)
				1.0	6136708.14	2265696.69
					6136528.18	2265545.52
					6136522.78	2265162.20
					6136436.40	2265041.63
					6136290.63	2264984.04
					6135936.11	2264926.45
					6135934.31	2264733.89
					6136843.12	2264805.88
					6137044.67	2264942.65
					6136819.72	2265217.99
					6136853.91	2265268.38
					6137122.06	2265342.16
					6137035.67	2265741.68

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APPENDIX 11.1:

CADNAA CONSTRUCTION NOISE MODEL

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12630 - Green River Ranch Specific Plan Amendment

CadnaA Noise Prediction Model: 12630-09 Construction.cna
Date: 09.12.21
Analyst: B. Lawson

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	0.00
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	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	69.9	69.9	76.5	55.0	50.0	0.0				5.00	r	6135105.88	2267079.74	469.43
RECEIVERS		R2	63.9	63.9	70.6	55.0	50.0	0.0				5.00	r	6137172.64	2265502.57	592.28
RECEIVERS		R3	65.3	65.3	72.0	55.0	50.0	0.0				5.00	r	6136892.11	2265193.54	705.00
RECEIVERS		R4	56.7	56.7	63.4	55.0	50.0	0.0				5.00	r	6133179.58	2265806.24	458.00
RECEIVERS		R5	67.0	67.0	73.7	55.0	50.0	0.0				5.00	r	6133368.82	2266157.81	545.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
CONSTRUCTION		LimitsOfDisturbance	134.0	134.0	134.0	75.3	75.3	75.3	Lw''	75.3					8	r

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
CONSTRUCTION	8.00	r			6134091.69	2265201.48	653.98	645.98
					6134041.57	2265211.29	642.07	634.07
					6134099.73	2265463.02	617.19	609.19
					6134112.17	2265496.99	609.79	601.79
					6134126.79	2265530.07	604.26	596.26
					6134143.52	2265562.14	599.40	591.40

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6134162.29	2265593.06	594.51	586.51
			6134183.03	2265622.70	589.61	581.61
			6134205.64	2265650.93	585.16	577.16
			6134230.04	2265677.64	581.06	573.06
			6134256.11	2265702.71	577.74	569.74
			6134283.76	2265726.04	575.34	567.34
			6134330.01	2265755.36	572.36	564.36
			6134377.44	2265782.73	570.89	562.89
			6134425.96	2265808.12	567.23	559.23
			6134475.49	2265831.48	564.86	556.86
			6134525.94	2265852.78	562.62	554.62
			6134652.68	2265915.28	555.77	547.77
			6134701.29	2265960.42	551.27	543.27
			6134658.76	2265988.20	550.82	542.82
			6134700.42	2266059.38	545.24	537.24
			6134661.47	2266083.07	544.99	536.99
			6134737.23	2266204.29	536.31	528.31
			6134778.56	2266183.63	536.76	528.76
			6134880.50	2266295.21	530.43	522.43
			6134919.06	2266331.80	528.00	520.00
			6134959.22	2266366.62	525.39	517.39
			6135000.90	2266399.61	521.76	513.76
			6135044.01	2266430.70	518.04	510.04
			6135088.46	2266459.83	513.75	505.75
			6135134.18	2266486.95	509.29	501.29
			6135181.07	2266511.99	502.46	494.46
			6135229.02	2266534.91	495.84	487.84
			6135358.52	2266517.00	501.78	493.78
			6135899.90	2266482.56	505.31	497.31
			6135893.01	2266353.07	515.80	507.80
			6135981.17	2266350.32	515.84	507.84
			6136584.55	2266317.25	516.47	508.47
			6136583.53	2266066.41	528.13	520.13
			6136587.78	2266026.36	534.46	526.46
			6136593.16	2265990.94	535.08	527.08
			6136627.54	2266002.06	534.41	526.41
			6136750.63	2266007.61	535.01	527.01
			6136750.10	2265962.82	538.24	530.24
			6136673.89	2265959.00	537.97	529.97
			6136639.51	2265957.61	537.71	529.71
			6136606.35	2265935.56	538.94	530.94
			6136618.43	2265902.50	542.46	534.46
			6136632.71	2265870.32	546.86	538.86
			6136649.15	2265839.19	548.00	540.00
			6136667.65	2265809.24	549.17	541.17
			6136688.14	2265780.62	553.09	545.09
			6136710.52	2265753.44	556.87	548.87
			6136517.29	2265566.99	588.00	580.00
			6136517.29	2265483.13	596.36	588.36
			6136616.77	2265408.13	627.15	619.15
			6136675.63	2265329.49	652.92	644.92
			6136645.42	2265262.82	648.00	640.00
			6136649.58	2265155.01	628.00	620.00
			6136650.10	2265079.49	628.00	620.00
			6136591.25	2264916.99	658.11	650.11
			6136523.02	2264918.03	634.57	626.57
			6136530.33	2262957.24	1123.85	1115.85
			6134088.85	2263562.85	1031.55	1023.55

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
			left	right		horz.	vert.	Begin		End	x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING		0						6.00	r		6136908.35	2265154.77	706.00	700.00
											6136903.18	2265149.35	703.88	697.88
											6136858.40	2265196.11	701.36	695.36
											6136850.52	2265233.02	699.74	693.74
											6136884.48	2265246.06	706.00	700.00
											6136906.63	2265249.26	706.00	700.00

Ground Absorption(s)

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
			1.0	6136708.14	2265696.69

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
				6136528.18	2265545.52
				6136522.78	2265162.20
				6136436.40	2265041.63
				6136290.63	2264984.04
				6135936.11	2264926.45
				6135934.31	2264733.89
				6136843.12	2264805.88
				6137044.67	2264942.65
				6136819.72	2265217.99
				6136853.91	2265268.38
				6137122.06	2265342.16
				6137035.67	2265741.68

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