Roquet Ranch Specific Plan

NOISE IMPACT ANALYSIS
CITY OF COLTON

PREPARED BY:

Bill Lawson, PE, INCE
blawson@urbanxroads.com
(949) 336-5979

Alex Wolfe
awolfe@urbanxroads.com
(949) 336-5977

DECEMBER 7, 2016

TABLE OF CONTENTS

URBAN CROSSROADS

APPENDICES

APPENDIX 3.1: CITY OF COLTON MUNICIPAL CODE
APPENDIX 3.2: COUNTY OF SAN BERNARDINO DEVELOPMENT CODE
APPENDIX 5.1: STUDY AREA PHOTOS
APPENDIX 5.2: NOISE LEVEL MEASUREMENT WORKSHEETS
APPENDIX 7.1: OFF-SITE TRAFFIC NOISE CONTOURS
APPENDIX 8.1: ON-SITE TRAFFIC NOISE CALCULATIONS
APPENDIX 10.1: OPERATIONAL NOISE CALCULATIONS

LIST OF EXHIBITS

LIST OF TABLES

URBAN
CROSSROADS

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
I-215	Interstate 215
INCE	Institute of Noise Control Engineering
Leq	Equivalent continuous (average) sound level
Lmax	Maximum level measured over the time interval
Lmin	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Roquet Ranch Specific Plan
REMEL	Reference Energy Mean Emission Level
RMS	Root-Mean-Square
VdB	Vibration Decibels

URBAN CROSSROADS

This page intentionally left blank

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Roquet Ranch Specific Plan development ("Project"). The Project site is located west of La Cadena Drive and north of the future Pellissier Road in the City of Colton. The Project is proposed to consist of 754 single-family residential units, 244 condo/townhomes, 52 active adult attached units, 6,500 square feet of commercial retail use, a 1,500 square foot coffee shop with drive-thru window, a 4,000 square foot fast-food restaurant with drive-thru window, an 11.1-acre community park, and 8.4 acres of passive parks. This noise impact analysis was prepared to satisfy the City of Colton noise level standards to ensure that adequate noise mitigation measures are incorporated into the Project's development.

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 36 roadway segments surrounding the Project site were estimated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in the *Roquet Ranch Specific Plan Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (1) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing (2016), Opening Year 2020, and Horizon Year 2040 conditions for both the with and without Project traffic conditions. The off-site traffic noise analysis shows that the Project noise level contributions will be *less than significant* for the with Project scenarios.

ON-SITE TRAFFIC NOISE ANALYSIS

To satisfy the City of Colton *General Plan Noise Element*, Standard 2, 60 dBA CNEL exterior noise level standard for residential land uses, the construction of 6-foot high noise barriers is required for Planning Areas 2 to 4, and 6 to 9 adjacent to Pellisier Road and Roquet Ranch Road. The mitigated exterior noise levels for Planning areas 2 to 4, and 6 to 9 adjacent to Pellisier Road and Roquet Ranch Road will range from 53.8 to 58.3 dBA CNEL and will satisfy the City of Colton 60 dBA CNEL exterior noise level standard. Unmitigated exterior noise levels at the school land use within Planning Area 12 will satisfy the exterior noise level criteria of 65 dBA CNEL for *normally acceptable* land use without the need for exterior noise mitigation. In addition, unmitigated exterior noise levels at Planning Area 5 will satisfy the exterior noise level criteria for residential land use with no exterior noise mitigation.

The mitigated exterior noise levels at the residential homes within Planning Area 9 will approach 64.8 dBA CNEL with the construction of 8-foot high noise barriers for outdoor living areas adjacent to La Cadena Drive, facing the I-215 Freeway and BNSF rail lines. While the exterior noise levels will exceed the 60 dBA CNEL standard for residential land use, the mitigated exterior noise levels will satisfy the conditions of *conditionally acceptable* residential land use, based on

Table 5-1 of the City of Colton *General Plan Noise Element*. Further, the County of San Bernardino Development Code, Table 83-3, indicates that exterior noise levels of up to 65 dBA CNEL are allowed provided exterior noise mitigation has been provided, and the interior noise levels do not exceed 45 dBA CNEL (see Section 8.2 of this report). (2)

This noise analysis shows that with the recommended noise mitigation barriers the Project will satisfy the City of Colton exterior noise level criteria at the residential and school uses within the Project site. The effective noise barrier height recommendations represent the minimum wall and/or berm combination height required to satisfy the City of Colton exterior noise level standards.

The recommended noise control barriers shall be constructed so that the top of each wall and /or berm combination extends to the recommended height above the pad elevation of the lot it is shielding. When the road is elevated above the pad elevation, the barrier shall extend to the recommended height above the highest point between the residential home and the road. The barrier shall provide a weight of at least 4 pounds per square foot of face area with no decorative cutouts or line-of-sight openings between shielded areas and the roadways. The noise barrier shall be constructed using the following materials:

- Masonry block
- Stucco veneer over wood framing (or foam core), or 1-inch-thick tongue and groove wood of sufficient weight per square foot
- Glass (1/4-inch-thick), or other transparent material with sufficient weight per square foot
- Earthen berm
- Any combination of these construction materials

The barrier shall consist of a solid face from top to bottom. Unnecessary openings or decorative cutouts shall not be made. All gaps (except for weep holes) should be filled with grout or caulking.

INTERIOR NOISE MITIGATION

To satisfy the City of Colton 45 dBA CNEL interior noise level standard, lots adjacent to the I-215 Freeway, La Cadena Drive, Pellissier Road, and Roquet Ranch Road will require an exterior to interior Noise Reduction (NR) of up to 25.6 dBA and a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning). In order to meet the City of Colton 45 dBA CNEL interior noise standards the Project shall provide the following or equivalent noise mitigation measures:

- Windows:
  - All windows and sliding glass doors shall be well fitted, well weather-stripped assemblies and shall have the following minimum sound transmission class (STC) ratings:
    - Upgraded windows with a minimum STC rating of 32 are required for residential lots in Planning Area 9 adjacent to La Cadena Drive;
    - All other buildings require standard windows with a minimum STC rating of 27.

- Doors: All exterior doors shall be well weather-stripped solid core assemblies at least one and three-fourths-inch thick.

- Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.

- Roof: Roof sheathing of wood construction shall be well fitted or caulked plywood of at least one-half inch thick. Ceilings shall be well fitted, fully sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.

- Attic: Attic vents should be oriented away from the I-215 Freeway and La Cadena Drive. If such an orientation cannot be avoided, then an acoustical baffle shall be placed in the attic space behind the vents.

- Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

With the interior noise mitigation measures provided in this study, the proposed Project is expected to satisfy the City of Colton 45 dBA CNEL interior noise level standards for residential development. A final noise study shall be prepared prior to obtaining building permits for the Project to finalize the mitigation measures described in this study using the precise grading plans and actual building design specifications, and may include additional mitigation, if necessary, to meet the City of Colton 45 dBA CNEL interior noise level standard.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the potential noise sources within the Roquet Ranch Specific Plan site, this analysis estimates the Project-related operational (stationary-source) noise levels at the nearby noise-sensitive receiver locations. The Project-related operational noise sources are expected to include: roof-top air conditioning units, parking lot vehicle movement activities, park activities, school athletic field activities, RV idle/air brake activities, and fire station activities. The analysis shows that the Project-related operational noise levels will satisfy the City of Colton 65 dBA Leq exterior noise level standards at the off-site receiver locations in the Project study area. Further, this analysis demonstrates that the Project will not contribute an operational noise level impact to the existing ambient noise environment at any of the nearby sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the roof-top air conditioning units, parking lot vehicle movement activities, park activities, school athletic field activities, RV idle/air brake activities, and fire station activities will be *less than significant*.

At the time this noise study was prepared the exact location of the commercial land uses in Planning Area 11 was unknown. Depending on the final arrangement of commercial uses, additional analysis may be required to satisfy the City of Colton exterior noise level standards at the closest residential homes. However, based on the results of this noise study, no exterior noise mitigation is required.

CONSTRUCTION NOISE AND VIBRATION ANALYSIS

Construction noise represents a short-term increase on the ambient noise levels. Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the closest point to the nearby receiver locations from the grading limits of Project construction activity. Using sample reference noise levels to represent the planned construction activities of the Roquet Ranch Specific Plan site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. The results of the construction noise analysis show that the unmitigated construction noise levels will satisfy the National Institute for Occupational Safety and Health (NIOSH) construction noise level threshold of 85 dBA Leq at the nearby sensitive receiver locations. Therefore, the construction of the Project will result in a *less than significant* impact.

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. This analysis shows the construction vibration levels in PPV are expected to approach 0.028 in/sec at the nearby receiver locations. Based on the County of San Bernardino vibration standards of 0.2 in/sec PPV, the proposed Project construction activities will not include or require equipment, facilities, or activities that would result in a *barely perceptible* human response (annoyance), and therefore, impacts due to vibration are considered *less than significant.*

CONSTRUCTION NOISE AND VIBRATION ABATEMENT MEASURES

Though construction noise is temporary, intermittent and of short duration, and will not present any long-term impacts, the following practices would reduce any noise level increases produced by the construction equipment to the nearby noise-sensitive residential land uses.

- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 7:00 a.m. to 7:00 p.m. Monday to Saturday with no activity on Sundays and Federal holidays (County of San Bernardino Development Code, Section 83.01.080 (g)). The Project construction supervisor shall ensure compliance with the note and the City shall conduct periodic inspection at its discretion.

- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site (i.e., to the west) during all Project construction.

- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 7:00 a.m. to 7:00 p.m. Monday to Saturday with

no activity on Sundays and Federal holidays). The haul route exhibit shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

SUMMARY OF SIGNIFICANCE FINDINGS

The results of this Roquet Ranch Specific Plan Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise impact before and after any needed mitigation measures.

TABLE ES-1: NOISE IMPACT SIGNIFICANCE SUMMARY

Analysis	Report Section	Significance	
		Without Mitigation	**With Mitigation**
Off-Site Traffic Noise	7	*Less Than Significant*	*n/a*
On-Site Traffic Noise	8	*Potentially Significant*	*Less Than Significant*
Operational Noise	10	*Less Than Significant*	*n/a*
Construction Noise	11	*Less Than Significant*	*n/a*
Construction Vibration		*Less Than Significant*	*n/a*

"n/a" = No mitigation required since the impact will be less than significant.

EXHIBIT ES-A: SUMMARY OF RECOMMENDATIONS

A final noise study shall be prepared prior to obtaining building permits for the Project to finalize the mitigation measures described in this study using the precise grading plans and actual building design specifications, and may include additional mitigation, if necessary, to meet the City of Colton 45 dBA CNEL interior noise level standard.

All other lots require standard windows with a minimum STC rating of 27 and a means of mechanical ventilation (e.g. air conditioning).

LEGEND:

8' Recommended Noise Barrier Height (in feet)

◼︎◼︎◼︎ Recommended Noise Barrier

◼︎ Residential lots requiring upgraded windows with a minimum STC rating of 32.

URBAN CROSSROADS

1   INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Roquet Ranch Specific Plan ("Project"). This noise study describes the proposed Project, provides information regarding noise fundamentals, outlines the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational and short-term construction noise and vibration impacts.

1.1   SITE LOCATION

The proposed Roquet Ranch Specific Plan Project is located west of La Cadena Drive and north of the future Pellissier Road in the City of Colton. Interstate 215 (I-215) is located roughly 300 feet east of the Project site. The existing surrounding land uses include open space to the north; residential and commercial to the east; residential, commercial, and industrial to the south; and vacant land to the west. The nearest airport to the proposed Project site is Flabob Airport, located approximately four miles southwest of the site.

1.2   PROJECT DESCRIPTION

The Project is proposed to consist of 754 single-family residential units, 244 condo/townhomes, 52 active adult attached units, 6,500 square feet of commercial retail use, a 1,500 square foot coffee shop with drive-thru window, a 4,000 square foot fast-food restaurant with drive-thru window, an 11.1-acre community park, and 8.4 acres of passive parks, as shown on Exhibit 1-B. Planning Area 12 and Planning Area 13 both include public/institution uses, however, alternatives for both planning areas include medium density residential land use. The anticipated Opening Year for the proposed Project is 2020.

Project-related stationary-source (operational) noise would be generated by the commercial, park, school, and fire station uses. The on-site Project-related noise sources are expected to include: roof-top air conditioning units, parking lot vehicle movement activities, park activities, school athletic field activities, RV idle/air brake activities, and fire station activities. Further, the proposed residential land uses are considered noise-sensitive receiving land uses and are not expected to include any specific type of operational noise levels beyond the typical noise sources associated with existing residential land use in the Project study area.

EXHIBIT 1-A: LOCATION MAP

URBAN CROSSROADS
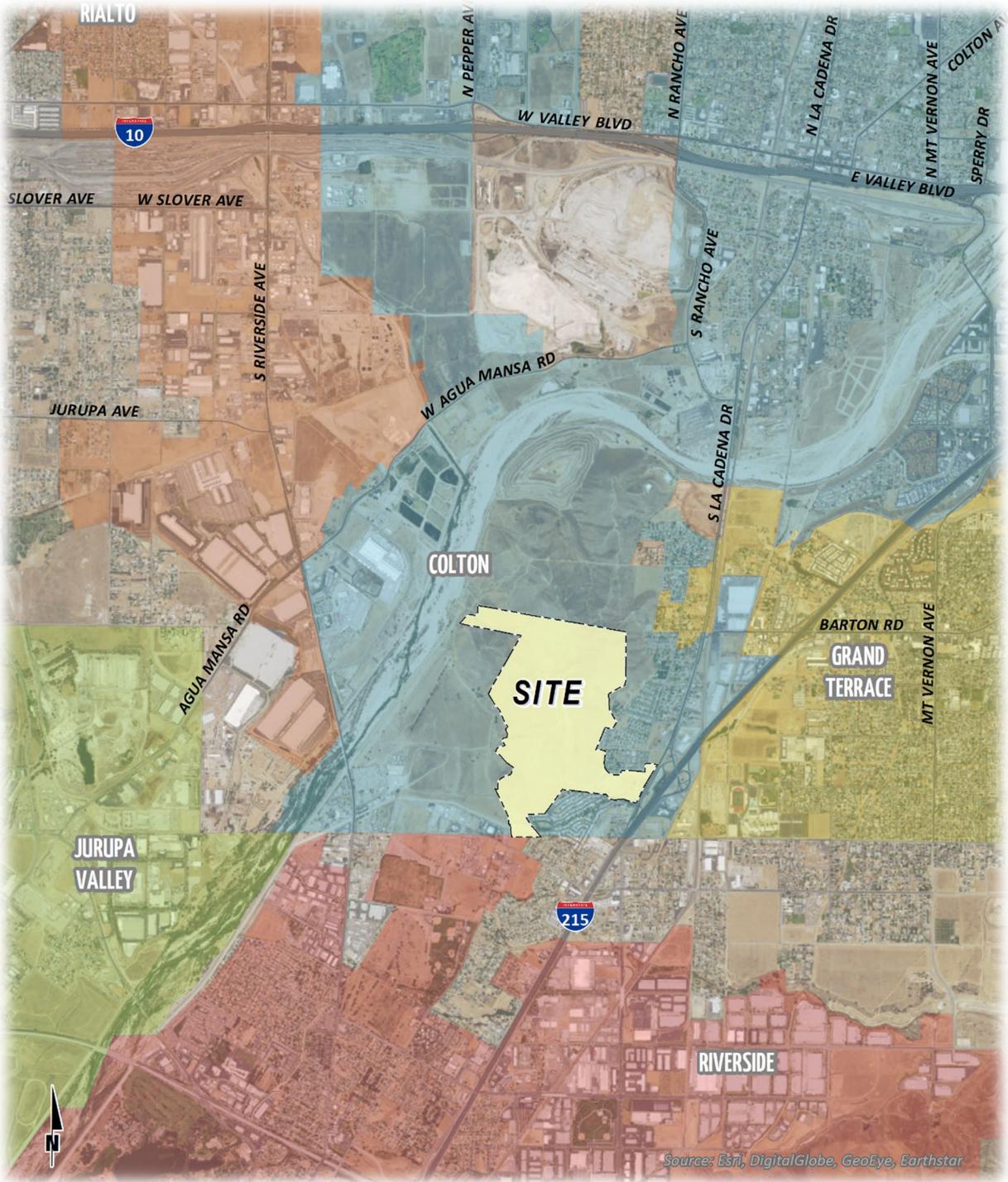
EXHIBIT 1-B: LAND USE PLAN
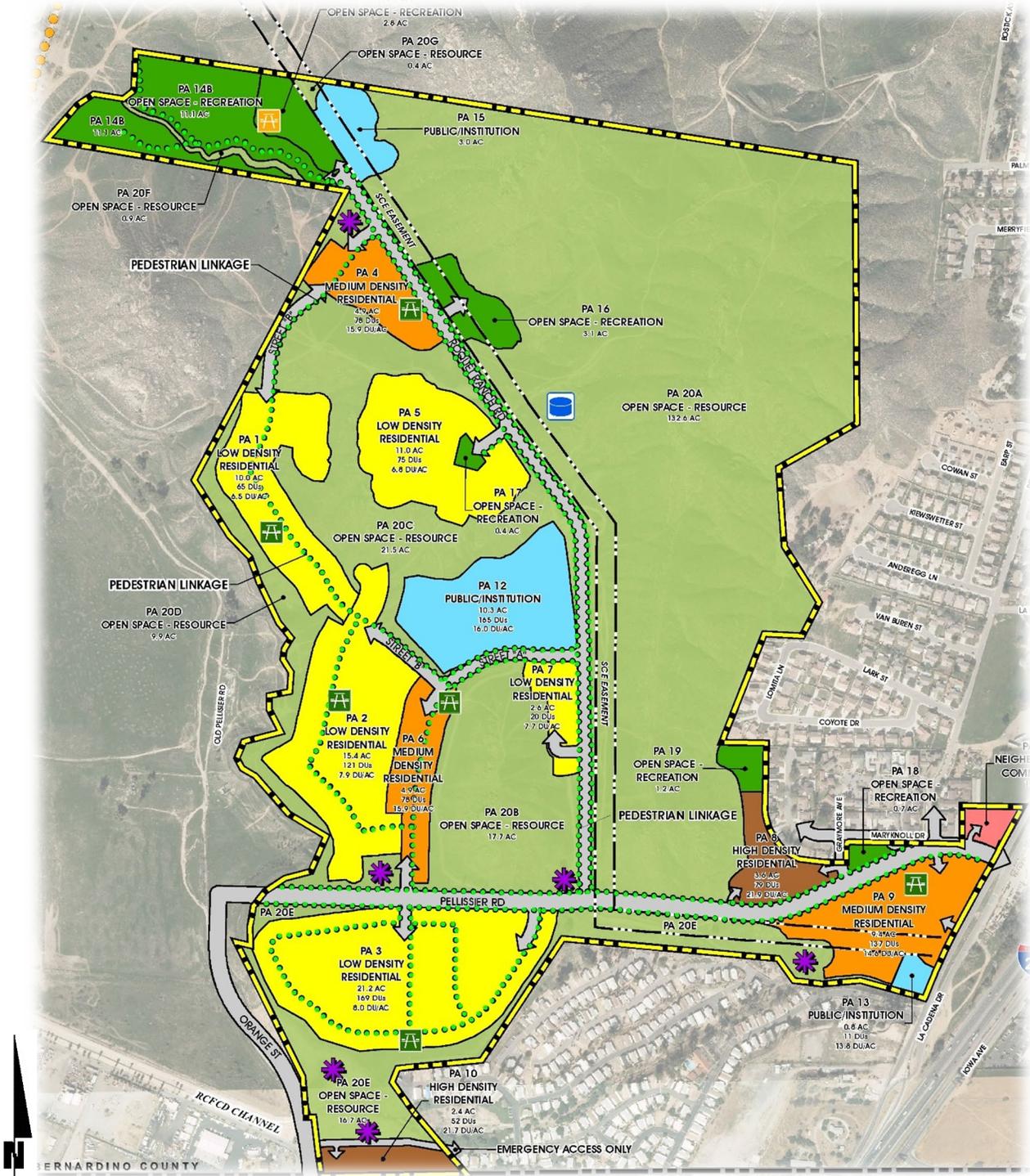
This page intentionally left blank

2   FUNDAMENTALS

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

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

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

2.1   RANGE OF NOISE

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

URBAN CROSSROADS

at approximately 100 feet, which can cause serious discomfort. (4) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (Leq). 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 (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Day-Night Average Noise Level (LDN) and the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The LDN and CNEL are weighted averages of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The LDN time of day corrections include the addition of 10 decibels to dBA Leq sound levels at night between 10:00 p.m. and 7:00 a.m. The CNEL time of day corrections require the addition of 5 decibels to dBA Leq sound levels in the evening from 7:00 p.m. to 10:00 p.m., in addition to the corrections for the LDN. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. LDN and CNEL do not represent the actual sound level heard at any particular time, but rather represent the total sound exposure. The City of Colton relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources, and therefore, this analysis uses the CNEL noise level to apply the more conservative evening hour corrections to the 24-hour noise levels.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The manner in which 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.

2.3.2   GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading.   Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source.

2.3.3   ATMOSPHERIC EFFECTS

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

2.3.4   SHIELDING

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

2.4   NOISE CONTROL

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

2.5   NOISE BARRIER ATTENUATION

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

2.6   LAND USE COMPATIBILITY WITH NOISE

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

2.7   COMMUNITY RESPONSE TO NOISE

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

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (7) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (7)

Despite this variability in behavior on an individual level, the population as a whole can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION
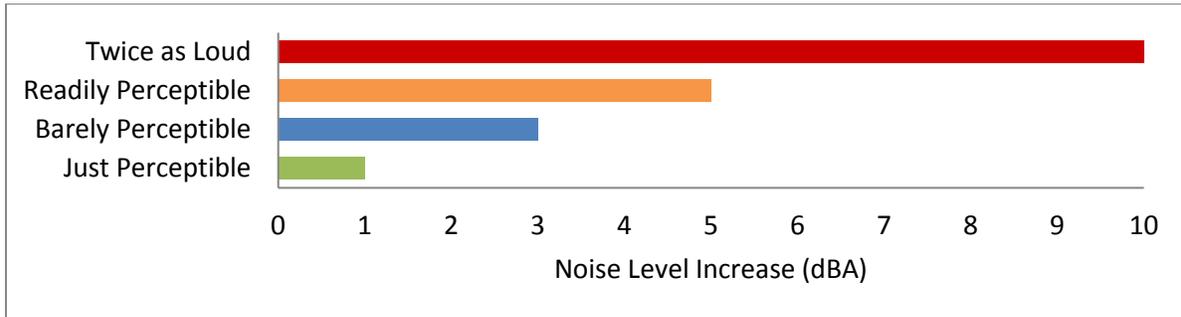
2.8   EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (8)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (9)

2.9   VIBRATION

According to the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (10), vibration is the periodic oscillation of an object or system from a given point. Two basic factors which determine the resulting vibration levels of an object or system are the amount of force being exerted on the object, and that object's resonant frequency. The resonant frequency of an object or system is the natural frequency of the object which, when a force is applied matching its resonant frequency, amplifies the vibration levels of the object. When the

vibration levels of an object or system propagate through the ground to adjacent buildings or receivers, it is known as ground-borne vibration. 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 capable of building damage, 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. When ground-borne vibration levels (velocity or acceleration) in PPV or RMS are doubled, the vibration level in VdB increases by 6 VdB. Similarly, when vibration levels in PPV or RMS decrease by half, the VdB level decreases by 6 VdB. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

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

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

Human/Structural Response	Velocity Level*	Typical Sources (50 ft from source)
Threshold, minor cosmetic damage fragile buildings →	100	← Blasting from construction projects
		← Bulldozers and other heavy tracked construction equipment
Difficulty with tasks such as reading a VDT screen →	90	
		← Commuter rail, upper range
Residential annoyance, infrequent events (e.g. commuter rail) →	80	← Rapid transit, upper range
		← Commuter rail, typical
Residential annoyance, frequent events (e.g. rapid transit) →		← Bus or truck over bump
	70	← Rapid transit, typical
Limit for vibration sensitive equipment. Approx. threshold for human perception of vibration →		← Bus or truck, typical
	60	
		← Typical background vibration
	50	

* *RMS Vibration Velocity Level in VdB relative to* 10^{-6} *inches/second*

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

URBAN CROSSROADS

This page intentionally left blank

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 fairly 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 according to guidelines adopted by the Governor's Office of Planning and Research. (11) 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 the potential environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING CODE

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

3.3 CITY OF COLTON GENERAL PLAN PUBLIC HEALTH AND SAFETY ELEMENT

The City of Colton has adopted a Noise Element of the *General Plan* which identifies principles and standards for existing and future development related to noise. The following principles are found in the City of Colton *General Plan Noise Element*: (12)

Principle 1   *Establish criteria defining compatible land uses as a function of the level of noise exposure.*

Principle 2   *Control noise exposure from future noise generators so the ambient environment will be kept within acceptable limits.*

Principle 3   *Establish acceptable noise standards consistent with health and quality of life goals.*

The standards provided below are identified in the Noise Element to enforce these principles:

Standard 1   *Residential structures should be constructed to maintain interior noise levels of not greater than 45 dBA, through the use of sound barrier improvements, building design, construction materials and/or insulating techniques.*

Standard 2   *Residential growth in Community Noise Exposure Areas greater than 70 dBA should be discouraged, unless on-site noise levels can be reduced to 60 dBA or lower via on- and off-site noise alleviating improvements.*

Standard 3   *Exterior noise levels should not exceed 65 dBA during the day or 55 dBA at night for commercial land uses, including general business and general merchandising.*

Standard 4   *Exterior noise levels should not exceed 60 dBA at any time for such areas important to public need, and where the preservation of serenity and quietness is essential if the area is to continue to serve its intended purpose. Such areas could include parks, open spaces, amphitheaters, and other areas dedicated for activities requiring special qualities of serenity.*

Standards 1 to 4 identify the transportation-related exterior noise level standards for the proposed Project land uses, including: residential, commercial, park, and public/institutional uses. Based on Standards 1, 2, and 3, the exterior noise level standard for residential and park land uses is 60 dBA CNEL, and the interior noise level standard for residential uses is 45 dBA CNEL. These long-term 24-hour noise standards are typically limited to transportation-related (mobile) noise sources.

3.3.1   LAND USE COMPATIBILITY

The noise criteria identified in the City of Colton *General Plan Noise Element* (Table 5-1) 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 *Land Use Compatibility for Community Noise Environments* matrix indicates that residential land uses (single-family) within the Project are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* with noise levels below 70 dBA CNEL. Table 5-1 of the City of Colton *General Plan Noise Element* does not identify land use compatibility guidelines for commercial land uses. However, the park land use within the Project site is considered *normally acceptable* with exterior noise levels of up to 70 dBA CNEL, and *conditionally acceptable* with noise levels approaching 75 dBA CNEL. School classrooms are considered *normally acceptable* with exterior noise levels of up to 65 dBA CNEL, and *conditionally acceptable* with noise levels of 70 dBA CNEL. For *conditionally acceptable* land uses, *new development should be undertaken only after detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with windows closed and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.* (12)

URBAN CROSSROADS

EXHIBIT 3-A: LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

LAND USE	dBA CNEL or L_{dn}					
	55	60	65	70	75	80
Residential - Single Family Dwellings, Duplex, Mobile Homes						
Residential - Multiple Family						
Transient Lodging: Hotels & Motels						
School Classrooms, Libraries, Churches, Hospitals, Nursing Homes, & Convalescent Hospitals						
Sports Arena, Outdoor Spectator Sports						
Playground, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings						
Industrial, Manufacturing, Utilities and Agriculture						

Normally Acceptable:	**Conditionally Acceptable:**	**Normally Unacceptable:**	**Clearly Unacceptable:**
Specified land uses is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation or requirements.	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.	New construction and development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.	New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

Source: City of Colton General Plan, Noise Element, Table 5-1.

URBAN CROSSROADS

3.4   OPERATIONAL NOISE STANDARDS

The most effective method to control community noise impacts from non-transportation noise sources (such as roof-top air conditioning units, parking lot vehicle movement activities, park activities, school athletic field activities, RV idle/air brake activities, and fire station activities, etc.) is through the application of a community noise ordinance. For the purpose of this analysis, the operational noise levels associated with the Project are controlled by the City of Colton Municipal Code. Section 18.42.040 of the City of Colton Municipal Code indicates that the exterior noise level limit shall be 65 dBA Leq. (13) The operational noise level standards are shown on Table 3-1, and the City of Colton Municipal Code is included in Appendix 3.1.

In addition, the County of San Bernardino Development Code, Section 83.01.080 (g) (2) exempts emergency equipment, vehicles, and devices such as the expected noise sources associated with the proposed fire station and fire truck activities in Planning Area 13. (2)

TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS

Jurisdiction	Exterior Noise Level Standards (dBA Leq)[1]
City of Colton	65

[1] Source: City of Colton Municipal Code, Section 18.42.040 (Appendix 3.1).

3.5   CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Roquet Ranch Specific Plan Project, noise from construction activities are typically limited to the hours of operation established under a City's Municipal Code. However, the City of Colton Municipal Code does not identify specific construction noise level standards or permitted hours of construction activity, and therefore, this noise study uses the permitted hours found in the County of San Bernardino Development Code standards for Project construction. The County of San Bernardino Development Code, Section 83.01.080 (g) indicates that construction noise levels are considered exempt if they occur between the hours of 7:00 a.m. to 7:00 p.m. Mondays to Fridays, with no activity allowed on Sundays and Federal holidays. (2) Table 3-2 shows the permitted hours by jurisdiction for construction, and the County of San Bernardino Development Code is included in Appendix 3.2. Like the City of Colton, the County of San Bernardino does not establish a numeric maximum acceptable construction source noise level for nearby potentially affected receivers which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. Therefore, applicable standards are discussed below for the Project-related construction noise level threshold.

URBAN CROSSROADS

TABLE 3-2: PERMITTED HOURS OF CONSTRUCTION

Jurisdiction	Permitted Hours of Construction Activity
City of Colton[1]	n/a
County of San Bernardino[2]	7:00 a.m. to 7:00 p.m. Monday to Saturday; no activity on Sundays and Federal holidays.

[1] The City of Colton General Plan and Municipal Code do not contain specific construction noise standards.
[2] Source: County of San Bernardino Development Code, Section 83.01.080 (g) (Appendix 3.2).

3.5.1 CONSTRUCTION NOISE LEVEL THRESHOLD

To evaluate whether the Project will generate a substantial periodic increase in short-term noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (14) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (14) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

3.5.2 CONSTRUCTION-RELATED HEARING CONSERVATION

The Occupational Safety and Health Administration (OSHA) requires hearing protection be provided by employers in workplaces where the noise levels may, over long periods of exposure to high noise levels, endanger the hearing of their employees. Standard 29 CFR, Part 1910 indicates the noise levels under which a hearing conservation program is required to be provided to workers exposed to high noise levels. (8) This analysis does not evaluate the noise exposure of construction workers within the Project site based on CEQA requirements, and instead, evaluates the Project-related construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (9)

3.6   CONSTRUCTION VIBRATION STANDARDS

To describe the potential Project-related construction vibration levels this analysis relies on the appropriate vibration standards for the City of Colton. However, the City of Colton General Plan and Municipal Code do not identify specific vibration level standards, and therefore, the County of San Bernardino vibration standards found in Section 83.01.090 of the Development Code are used. (15) The County's Development Code states that: *No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths inches per second measured at or beyond the lot line.* (15) Therefore, for the purposes of this analysis, the vibration level threshold for Project-related operational and construction vibration levels is a 0.2 in/sec peak particle velocity (PPV). Table 3-3 shows the applicable construction vibration standards.

TABLE 3-3: CONSTRUCTION VIBRATION STANDARDS

Jurisdiction	Peak Particle Velocity Standard (in/sec)
City of Colton	n/a
County of San Bernardino	0.2

[1] Source: County of San Bernardino Development Code Section 83.01.090 (a) (Appendix 3.2).

"n/a" = The City of Colton Municipal Code does not identify specific vibration standards for the residential land uses adjacent to the Project site.

URBAN
CROSSROADS

4   SIGNIFICANCE CRITERIA

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

A. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

B. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

C. A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project; or

D. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.

E. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.

F. For a project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

While the CEQA Guidelines and the City of Colton General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts under CEQA Guideline A, they do not define the levels at which increases are considered substantial for use under Guidelines B, C, and D. CEQA Guidelines E and F apply to nearby public and private airports, if any, and the Project's land use compatibility. However, the Project site is not located within two miles of a public airport or within the vicinity of a private airstrip, and therefore, would not expose people residing or working in the Project area to excessive noise levels. The nearest airport to the proposed Project site is Flabob Airport, located approximately four miles southwest of the site, and therefore, consistent with the *Roquet Ranch Specific Plan Initial Study* the Project would have no impact under CEQA Guidelines E and F. (16) No further noise analysis is conducted in relation to Guidelines E and F.

4.1   NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations.   Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels and the location of noise-sensitive receivers in order to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (17)

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily

URBAN CROSSROADS

because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. With this in mind, the Federal Interagency Committee on Noise (FICON) (18) developed guidance to be used for the assessment of project-generated increases in noise levels that take into account the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (i.e., CNEL).

For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for the purpose of this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. According to 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. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

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

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

Federal Interagency Committee on Noise (FICON), 1992.

4.2   NON-NOISE-SENSITIVE RECEIVERS

The City of Colton *General Plan Noise Element*, Standard 3, is used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area, such as commercial and industrial land uses. As indicated in Standard 3 of the City of Colton *General Plan Noise Element*, the exterior noise level criteria for non-noise-sensitive land use, such as commercial use, is 65 dBA CNEL. To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria are used. When the without Project noise levels at the non-noise-

sensitive land uses are below the 65 dBA CNEL standard, a *readily perceptible* 5 dBA or greater noise level increase is considered a significant impact. When the without Project noise levels are greater than the 65 dBA CNEL standard, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses are generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Colton *General Plan Noise Element*, Standard 3 65 dBA CNEL exterior noise level standard.

4.3   SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-2 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
  - are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
  - range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase; or
  - already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA (FICON, 1992).
- When the noise levels at existing and future non-noise-sensitive land uses (e.g. industrial, etc.):
  - are less than the City of Colton General *Plan Noise Element*, Standard 3, 65 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
  - are greater than the City of Colton General *Plan Noise Element*, Standard 3, 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase.

OPERATIONAL NOISE

- If Project-related operational (stationary-source) noise levels exceed the exterior 65 dBA Leq noise level standards at nearby sensitive residential land uses (City of Colton Municipal Code, Section 18.42.040).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
  - are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
  - range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase; or
  - already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities:
  - occur at any time other than the permitted hours of 7:00 a.m. to 7:00 p.m. Mondays to Fridays; with no activity allowed on Sundays or Federal holidays (County of San Bernardino Development Code, Section 83.01.080 (g)); or
  - create noise levels which exceed the 85 dBA Leq acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure).

- If short-term Project-generated construction vibration levels exceed the County of San Bernardino acceptable vibration standard of 0.2 in/sec PPV at sensitive receiver locations (County of San Bernardino Development Code, Section 83.01.090 (c) (2)).

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Condition(s)	Significance Criteria	
			Daytime	**Nighttime**
Off-Site Traffic Noise	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 < 65 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
On-Site Traffic Noise[2]	Noise-Sensitive	Exterior Noise Level Criteria	60 dBA CNEL @ Residential Use	
			70 dBA CNEL @ School Use	
		Interior Noise Level Criteria	45 dBA CNEL @ Residential Use & School Classrooms	
Operational Noise[3]	Noise-Sensitive	Exterior Noise Level Standards	65 dBA Leq	
Construction Noise & Vibration	Noise-Sensitive	Permitted hours of 7:00 a.m. to 7:00 p.m. Monday to Saturday; no activity on Sundays and Federal holidays.[4]		
		Noise Level Threshold[5]	85 dBA Leq	n/a
		Vibration Level Threshold[6]	0.2 in/sec PPV	n/a

[1] Source: FICON, 1992.
[2] Source: City of Colton General Plan Noise Element, Standards 3.
[3] Source: City of Colton Municipal Code, Section 18.42.040 (Appendix 3.1).
[4] Source: County of San Bernardino Development Code, Section 83.01.080 (g) (Appendix 3.2).
[5] Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.
[6] Source: County of San Bernardino Development Code Section 83.01.090 (a) (Appendix 3.2).
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.; "n/a" = No nighttime construction activity is permitted and therefore, no nighttime construction noise level threshold is identified.

URBAN CROSSROADS

5   EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, ten 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Tuesday, February 3rd, 2015. 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. (19)

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. To describe the existing noise environment, 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. 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 the potential Project-related noise level contributions.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

LEGEND:

▲ Noise Measurement Locations

URBAN
CROSSROADS

5.3 NOISE MEASUREMENT RESULTS

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

- Location L1 represents the noise levels in a vacant lot at the southwest corner of Litton Avenue and Bostick Avenue across the street from existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 61.1 dBA CNEL. The hourly noise levels measured at location L1 ranged from 47.9 to 60.6 dBA Leq during the daytime hours and from 51.2 to 57.0 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 55.4 dBA Leq with an average nighttime noise level of 54.3 dBA Leq.

- Location L2 represents the noise levels north of the cul-de-sac of Palm Avenue across from existing single-family homes, east of the Project site. The noise level measurements collected show an overall 24-hour exterior noise level of 60.2 dBA CNEL. The hourly noise levels measured at location L2 ranged from 44.1 to 53.1 dBA Leq during the daytime hours and from 51.0 to 57.4 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 50.3 dBA Leq with an average nighttime noise level of 54.0 dBA Leq.

- Location L3 represents the noise levels west of the Project site at an existing trail near the future location of Planning Area 1 residential homes. The 24-hour CNEL indicates that the overall exterior noise level is 58.9 dBA CNEL. At location L3 the background ambient noise levels ranged from 43.8 to 54.2 dBA Leq during the daytime hours to levels of 50.0 to 55.9 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 48.8 dBA Leq with an average nighttime noise level of 52.7 dBA Leq.

- Located west of the Project site, location L4 represents the noise levels on an existing trail near the future location of Planning Area 3 residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 59.4 dBA CNEL. The hourly noise levels measured at location L4 ranged from 43.6 to 56.3 dBA Leq during the daytime hours and from 49.9 to 55.9 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 50.2 dBA Leq with an average nighttime noise level of 53.2 dBA Leq.

- Location L5 represents the noise levels east of the Project site where Lark Street turns south into Lomita Lane adjacent to existing residential homes. The 24-hour CNEL indicates that the overall exterior noise level is 63.1 dBA CNEL. At location L5 the background ambient noise levels ranged from 47.0 to 57.4 dBA Leq during the daytime hours to levels of 55.5 to 59.1 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 52.9 dBA Leq with an average nighttime noise level of 56.8 dBA Leq.

- Location L6 represents the noise levels within the Project site, north of the proposed park in Planning Area 18 and adjacent to Planning Area 8. The noise level measurements collected show an overall 24-hour exterior noise level of 65.7 dBA CNEL. The hourly noise levels measured at location L6 ranged from 50.7 to 59.7 dBA Leq during the daytime hours and from 57.4 to 61.5 dBA

URBAN CROSSROADS

Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 55.7 dBA Leq with an average nighttime noise level of 59.4 dBA Leq.

- Location L7 represents the noise levels within the Project site at the future location of Planning Area 8, adjacent to South La Cadena Drive. The noise level measurements collected show an overall 24-hour exterior noise level of 67.3 dBA CNEL. The hourly noise levels measured at location L7 ranged from 56.3 to 66.2 dBA Leq during the daytime hours and from 56.7 to 62.3 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 61.2 dBA Leq with an average nighttime noise level of 60.2 dBA Leq.

- Location L8 represents the noise levels south of the Project site within an existing mobile home community. The 24-hour CNEL indicates that the overall exterior noise level is 62.1 dBA CNEL. At location L8 the background ambient noise levels ranged from 46.8 to 56.0 dBA Leq during the daytime hours to levels of 53.3 to 57.8 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 51.9 dBA Leq with an average nighttime noise level of 55.9 dBA Leq.

- Location L9 represents the noise levels south of the Project site within an existing mobile home community, southwest of the proposed commercial land use within the Project site. The noise level measurements collected show an overall 24-hour exterior noise level of 64.4 dBA CNEL. The hourly noise levels measured at location L9 ranged from 53.4 to 58.0 dBA Leq during the daytime hours and from 55.5 to 60.8 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 56.5 dBA Leq with an average nighttime noise level of 58.0 dBA Leq.

- Location L10 represents the noise levels south of the Project site on Orange Street adjacent to existing industrial land uses. The noise level measurements collected show an overall 24-hour exterior noise level of 68.1 dBA CNEL. The hourly noise levels measured at location L10 ranged from 54.7 to 65.7 dBA Leq during the daytime hours and from 55.7 to 64.2 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 60.9 dBA Leq with an average nighttime noise level of 61.7 dBA Leq.

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 the arterial roadway network. This includes, but is not limited to, the auto and heavy truck activities on the I-215 Freeway and La Cadena Drive near the noise level measurement locations. The 24-hour existing noise level measurements shown on Table 5-1 present the worst-case existing unmitigated ambient noise conditions.

URBAN
CROSSROADS

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

Location[1]	Distance To Project Boundary (Feet)	Description	Energy Average Hourly Noise Level (dBA Leq)[2]		CNEL
			Daytime	Nighttime	
L1	1,842'	Located in a vacant lot at the southwest corner of Litton Avenue and Bostick Avenue across the street from existing residential homes.	55.4	54.3	61.1
L2	544'	Located north of the cul-de-sac of Palm Avenue across from existing single-family homes, east of the Project site.	50.3	54.0	60.2
L3	211'	Located west of the Project site along an existing trail near the future location of Planning Area 1 residential homes.	48.8	52.7	58.9
L4	173'	Located west of the Project site along an existing trail, near the future location of Planning Area 3 residential homes.	50.2	53.2	59.4
L5	0'	Located east of the Project site where Lark Street turns south into Lomita Lane adjacent to existing residential homes.	52.9	56.8	63.1
L6	0'	Located within the Project site, north of the proposed park in Planning Area 18 and adjacent to Planning Area 8 townhomes.	55.7	59.4	65.7
L7	0'	Located within the Project site at the future location of Planning Area 8, adjacent to South La Cadena Drive.	61.2	60.2	67.3
L8	20'	Located south of the Project site within an existing mobile home community.	51.9	55.9	62.1
L9	20'	Located south of the Project site within an existing mobile home community, southwest of the proposed commercial land use within the Project site.	56.5	58.0	64.4
L10	567'	Located south of the Project site along Orange Street adjacent to existing industrial land uses.	60.9	61.7	68.1

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

URBAN CROSSROADS

This page intentionally left blank

6 METHODS AND PROCEDURES

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

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (20) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (21) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 36 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications according to the City of Colton, City of Riverside, City of Grand Terrace, and County of Riverside General Plan Circulation Elements, and the posted vehicle speeds. Soft site conditions were used to analyze the traffic noise impacts within the Project study area which account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (22)

The Existing (2016), Opening Year 2020, and Horizon Year 2040 average daily traffic volumes used for this study are presented on Table 6-2 and were provided by the *Roquet Ranch Specific Plan Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (1) Table 6-3 presents the time of day vehicle splits by vehicle type, and Table 6-4 presents the total traffic flow distributions (vehicle mixes) used in this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model based on roadway types.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Adjacent Land Use[1]	Distance From Centerline To Nearest Adjacent Land Use (Feet)[2]	Posted Speed Limit (mph)[3]
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	48'	50
2	Main St.	s/o Placentia Ln.	Business/Office	50'	50
3	Main St.	n/o Columbia Av.	Residential	50'	50
4	Main St.	s/o Columbia Av.	Residential	50'	45
5	Orange St.	s/o Center St.	Light Industrial	33'	40
6	Orange St.	n/o Columbia Av.	Residential	33'	35
7	Orange St.	s/o Columbia Av.	Residential	33'	35
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	48'	50
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	48'	50
10	La Cadena Dr.	s/o W Litton Av.	Residential	48'	50
11	La Cadena Dr.	s/o Barton Rd.	Residential	48'	50
12	La Cadena Dr.	n/o S Iowa Av.	Residential	48'	50
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	48'	50
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	48'	50
15	I-215 SB Fwy	n/o Barton Rd.	Residential	86'	65
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	86'	65
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	86'	65
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	86'	65
19	I-215 NB Fwy	n/o Barton Rd.	Residential	86'	65
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	86'	65
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	86'	65
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	86'	65
23	Iowa Av.	n/o Center St.	Business/Office	64'	45
24	Iowa Av.	s/o Center St.	Business/Office	64'	45
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	44'	40
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	44'	40
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	48'	30
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	50'	40
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	50'	45
30	W Main St.	e/o S Iowa Av.	Commercial	44'	40
31	W Main St.	w/o Michigan Av.	Residential	50'	25
32	W Main St.	e/o Michigan Av.	Residential	50'	40
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	48'	25
34	W Center St.	w/o Orange St.	Business/Office	44'	40
35	W Center St.	w/o Stephens Av.	Residential	50'	40
36	Columbia Av.	e/o Orange St.	Residential	50'	45

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).
[2] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the City of Colton, City of Riverside, City of Grand Terrace, and County of Riverside General Plan Circulation Elements.
[3] Posted speed limits.

URBAN
CROSSROADS

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic (1,000's)[1]					
			Existing (2016)		Opening Year 2020		Horizon Year 2040	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	S Riverside Av.	n/o Placentia Ln.	21.8	22.3	23.3	23.7	50.6	51.0
2	Main St.	s/o Placentia Ln.	20.5	21.6	22.8	23.8	43.5	44.6
3	Main St.	n/o Columbia Av.	25.5	26.4	27.5	28.4	38.4	39.3
4	Main St.	s/o Columbia Av.	18.3	19.0	19.6	20.3	32.1	32.8
5	Orange St.	s/o Center St.	2.6	3.4	3.0	3.8	3.6	4.4
6	Orange St.	n/o Columbia Av.	4.5	5.3	4.9	5.7	6.0	6.7
7	Orange St.	s/o Columbia Av.	6.0	6.4	6.5	6.9	7.9	8.3
8	La Cadena Dr.	n/o S Rancho Av.	10.5	11.4	11.4	12.3	15.4	16.2
9	La Cadena Dr.	s/o S Rancho Av.	18.4	20.1	20.0	21.7	35.3	37.0
10	La Cadena Dr.	s/o W Litton Av.	18.8	20.6	20.5	22.3	24.8	26.6
11	La Cadena Dr.	s/o Barton Rd.	17.7	21.8	19.4	23.6	32.2	36.4
12	La Cadena Dr.	n/o S Iowa Av.	16.2	20.4	18.0	22.0	25.3	29.5
13	La Cadena Dr.	s/o S Iowa Av.	11.1	17.5	12.6	19.0	17.7	24.1
14	La Cadena Dr.	s/o Pellissier Rd.	9.2	10.3	10.6	12.6	19.1	19.9
15	I-215 SB Fwy	n/o Barton Rd.	50.1	51.2	54.4	55.6	75.9	77.1
16	I-215 SB Fwy	s/o Barton Rd.	49.0	49.6	53.5	54.1	77.9	78.5
17	I-215 SB Fwy	n/o S Iowa Av.	49.0	49.6	53.5	54.1	77.9	78.5
18	I-215 SB Fwy	s/o S Iowa Av.	47.3	47.8	50.0	50.5	68.7	69.2
19	I-215 NB Fwy	n/o Barton Rd.	55.5	56.1	60.0	60.7	85.5	86.2
20	I-215 NB Fwy	s/o Barton Rd.	56.1	56.4	60.7	61.1	85.5	85.9
21	I-215 NB Fwy	n/o S Iowa Av.	56.1	56.4	60.7	61.1	85.5	85.9
22	I-215 NB Fwy	s/o S Iowa Av.	53.2	54.0	56.6	57.4	79.7	80.5
23	Iowa Av.	n/o Center St.	15.7	16.0	17.5	17.8	21.1	24.1
24	Iowa Av.	s/o Center St.	16.2	16.8	17.3	17.9	23.4	24.0
25	Mt. Vernon Av.	n/o Barton Rd.	10.1	10.3	11.8	12.1	19.1	19.4
26	Mt. Vernon Av.	s/o Barton Rd.	14.5	14.7	17.0	17.3	25.4	25.6
27	S Rancho Av.	w/o La Cadena Dr.	8.6	9.4	9.4	10.3	21.2	22.0
28	Barton Rd.	w/o Mt. Vernon Av.	14.2	15.3	15.9	17.1	19.2	20.3
29	Barton Rd.	e/o Mt. Vernon Av.	15.3	16.0	16.7	17.3	20.2	20.8
30	W Main St.	e/o S Iowa Av.	5.5	5.8	6.6	6.9	7.9	8.1
31	W Main St.	w/o Michigan Av.	4.4	4.6	5.5	5.7	11.5	11.7
32	W Main St.	e/o Michigan Av.	3.0	3.1	4.0	4.2	7.2	7.4
33	Placentia Ln.	e/o S Riverside Av.	4.1	5.7	5.9	7.4	11.4	13.0
34	W Center St.	w/o Orange St.	4.0	5.6	5.4	7.1	8.1	9.7
35	W Center St.	w/o Stephens Av.	6.6	6.9	8.7	9.0	10.2	10.5
36	Columbia Av.	e/o Orange St.	14.6	14.9	15.3	15.7	26.5	26.9

[1] Source: Roquet Ranch Specific Plan Traffic Impact Analysis, July 2016.

URBAN CROSSROADS

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time Period	Vehicle Type		
	Autos	**Medium Trucks**	**Heavy Trucks**
Daytime (7am-7pm)	77.5%	84.8%	86.5%
Evening (7pm-10pm)	12.9%	4.9%	2.7%
Nighttime (10pm-7am)	9.6%	10.3%	10.8%
Total:	100.0%	100.0%	100.0%

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

Classification	Total % Traffic Flow			Total
	Autos	**Medium Trucks**	**Heavy Trucks**	
I-215 Fwy.[1]	93.10%	2.88%	4.02%	100.00%
All Roadways	97.42%	1.84%	0.74%	100.00%

[1] Source: Caltrans Data Branch Annual Average Daily Truck Traffic on the California Highways System, 2014.

6.3   ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 6-5. Based on the City of Colton General Plan Mobility Element and the *Traffic Impact Analysis*, La Cadena Drive is classified as a 4-lane Major Arterial and Pellissier Road is classified as a 4-lane Secondary Arterial; Roquet Ranch Drive is classified as a 2 lane Collector. (1) To predict the future on-site noise environment at the Project site, the Horizon Year 2040 with Project ADT volumes were obtained from the *Traffic Impact Analysis*. The traffic volumes shown on Table 6-5 reflect future long-range traffic conditions needed to assess the future on-site traffic noise environment and to identify potential mitigation measures (if any) that address the worst-case future conditions. Soft site conditions were used to analyze the traffic noise impacts within the Project study area which account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (22)

Table 6-3 presents the time of day vehicle splits by vehicle type, and Table 6-4 presents the total traffic flow distributions (vehicle mixes) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model based on roadway types. To describe the actual traffic conditions on the I-215 Freeway adjacent to the Project site, the 2014 traffic volumes were collected from the *2014 Annual Average Daily Truck Traffic (AADT) on the California Highway System*, Caltrans Traffic Data Branch. (23) The I-215 traffic counts used in this analysis represent the most recent data published by Caltrans that accurately reflects the heavy truck activities on the I-215 Freeway.

To predict the future noise environment at each building within the Project site, coordinate information was collected to identify the noise transmission path between the noise source and

receiver. The coordinate information is based on the Project site plan showing the plotting of each planning area in relation to the I-215 Freeway, La Cadena Drive, Pellissier Road, and Roquet Rancho Road. The exterior noise level impacts at the outdoor living area receivers were placed five feet above the pad elevation and ten feet from the proposed barrier location or at the proposed building façade, whichever is greater. All second floor receivers were located 14 feet above the proposed finished floor elevation.

TABLE 6-5: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification[1]	Average Daily Traffic Volume[1]	Posted Speed Limit (mph)[1]	Site Conditions
I-215 Fwy.	6	Freeway	149,700	70	Soft
La Cadena Dr.	4	Major Arterial	19,900	50	Soft
Pellissier Rd. w/o La Cadena Dr.	4	Secondary Arterial	10,900	40	Soft
Pellissier Rd. w/o Rosedale Av.	4	Secondary Arterial	6,300	40	Soft
Pellissier Rd. w/o Roquet Ranch Rd.	4	Secondary Arterial	3,100	40	Soft
Roquet Ranch Rd.	2	Collector	2,700	40	Soft

[1] Source: Roquet Ranch Specific Plan Traffic Impact Analysis, July 2016.

6.4   FTA RAIL NOISE PREDICTION MODEL

The closest rail lines to the Project site are operated by BNSF Railway Company at a distance of approximately 1,420 feet to the east. The estimated railroad noise impacts from the BNSFrail lines were calculated using the Federal Transit Administration (FTA) Noise Impact Assessment Spreadsheet ("FTA Model"). (24) The FTA Model calculates the predicted noise level based on the type of train, distance to receiver, number of trains per hour, speed, number of locomotives per train, and type of railroad tracks. The number of trains per hour and speed of each train for the railroad tracks near the Project site were obtained from the U.S. Department of Transportation Crossing Inventory Forms for the City of Colton area, which indicates a total of 106 daily trains, or approximately 4.4 trains per hour over a 24-hour period, and a maximum speed of 60 miles per hour (mph). The FTA Model inputs are shown on Table 6-6, and included in the calculations provided in Appendix 8.1.

TABLE 6-6: ON-SITE RAILROAD PARAMETERS

Rail Line	Engine Type	Speed (mph)[1]	Trains Per Hour[1]
BNSF	Diesel	60	4.42

[1] Source: U.S. Department of Transportation Crossing Inventory Form for active rail crossings in the City of Walnut.

6.5 VIBRATION ASSESSMENT

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

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-7. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation used determine the vibration levels at a given receiver distance based on a reference vibration level distance of 25 feet: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-7: 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

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

URBAN CROSSROADS

7   OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on the *Roquet Ranch Specific Plan Traffic Impact Analysis*. (1)   Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.   Noise contours were developed for the following traffic scenarios:

- Existing (2016) Without / With Project Conditions: This scenario refers to the existing present-day noise conditions, without and with buildout of the proposed Project.

- Opening Year 2020 Without / With Project: This scenario refers to the background noise conditions at future Year 2020 with and without the proposed Project. The with Project scenario corresponds to Year 2020 conditions and includes all cumulative projects identified in the Traffic Impact Analysis.

- Horizon Year 2040 Without / With Project: This scenario refers to the background noise conditions at future Year 2040 with and without the proposed Project. The with Project scenario corresponds to Year 2040 conditions and includes all cumulative projects identified in the Traffic Impact Analysis.

7.1   TRAFFIC NOISE CONTOURS

To quantify the Project's operational traffic noise impacts on the surrounding areas, the changes in traffic noise levels on 36 roadway segments surrounding the Project were calculated based on the changes in the average daily traffic volumes. Based on the noise impact significance criteria described in Section 4 and shown on Table 4-2, a significant off-site traffic noise level impact occurs:

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
  - are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
  - range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase; or
  - already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA (FICON, 1992).

- When the noise levels at existing and future non-noise-sensitive land uses (e.g. industrial, etc.):
  - are less than the City of Colton General *Plan Noise Element*, Standard 3, 65 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
  - are greater than the City of Colton General *Plan Noise Element*, Standard 3, 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase.

Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours take into account the effect of the existing and planned noise barriers on the study area roadway segments that may affect ambient noise levels at adjacent land uses. Since the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contribution from any surrounding stationary noise sources within the Project study area. Tables 7-1 to 7-6 present a summary of the unmitigated exterior traffic noise levels for the 36 study area roadway segments analyzed from the without Project to the with Project conditions in each of the following timeframes: Existing, Opening Year 2020, and Horizon Year 2040 conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the four traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL @ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	72.3	68	146	315
2	Main St.	s/o Placentia Ln.	Business/Office	71.2	60	129	277
3	Main St.	n/o Columbia Av.	Residential	72.1	69	149	321
4	Main St.	s/o Columbia Av.	Residential	69.5	RW	100	216
5	Orange St.	s/o Center St.	Light Industrial	62.1	RW	RW	46
6	Orange St.	n/o Columbia Av.	Residential	63.1	RW	RW	53
7	Orange St.	s/o Columbia Av.	Residential	64.3	RW	RW	64
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	69.1	RW	90	194
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	71.5	61	131	282
10	La Cadena Dr.	s/o W Litton Av.	Residential	71.6	62	133	286
11	La Cadena Dr.	s/o Barton Rd.	Residential	71.4	59	127	274
12	La Cadena Dr.	n/o S Iowa Av.	Residential	71.0	56	120	259
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	69.3	RW	93	201
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	68.5	RW	82	177
15	I-215 SB Fwy	n/o Barton Rd.	Residential	77.5	271	584	1259
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	77.4	267	576	1241
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	77.4	267	576	1241
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	77.2	261	563	1212
19	I-215 NB Fwy	n/o Barton Rd.	Residential	77.9	290	626	1348
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	78.0	293	630	1358
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	78.0	293	630	1358
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	77.7	282	608	1311
23	Iowa Av.	n/o Center St.	Business/Office	67.5	RW	95	204
24	Iowa Av.	s/o Center St.	Business/Office	67.7	RW	97	208
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	66.5	RW	55	119
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	68.1	RW	70	152
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	62.8	RW	RW	74
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	67.1	RW	70	150
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	68.7	RW	89	191
30	W Main St.	e/o S Iowa Av.	Commercial	63.9	RW	RW	80
31	W Main St.	w/o Michigan Av.	Residential	57.2	RW	RW	RW
32	W Main St.	e/o Michigan Av.	Residential	60.4	RW	RW	53
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	57.7	RW	RW	RW
34	W Center St.	w/o Orange St.	Business/Office	62.6	RW	RW	66
35	W Center St.	w/o Stephens Av.	Residential	63.8	RW	RW	90
36	Columbia Av.	e/o Orange St.	Residential	68.5	RW	86	185

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.
"CL" = Centerline

URBAN CROSSROADS

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	72.4	69	149	320
2	Main St.	s/o Placentia Ln.	Business/Office	71.4	62	133	287
3	Main St.	n/o Columbia Av.	Residential	72.3	71	152	328
4	Main St.	s/o Columbia Av.	Residential	69.7	RW	103	221
5	Orange St.	s/o Center St.	Light Industrial	63.3	RW	RW	55
6	Orange St.	n/o Columbia Av.	Residential	63.8	RW	RW	59
7	Orange St.	s/o Columbia Av.	Residential	64.6	RW	RW	67
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	69.4	RW	95	205
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	71.9	64	139	299
10	La Cadena Dr.	s/o W Litton Av.	Residential	72.0	65	141	304
11	La Cadena Dr.	s/o Barton Rd.	Residential	72.3	68	146	315
12	La Cadena Dr.	n/o S Iowa Av.	Residential	72.0	65	140	302
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	71.3	59	126	272
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	69.0	RW	89	191
15	I-215 SB Fwy	n/o Barton Rd.	Residential	77.6	275	593	1278
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	77.4	269	581	1251
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	77.4	269	581	1251
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	77.3	263	566	1220
19	I-215 NB Fwy	n/o Barton Rd.	Residential	78.0	293	630	1358
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	78.0	294	633	1363
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	78.0	294	633	1363
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	77.8	285	614	1324
23	Iowa Av.	n/o Center St.	Business/Office	67.6	RW	96	207
24	Iowa Av.	s/o Center St.	Business/Office	67.8	RW	99	213
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	66.6	RW	56	121
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	68.1	RW	71	153
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	63.2	RW	RW	78
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	67.5	RW	73	157
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	68.9	RW	91	197
30	W Main St.	e/o S Iowa Av.	Commercial	64.1	RW	RW	82
31	W Main St.	w/o Michigan Av.	Residential	57.4	RW	RW	RW
32	W Main St.	e/o Michigan Av.	Residential	60.5	RW	RW	54
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	59.1	RW	RW	RW
34	W Center St.	w/o Orange St.	Business/Office	64.1	RW	RW	82
35	W Center St.	w/o Stephens Av.	Residential	64.0	RW	RW	93
36	Columbia Av.	e/o Orange St.	Residential	68.6	RW	87	188

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).

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

"CL" = Centerline

URBAN CROSSROADS

TABLE 7-3: OPENING YEAR 2020 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	72.6	71	153	330
2	Main St.	s/o Placentia Ln.	Business/Office	71.6	64	138	298
3	Main St.	n/o Columbia Av.	Residential	72.4	73	157	337
4	Main St.	s/o Columbia Av.	Residential	69.8	RW	105	226
5	Orange St.	s/o Center St.	Light Industrial	62.7	RW	RW	50
6	Orange St.	n/o Columbia Av.	Residential	63.4	RW	RW	56
7	Orange St.	s/o Columbia Av.	Residential	64.7	RW	RW	68
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	69.4	RW	95	205
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	71.9	64	138	298
10	La Cadena Dr.	s/o W Litton Av.	Residential	72.0	65	140	303
11	La Cadena Dr.	s/o Barton Rd.	Residential	71.8	63	135	292
12	La Cadena Dr.	n/o S Iowa Av.	Residential	71.4	60	129	278
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	69.9	RW	102	219
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	69.1	RW	91	195
15	I-215 SB Fwy	n/o Barton Rd.	Residential	77.8	287	617	1330
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	77.8	283	611	1316
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	77.8	283	611	1316
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	77.5	271	584	1258
19	I-215 NB Fwy	n/o Barton Rd.	Residential	78.3	306	659	1420
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	78.3	308	664	1431
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	78.3	308	664	1431
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	78.0	294	634	1366
23	Iowa Av.	n/o Center St.	Business/Office	68.0	RW	102	219
24	Iowa Av.	s/o Center St.	Business/Office	68.0	RW	101	218
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	67.2	RW	61	132
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	68.8	RW	78	169
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	63.2	RW	RW	78
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	67.6	RW	75	161
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	69.1	RW	94	203
30	W Main St.	e/o S Iowa Av.	Commercial	64.7	RW	RW	90
31	W Main St.	w/o Michigan Av.	Residential	58.1	RW	RW	RW
32	W Main St.	e/o Michigan Av.	Residential	61.6	RW	RW	64
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	59.3	RW	RW	RW
34	W Center St.	w/o Orange St.	Business/Office	63.9	RW	RW	80
35	W Center St.	w/o Stephens Av.	Residential	65.0	RW	50	108
36	Columbia Av.	e/o Orange St.	Residential	68.7	RW	89	191

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).

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

"CL" = Centerline

URBAN CROSSROADS

TABLE 7-4: OPENING YEAR 2020 WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL @ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	72.6	72	155	333
2	Main St.	s/o Placentia Ln.	Business/Office	71.8	66	142	306
3	Main St.	n/o Columbia Av.	Residential	72.6	74	160	345
4	Main St.	s/o Columbia Av.	Residential	70.0	50	107	231
5	Orange St.	s/o Center St.	Light Industrial	63.8	RW	RW	59
6	Orange St.	n/o Columbia Av.	Residential	64.1	RW	RW	62
7	Orange St.	s/o Columbia Av.	Residential	64.9	RW	33	70
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	69.8	RW	100	215
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	72.2	68	146	314
10	La Cadena Dr.	s/o W Litton Av.	Residential	72.4	69	149	320
11	La Cadena Dr.	s/o Barton Rd.	Residential	72.6	72	154	332
12	La Cadena Dr.	n/o S Iowa Av.	Residential	72.3	68	147	317
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	71.7	62	134	288
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	69.9	RW	102	219
15	I-215 SB Fwy	n/o Barton Rd.	Residential	77.9	291	627	1350
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	77.8	286	615	1325
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	77.8	286	615	1325
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	77.5	273	588	1266
19	I-215 NB Fwy	n/o Barton Rd.	Residential	78.3	308	664	1431
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	78.3	310	667	1437
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	78.3	310	667	1437
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	78.1	297	640	1379
23	Iowa Av.	n/o Center St.	Business/Office	68.1	RW	103	222
24	Iowa Av.	s/o Center St.	Business/Office	68.1	RW	103	223
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	67.3	RW	62	135
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	68.8	RW	79	171
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	63.6	RW	RW	83
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	68.0	RW	79	169
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	69.3	RW	96	208
30	W Main St.	e/o S Iowa Av.	Commercial	64.8	RW	RW	93
31	W Main St.	w/o Michigan Av.	Residential	58.3	RW	RW	RW
32	W Main St.	e/o Michigan Av.	Residential	61.9	RW	RW	66
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	60.3	RW	RW	50
34	W Center St.	w/o Orange St.	Business/Office	65.1	RW	45	96
35	W Center St.	w/o Stephens Av.	Residential	65.2	RW	51	110
36	Columbia Av.	e/o Orange St.	Residential	68.9	RW	90	195

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).

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

"CL" = Centerline

URBAN CROSSROADS

TABLE 7-5: HORIZON YEAR 2040 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL			
				@ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	75.9	119	257	553
2	Main St.	s/o Placentia Ln.	Business/Office	74.4	99	213	458
3	Main St.	n/o Columbia Av.	Residential	73.9	91	196	421
4	Main St.	s/o Columbia Av.	Residential	72.0	68	145	313
5	Orange St.	s/o Center St.	Light Industrial	63.5	RW	RW	57
6	Orange St.	n/o Columbia Av.	Residential	64.3	RW	RW	64
7	Orange St.	s/o Columbia Av.	Residential	65.5	RW	36	77
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	70.8	54	116	250
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	74.4	94	202	435
10	La Cadena Dr.	s/o W Litton Av.	Residential	72.8	74	160	344
11	La Cadena Dr.	s/o Barton Rd.	Residential	74.0	88	190	409
12	La Cadena Dr.	n/o S Iowa Av.	Residential	72.9	75	162	348
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	71.4	59	127	274
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	71.7	62	134	289
15	I-215 SB Fwy	n/o Barton Rd.	Residential	79.3	358	771	1661
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	79.4	364	784	1690
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	79.4	364	784	1690
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	78.9	335	721	1554
19	I-215 NB Fwy	n/o Barton Rd.	Residential	79.8	387	835	1798
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	79.8	387	835	1798
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	79.8	387	835	1798
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	79.5	370	797	1716
23	Iowa Av.	n/o Center St.	Business/Office	68.8	RW	115	248
24	Iowa Av.	s/o Center St.	Business/Office	69.3	RW	124	266
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	69.3	RW	85	182
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	70.5	48	102	221
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	66.7	RW	62	134
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	68.5	RW	85	183
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	69.9	50	107	230
30	W Main St.	e/o S Iowa Av.	Commercial	65.4	RW	47	101
31	W Main St.	w/o Michigan Av.	Residential	61.3	RW	RW	61
32	W Main St.	e/o Michigan Av.	Residential	64.2	RW	RW	95
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	62.1	RW	RW	67
34	W Center St.	w/o Orange St.	Business/Office	65.7	RW	49	105
35	W Center St.	w/o Stephens Av.	Residential	65.7	RW	56	120
36	Columbia Av.	e/o Orange St.	Residential	71.1	59	128	276

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.
"CL" = Centerline

URBAN
CROSSROADS

TABLE 7-6: HORIZON YEAR 2040 WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	dBA CNEL @ Adj. Land Use	70	65	60
					CL to Contour Distance (Feet)[2]		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	76.0	120	258	556
2	Main St.	s/o Placentia Ln.	Business/Office	74.5	100	216	466
3	Main St.	n/o Columbia Av.	Residential	74.0	92	199	428
4	Main St.	s/o Columbia Av.	Residential	72.1	69	148	318
5	Orange St.	s/o Center St.	Light Industrial	64.4	RW	RW	65
6	Orange St.	n/o Columbia Av.	Residential	64.8	RW	RW	69
7	Orange St.	s/o Columbia Av.	Residential	65.7	RW	37	80
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	71.0	56	120	259
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	74.6	97	208	449
10	La Cadena Dr.	s/o W Litton Av.	Residential	73.1	78	167	360
11	La Cadena Dr.	s/o Barton Rd.	Residential	74.5	96	206	444
12	La Cadena Dr.	n/o S Iowa Av.	Residential	73.6	83	179	386
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	72.7	73	156	337
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	71.9	64	138	297
15	I-215 SB Fwy	n/o Barton Rd.	Residential	79.4	362	779	1679
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	79.4	366	788	1699
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	79.4	366	788	1699
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	78.9	336	725	1562
19	I-215 NB Fwy	n/o Barton Rd.	Residential	79.8	390	839	1808
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	79.8	389	837	1804
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	79.8	389	837	1804
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	79.5	372	802	1727
23	Iowa Av.	n/o Center St.	Business/Office	69.4	RW	126	271
24	Iowa Av.	s/o Center St.	Business/Office	69.4	RW	126	271
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	69.3	RW	86	184
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	70.5	48	103	222
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	66.9	RW	64	137
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	68.7	RW	88	190
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	70.1	51	109	235
30	W Main St.	e/o S Iowa Av.	Commercial	65.5	RW	48	103
31	W Main St.	w/o Michigan Av.	Residential	61.4	RW	RW	62
32	W Main St.	e/o Michigan Av.	Residential	64.3	RW	RW	97
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	62.7	RW	RW	73
34	W Center St.	w/o Orange St.	Business/Office	66.5	RW	55	119
35	W Center St.	w/o Stephens Av.	Residential	65.8	RW	57	122
36	Columbia Av.	e/o Orange St.	Residential	71.2	60	129	279

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.
"CL" = Centerline

URBAN CROSSROADS

7.2   EXISTING CONDITION PROJECT TRAFFIC NOISE LEVELS

Table 7-7 presents a comparison of the Existing without and with Project conditions CNEL noise levels. Table 7-1 presents the Existing without Project conditions noise level contours that are expected to range from 57.2 to 78.0 dBA CNEL. Table 7-2 presents the Existing with Project conditions noise level contours that are expected to range from 57.4 to 78.0 dBA CNEL. As shown on Table 7-7, the Project is expected to generate an exterior noise level increase of up to 2.0 dBA CNEL, and will satisfy the significance thresholds identified in Section 4 for all roadway segments. Therefore, the off-site Project-related traffic noise level increases are considered *less than significant* under Existing conditions.

7.3   OPENING YEAR 2020 PROJECT TRAFFIC NOISE LEVELS

Table 7-8 presents a comparison of the Opening Year 2020 without and with Project conditions CNEL noise levels. Table 7-3 shows that the unmitigated exterior noise levels are expected to range from 58.1 to 78.3 dBA CNEL for Opening Year 2020 without Project conditions. Table 7-4 presents the Opening Year 2020 with Project conditions noise level contours that are expected to range from 58.3 to 78.3 dBA CNEL. As shown on Table 7-8, the Project is expected to generate an exterior noise level increase of up to 1.8 dBA CNEL, and will satisfy the significance thresholds identified in Section 4 for all roadway segments. Therefore, the off-site Project-related traffic noise level increases are considered *less than significant* under Opening Year 2020 conditions.

7.4   HORIZON YEAR 2040 PROJECT TRAFFIC NOISE LEVELS

Table 7-9 presents a comparison of the Horizon Year 2040 without and with Project conditions CNEL noise levels. Table 7-5 shows that the unmitigated exterior noise levels are expected to range from 61.3 to 79.8 dBA CNEL for Horizon Year 2040 without Project conditions. Table 7-6 presents the Horizon Year 2040 with Project conditions noise level contours that are expected to range from 61.4 to 79.8 dBA CNEL. As shown on Table 7-9, the Project is expected to generate an exterior noise level increase of up to 1.3 dBA CNEL, and will satisfy the significance thresholds identified in Section 4 for all roadway segments. Therefore, the off-site Project-related traffic noise level increases are considered *less than significant* under Horizon Year 2040 conditions.

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

ID	Road	Segment	Adjacent Planned Land Use[1]	CNEL at Adjacent Land Use (dBA)[2]			Noise-Sensitive Land Use?	Threshold Exceeded?[3]
				No Project	With Project	Project Addition		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	72.3	72.4	0.1	No	No
2	Main St.	s/o Placentia Ln.	Business/Office	71.2	71.4	0.2	No	No
3	Main St.	n/o Columbia Av.	Residential	72.1	72.3	0.2	Yes	No
4	Main St.	s/o Columbia Av.	Residential	69.5	69.7	0.2	Yes	No
5	Orange St.	s/o Center St.	Light Industrial	62.1	63.3	1.2	No	No
6	Orange St.	n/o Columbia Av.	Residential	63.1	63.8	0.7	Yes	No
7	Orange St.	s/o Columbia Av.	Residential	64.3	64.6	0.3	Yes	No
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	69.1	69.4	0.3	No	No
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	71.5	71.9	0.4	No	No
10	La Cadena Dr.	s/o W Litton Av.	Residential	71.6	72.0	0.4	Yes	No
11	La Cadena Dr.	s/o Barton Rd.	Residential	71.4	72.3	0.9	Yes	No
12	La Cadena Dr.	n/o S Iowa Av.	Residential	71.0	72.0	1.0	Yes	No
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	69.3	71.3	2.0	No	No
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	68.5	69.0	0.5	Yes	No
15	I-215 SB Fwy	n/o Barton Rd.	Residential	77.5	77.6	0.1	Yes	No
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	77.4	77.4	0.0	No	No
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	77.4	77.4	0.0	No	No
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	77.2	77.3	0.1	No	No
19	I-215 NB Fwy	n/o Barton Rd.	Residential	77.9	78.0	0.1	Yes	No
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	78.0	78.0	0.0	No	No
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	78.0	78.0	0.0	No	No
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	77.7	77.8	0.1	No	No
23	Iowa Av.	n/o Center St.	Business/Office	67.5	67.6	0.1	No	No
24	Iowa Av.	s/o Center St.	Business/Office	67.7	67.8	0.1	No	No
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	66.5	66.6	0.1	Yes	No
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	68.1	68.1	0.0	No	No
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	62.8	63.2	0.4	No	No
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	67.1	67.5	0.4	No	No
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	68.7	68.9	0.2	No	No
30	W Main St.	e/o S Iowa Av.	Commercial	63.9	64.1	0.2	No	No
31	W Main St.	w/o Michigan Av.	Residential	57.2	57.4	0.2	Yes	No
32	W Main St.	e/o Michigan Av.	Residential	60.4	60.5	0.1	Yes	No
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	57.7	59.1	1.4	No	No
34	W Center St.	w/o Orange St.	Business/Office	62.6	64.1	1.5	No	No
35	W Center St.	w/o Stephens Av.	Residential	63.8	64.0	0.2	Yes	No
36	Columbia Av.	e/o Orange St.	Residential	68.5	68.6	0.1	Yes	No

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[3] Significance Criteria (Section 4).

URBAN CROSSROADS

TABLE 7-8: OPENING YEAR 2020 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Planned Land Use[1]	CNEL at Adjacent Land Use (dBA)[2]			Noise-Sensitive Land Use?	Threshold Exceeded?[3]
				No Project	With Project	Project Addition		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	72.6	72.6	0.0	No	No
2	Main St.	s/o Placentia Ln.	Business/Office	71.6	71.8	0.2	No	No
3	Main St.	n/o Columbia Av.	Residential	72.4	72.6	0.2	Yes	No
4	Main St.	s/o Columbia Av.	Residential	69.8	70.0	0.2	Yes	No
5	Orange St.	s/o Center St.	Light Industrial	62.7	63.8	1.1	No	No
6	Orange St.	n/o Columbia Av.	Residential	63.4	64.1	0.7	Yes	No
7	Orange St.	s/o Columbia Av.	Residential	64.7	64.9	0.2	Yes	No
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	69.4	69.8	0.4	No	No
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	71.9	72.2	0.3	No	No
10	La Cadena Dr.	s/o W Litton Av.	Residential	72.0	72.4	0.4	Yes	No
11	La Cadena Dr.	s/o Barton Rd.	Residential	71.8	72.6	0.8	Yes	No
12	La Cadena Dr.	n/o S Iowa Av.	Residential	71.4	72.3	0.9	Yes	No
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	69.9	71.7	1.8	No	No
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	69.1	69.9	0.8	Yes	No
15	I-215 SB Fwy	n/o Barton Rd.	Residential	77.8	77.9	0.1	Yes	No
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	77.8	77.8	0.0	No	No
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	77.8	77.8	0.0	No	No
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	77.5	77.5	0.0	No	No
19	I-215 NB Fwy	n/o Barton Rd.	Residential	78.3	78.3	0.0	Yes	No
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	78.3	78.3	0.0	No	No
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	78.3	78.3	0.0	No	No
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	78.0	78.1	0.1	No	No
23	Iowa Av.	n/o Center St.	Business/Office	68.0	68.1	0.1	No	No
24	Iowa Av.	s/o Center St.	Business/Office	68.0	68.1	0.1	No	No
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	67.2	67.3	0.1	Yes	No
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	68.8	68.8	0.0	No	No
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	63.2	63.6	0.4	No	No
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	67.6	68.0	0.4	No	No
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	69.1	69.3	0.2	No	No
30	W Main St.	e/o S Iowa Av.	Commercial	64.7	64.8	0.1	No	No
31	W Main St.	w/o Michigan Av.	Residential	58.1	58.3	0.2	Yes	No
32	W Main St.	e/o Michigan Av.	Residential	61.6	61.9	0.3	Yes	No
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	59.3	60.3	1.0	No	No
34	W Center St.	w/o Orange St.	Business/Office	63.9	65.1	1.2	No	No
35	W Center St.	w/o Stephens Av.	Residential	65.0	65.2	0.2	Yes	No
36	Columbia Av.	e/o Orange St.	Residential	68.7	68.9	0.2	Yes	No

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[3] Significance Criteria (Section 4).

URBAN CROSSROADS

TABLE 7-9: HORIZON YEAR 2040 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Planned Land Use[1]	CNEL at Adjacent Land Use (dBA)[2]			Noise-Sensitive Land Use?	Threshold Exceeded?[3]
				No Project	With Project	Project Addition		
1	S Riverside Av.	n/o Placentia Ln.	Light Industrial	75.9	76.0	0.1	No	No
2	Main St.	s/o Placentia Ln.	Business/Office	74.4	74.5	0.1	No	No
3	Main St.	n/o Columbia Av.	Residential	73.9	74.0	0.1	Yes	No
4	Main St.	s/o Columbia Av.	Residential	72.0	72.1	0.1	Yes	No
5	Orange St.	s/o Center St.	Light Industrial	63.5	64.4	0.9	No	No
6	Orange St.	n/o Columbia Av.	Residential	64.3	64.8	0.5	Yes	No
7	Orange St.	s/o Columbia Av.	Residential	65.5	65.7	0.2	Yes	No
8	La Cadena Dr.	n/o S Rancho Av.	Light Industrial	70.8	71.0	0.2	No	No
9	La Cadena Dr.	s/o S Rancho Av.	Light Industrial	74.4	74.6	0.2	No	No
10	La Cadena Dr.	s/o W Litton Av.	Residential	72.8	73.1	0.3	Yes	No
11	La Cadena Dr.	s/o Barton Rd.	Residential	74.0	74.5	0.5	Yes	No
12	La Cadena Dr.	n/o S Iowa Av.	Residential	72.9	73.6	0.7	Yes	No
13	La Cadena Dr.	s/o S Iowa Av.	Commercial	71.4	72.7	1.3	No	No
14	La Cadena Dr.	s/o Pellissier Rd.	Residential	71.7	71.9	0.2	Yes	No
15	I-215 SB Fwy	n/o Barton Rd.	Residential	79.3	79.4	0.1	Yes	No
16	I-215 SB Fwy	s/o Barton Rd.	Commercial	79.4	79.4	0.0	No	No
17	I-215 SB Fwy	n/o S Iowa Av.	Commercial	79.4	79.4	0.0	No	No
18	I-215 SB Fwy	s/o S Iowa Av.	Business/Office	78.9	78.9	0.0	No	No
19	I-215 NB Fwy	n/o Barton Rd.	Residential	79.8	79.8	0.0	Yes	No
20	I-215 NB Fwy	s/o Barton Rd.	Commercial	79.8	79.8	0.0	No	No
21	I-215 NB Fwy	n/o S Iowa Av.	Commercial	79.8	79.8	0.0	No	No
22	I-215 NB Fwy	s/o S Iowa Av.	Business/Office	79.5	79.5	0.0	No	No
23	Iowa Av.	n/o Center St.	Business/Office	68.8	69.4	0.6	No	No
24	Iowa Av.	s/o Center St.	Business/Office	69.3	69.4	0.1	No	No
25	Mt. Vernon Av.	n/o Barton Rd.	Residential	69.3	69.3	0.0	Yes	No
26	Mt. Vernon Av.	s/o Barton Rd.	Commercial	70.5	70.5	0.0	No	No
27	S Rancho Av.	w/o La Cadena Dr.	Light Industrial	66.7	66.9	0.2	No	No
28	Barton Rd.	w/o Mt. Vernon Av.	Commercial	68.5	68.7	0.2	No	No
29	Barton Rd.	e/o Mt. Vernon Av.	Commercial	69.9	70.1	0.2	No	No
30	W Main St.	e/o S Iowa Av.	Commercial	65.4	65.5	0.1	No	No
31	W Main St.	w/o Michigan Av.	Residential	61.3	61.4	0.1	Yes	No
32	W Main St.	e/o Michigan Av.	Residential	64.2	64.3	0.1	Yes	No
33	Placentia Ln.	e/o S Riverside Av.	Business/Office	62.1	62.7	0.6	No	No
34	W Center St.	w/o Orange St.	Business/Office	65.7	66.5	0.8	No	No
35	W Center St.	w/o Stephens Av.	Residential	65.7	65.8	0.1	Yes	No
36	Columbia Av.	e/o Orange St.	Residential	71.1	71.2	0.1	Yes	No

[1] General Plan Sources: City of Colton Land Use Plan (Figure LU-6), City of Riverside Land Use Policy Map (Figure LU-10), City of Grand Terrace Land Use Map (Exhibit 2-2), and the County of Riverside Highgrove Area Plan Land Use Plan (Figure 3).
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[3] Significance Criteria (Section 4).

URBAN CROSSROADS

8   ON-SITE TRANSPORTATION NOISE IMPACTS

An on-site exterior noise impact analysis has been completed to determine the transportation noise exposure and to identify potential necessary noise abatement measures for the proposed Roquet Ranch Specific Plan Project. It is expected that the primary source of noise impacts to the Project site will be transportation noise from the I-215 Freeway, La Cadena Drive, Pellissier Road, Roquet Rancho Road, and BNSF rail lines. The Project will also experience some background traffic noise impacts from the Project's internal local streets, however, due to the low traffic volume/speeds, traffic noise from these roads will not make a significant contribution to the noise environment beyond of the right-of-way of the roadways.

8.1   ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA traffic and the FTA rail models for noise prediction, and the parameters outlined in Tables 6-3 to 6-5, the expected future exterior noise levels for the on-site planning areas were calculated. Table 8-1 presents a summary of future exterior noise level impacts in the outdoor living areas (backyards and first floor patio areas) of lots adjacent to the I-215 Freeway, La Cadena Drive, Pellissier Road, and Roquet Rancho Road and facing the BNSF rail lines. The on-site traffic noise level impacts indicate that the future lots will experience unmitigated exterior noise levels ranging from 46.7 to 73.6 dBA CNEL. The on-site traffic and rail noise analysis calculations are provided in Appendix 8.1.

To satisfy the City of Colton *General Plan Noise Element*, Standard 2, 60 dBA CNEL exterior noise level standard for residential land uses, the construction of 6-foot high noise barriers is required for Planning Areas 2 to 4, and 6 to 9 adjacent to Pellisier Road and Roquet Ranch Road. The mitigated exterior noise levels for Planning areas 2 to 4, and 6 to 9 adjacent to Pellisier Road and Roquet Ranch Road will range from 53.8 to 58.3 dBA CNEL and will satisfy the City of Colton 60 dBA CNEL exterior noise level standard. Unmitigated exterior noise levels at the school land use within Planning Area 12 will satisfy the exterior noise level criteria of 65 dBA CNEL for *normally acceptable* land use without the need for exterior noise mitigation. In addition, unmitigated exterior noise levels at Planning Area 5 will satisfy the exterior noise level criteria for residential land use with no exterior noise mitigation.

The mitigated exterior noise levels at the residential homes within Planning Area 9 will approach 64.8 dBA CNEL with the construction of 8-foot high noise barriers for outdoor living areas adjacent to La Cadena Drive, facing the I-215 Freeway and BNSF rail lines. While the exterior noise levels will exceed the 60 dBA CNEL standard for residential land use, the mitigated exterior noise levels will satisfy the conditions of *conditionally acceptable* residential land use, based on Table 5-1 of the City of Colton *General Plan Noise Element*. Further, the County of San Bernardino Development Code, Table 83-3, indicates that exterior noise levels of up to 65 dBA CNEL are allowed provided exterior noise mitigation has been provided, and the interior noise levels do not exceed 45 dBA CNEL (discussed in Section 8.2 of this report). (2)

This noise analysis shows that with the recommended noise mitigation barriers the Project will satisfy the City of Colton exterior noise level criteria at the residential and school uses within the

URBAN
CROSSROADS

Project site. The effective noise barrier height recommendations represent the minimum wall and/or berm combination height required to satisfy the City of Colton exterior noise level standards.

TABLE 8-1: EXTERIOR NOISE LEVELS (CNEL)

Planning Area	Land Use	Roadway	Unmitigated Noise Level (dBA CNEL)	Combined Unmitigated Noise Level (dBA CNEL)	Mitigated Noise Level (dBA CNEL)	Combined Mitigated Noise Level (dBA CNEL)	Barrier Height (Feet)
PA 9	Residential	I-215 Fwy.	70.7	73.6	62.8	64.8	8.0'
		La Cadena Dr.	70.4		60.4		8.0'
		BNSF Rail	46.7		46.7		8.0'
		Pellissier Rd.	64.7	-	58.3	-	6.0'
PA 3 & 8	Residential	Pellissier Rd.	64.7	-	58.3	-	6.0'
PA 2 & 6	Residential	Pellissier Rd.	62.0	-	55.9	-	6.0'
PA 7	Residential	Roquet Ranch Rd.	60.8	-	53.8	-	6.0'
PA 12	School	Roquet Ranch Rd.	60.8	-	—[1]	-	—[1]
PA 5	Residential	Roquet Ranch Rd.	57.8	-	—[1]	-	—[1]
PA 4	Residential	Roquet Ranch Rd.	60.8	-	53.8	-	6.0'

[1] Unmitigated exterior noise level satisfies the City of Colton exterior noise level standard. No exterior noise mitigation is required.

8.2 ON-SITE INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the City of Colton 45 dBA CNEL interior noise standards, future noise levels were calculated at the first and second floor building facades.

8.2.1 NOISE REDUCTION METHODOLOGY

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

8.2.2 INTERIOR NOISE LEVEL ASSESSMENT

To provide the necessary interior noise level reduction, Tables 8-2 and 8-3 indicate that buildings will require a windows closed condition and a means of mechanical ventilation (e.g. air conditioning). Table 8-2 shows that the future unmitigated noise levels at the first floor building façade are expected to range from 53.9 to 66.1 dBA CNEL. The first floor interior noise level analysis shows that the City of Colton 45 dBA CNEL interior noise level standards can be satisfied

using standard windows with a minimum STC rating of 27. Table 8-3 shows that the future noise levels at the second floor building façade are expected to range from 56.8 to 70.6 dBA CNEL, and upgraded windows with a minimum STC rating of 32 are required to satisfy the City of Colton's 45 dBA CNEL interior noise level standards for Planning Areas 9. All other Planning Areas require a minimum STC rating of 27 for second floor windows.

The interior noise analysis shows that with the minimum required interior noise mitigation measures described in the Executive Summary the Project will satisfy the City of Colton 45 dBA CNEL interior noise level standards.

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

Planning Area	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Estimated Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]
PA 9	66.1	21.1	30.0	Yes	36.1
PA 3 & 8	57.3	12.3	25.0	No	32.3
PA 2 & 6	55.3	10.3	25.0	No	30.3
PA 7	53.9	8.9	25.0	No	28.9
PA 12	53.9	8.9	25.0	No	28.9
PA 5	56.9	11.9	25.0	No	31.9
PA 4	53.9	8.9	25.0	No	28.9

[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 standards.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.

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

Planning Area	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Estimated Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]
PA 9	70.6	25.6	30.0	Yes	40.6
PA 3 & 8	63.6	18.6	25.0	No	38.6
PA 2 & 6	61.2	16.2	25.0	No	36.2
PA 7	59.2	14.2	25.0	No	34.2
PA 12	59.2	14.2	25.0	No	34.2
PA 5	56.8	11.8	25.0	No	31.8
PA 4	59.2	14.2	25.0	No	34.2

[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 standards.
[3] Estimated interior noise reduction with the minimum required STC ratings.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.

URBAN CROSSROADS

This page intentionally left blank

9 RECEIVER LOCATIONS

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

Sensitive receivers in the vicinity of the Project site include the existing residential homes located at receiver locations R1 to R8. The closest sensitive receiver is represented by location R6 at a distance of approximately 30 feet south of the Project site boundary. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

R1: Located approximately 1,865 feet north of the Project site, R1 represents existing residential homes on Litton Avenue. A 24-hour noise level measurement was taken at this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents existing residential homes located approximately 478 feet east of the Project site on Palm Avenue. A 24-hour noise level measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing single-family residential homes located roughly 31 feet from the eastern Project site boundary on Lark Street. A 24-hour noise level measurement was taken near this location, L5, to describe the existing ambient noise environment.

R4: Location R4 represents the existing single-family residential homes located approximately 46 feet north of the Project site on Maryknoll Drive. A 24-hour noise level measurement was taken near this location, L6, to describe the existing ambient noise environment.

R5: Location R5 represents residential homes at a distance of approximately 58 feet on Maryknoll Drive. A 24-hour noise level measurement was taken near this location, L7, to describe the existing ambient noise environment.

R6: Location R6 represents existing mobile homes located approximately 30 feet south of the Project site. A 24-hour noise level measurement was taken near this location, L9, to describe the existing ambient noise environment.

R7: Location R7 represents the existing mobile homes located roughly 53 feet south of the Project site boundary. A 24-hour noise level measurement was taken near this location, L8, to describe the existing ambient noise environment.

R8:   Location R8 represents the mobile homes located approximately 32 feet south of the Project site boundary.

EXHIBIT 9-A: RECEIVER LOCATIONS

LEGEND:

- ⬛ (dashed) Project Site Boundaries
- ◉ Receiver Locations
- ●——— Distance from receiver to Project site boundary (in feet)
- **6'** Existing Barrier Height (in feet)
- ▬ Existing Barrier

URBAN CROSSROADS

10   OPERATIONAL IMPACTS

This section analyzes the potential operational noise impacts due to the Project's stationary noise sources on the off-site sensitive receiver locations identified in Section 9. Exhibit 10-A identifies the receiver locations and noise source locations used to assess the Project-related operational noise levels.

10.1   OPERATIONAL NOISE STANDARDS

For the purpose of this analysis, the operational noise levels associated with the Project are controlled by the City of Colton Municipal Code. Section 18.42.040 of the City of Colton Municipal Code indicates that the exterior noise level limit shall be 65 dBA Leq. (13) The operational noise level standards are shown on Table 3-1 of this report, and the City of Colton Municipal Code is included in Appendix 3.1.

10.2   OPERATIONAL NOISE SOURCES

Project-related stationary-source (operational) noise would be generated by the commercial, park, school, and fire station uses. The on-site Project-related noise sources are expected to include: roof-top air conditioning units, parking lot vehicle movement activities, park activities, school athletic field activities, RV idle/air brake activities, and fire station activities. Further, the proposed residential land uses are considered noise-sensitive receiving land uses and are not expected to include any specific type of operational noise levels beyond the typical noise sources associated with existing residential land use in the Project study area.

10.3   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 10-1 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 roof-top air conditioning units, parking lot vehicle movement activities, park activities, school athletic field activities, RV idle/air brake activities, and fire station activities all operating simultaneously. In reality, these noise level impacts will vary throughout the day.

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS
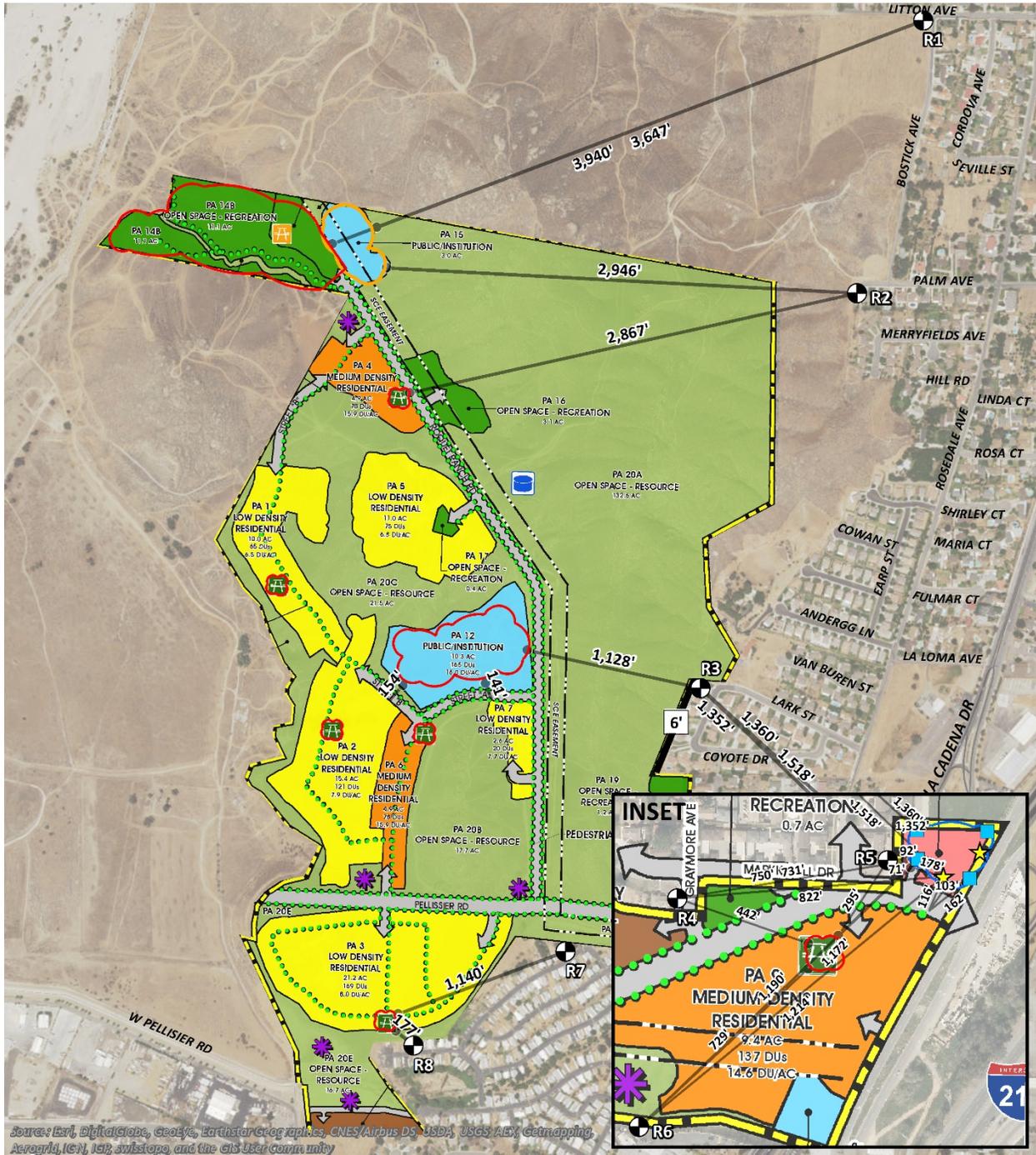
TABLE 10-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (h:mm:ss)	Distance From Source (Feet)	Noise Source Height (Feet)	Hourly Activity (Mins.)[1]	Noise Level (dBA Leq)	
					@ Ref. Distance	@ 50 Feet
Roof-Top Air Conditioning Units[2]	96:00:00	5'	25'	39'	77.2	57.2
Parking Lot Vehicle Movements[3]	0:15:00	5'	5'	60'	60.1	45.1
Drive-Through Speakerphone[4]	2:00:00	15'	3'	60'	62.0	51.5
Park/School Athletic Field Activity[5]	0:15:00	5'	4'	60'	63.4	43.4
RV Idle/Air Brake Activity[6]	0:01:00	10'	6'	60'	76.4	62.4
Fire Station Activities[7]	-	-	-	-	-	-

[1] Anticipated duration (minutes within the hour) of noise activity during peak hourly conditions expected at the Project site.
[2] As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.
[3] As measured by Urban Crossroads, Inc. on 5/30/2012 at the Laguna Niguel Walmart located at 27470 Alicia Parkway.
[4] As measured by Urban Crossroads, Inc. on 12/19/2014 at the Panera Bread located at 423 Associated Road in Brea.
[5] As measured by Urban Crossroads, Inc. on 10/8/2014 at the Founders Park in the unincorporated community of Ladera Ranch.
[6] As measured by Urban Crossroads, Inc. on 9/16/2015 at the Giant RV Murrieta located at 41150 Juniper Street.
[7] The County of San Bernardino Development Code, Section 83.01.080 (g) (2) exempts emergency equipment, vehicles, and devices such as the proposed fire station and fire truck activities.

10.3.1 ROOF-TOP AIR CONDITIONING UNITS

In order to assess the impacts created by potential roof-top air conditioning units at the Project site, reference noise levels measurements were taken at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a single mechanical roof-top air conditioning unit on the roof of an existing Walmart store. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At a distance of 5 feet from the roof-top air conditioning unit, the exterior noise levels were measured at 77.2 dBA Leq. Using a uniform reference distance of 50 feet, the noise level is 57.2 dBA Leq. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Farenheit (°F) with average daytime temperatures of 82°F. The roof-top air condition units were observed to operate the most during the daytime hours, for a total of 39 minutes per hour, and are anticipated to operate during the daytime and nighttime hours at the Project site. For the purpose of this noise analysis, the air conditioning units are expected to be located on the roof at a noise elevation of 25 feet. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement.

10.3.2 PARKING LOT VEHICLE MOVEMENTS

To determine the noise level impacts associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements at the at the Laguna Niguel Walmart located at 27470 Alicia Parkway on May 30th, 2012. The 15-minute noise level measurement indicates that the parking lot vehicle movements generates noise levels of 45.1 dBA Leq at a distance of 50 feet. The parking lot noise levels are mainly due to cars pulling in and out of spaces,

URBAN CROSSROADS

car alarms sounding, and customers moving shopping carts. Noise associated with parking lot vehicle movements is expected during the typical daytime, and nighttime conditions for the entire hour (60 minutes).

10.3.3 DRIVE-THRU SPEAKERPHONE

To describe the potential noise level impacts associated with potential drive-thru speakerphones and vehicle activities, a reference noise level measurement was collected on Friday, December 19th, 2014 at a Panera Bread restaurant located at 423 South Associated Road in the City of Brea. The reference noise levels collected at the Panera Bread restaurant 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 Panera Bread employees over the speakerphone, customers' voices ordering food, car engines idling, car radios playing music, and cars queuing in the drive-thru lane. At a distance of 50 feet from the speakerphone, a reference noise level of 51.5 dBA Leq 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 Panera Bread speakerphone menu board reference noise level describes continuous drive-thru operations and does not include any periods of inactivity.

10.3.4 PARK/SCHOOL ATHLETIC FIELD ACTIVITIES

To describe the potential noise level impacts associated with the Project's park and school athletic field activities, a reference noise level measurement was collected on Wednesday, October 8th, 2014 at the Founders Park in the unincorporated community of Ladera Ranch in the County of Orange. The reference noise levels collected at the Founders Park are expected to reflect the noise level activities within the park and school land uses at the Project site, since the reference noise level measurement includes playground activities, girls youth soccer, coaches shouting instructions, parents speaking on cell phones, kids playing on swing sets, cheering and clapping. At a distance of 5 feet from the noise source, a reference noise level of 63.4 dBA Leq was measured. Using a uniform reference distance of 50 feet, the noise level is 43.4 dBA Leq. The park/school athletic field activities are estimated to occur for 60 minutes during the peak hour conditions during the daytime hours, since parks and schools are not typically open during the nighttime hours.

10.3.5 RV IDLE / AIR BRAKE ACTIVITIES

On Wednesday, September, 16th, 2015, Urban Crossroads, Inc. collected short-term operational noise level measurements at the Giant RV Parts and Service Center located at 41150 Juniper Street in the City of Murrieta. An RV engine idle and air brake noise reference measurement was taken over a one-minute period outside of the Giant RV Murrieta service garage. The reference measurement results showed a noise level of 62.4 dBA Leq at a uniform distance of 50 feet and a noise source height of six feet. The RV idle/air brake activity reference noise level measurement is used to describe the RV storage use within Planning Area 15 of the Project.

10.3.6 FIRE STATION & SCHOOL ATHLETIC FIELD ACTIVITIES

As previously shown on Exhibit 1-B, the Project land use plan includes a fire station, located in Planning Area 13. However, the County of San Bernardino Development Code, Section 83.01.080 (g) (2) exempts emergency equipment, vehicles, and devices such as the expected noise sources associated with the proposed fire station and fire truck activities in Planning Area 13. (2)

10.4 OPERATIONAL NOISE LEVELS

Based upon the reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each of the sensitive receiver locations. The operational noise level calculations shown on Table 10-2 account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. Table 10-2 indicates that the hourly noise levels associated with the roof-top air conditioning units, parking lot vehicle movement activities, park activities, school athletic field activities, RV idle/air brake activities, and fire station activities are expected to range from 16.4 to 51.2 dBA Leq at the sensitive off-site receiver locations. The operational noise level calculation worksheets are included in Appendix 10.1.

TABLE 10-2: PROJECT OPERATIONAL NOISE LEVELS (DBA LEQ)

Receiver Location[1]	Noise Sources[2]					Combined Operational Noise Levels (dBA Leq)[3]
	Roof-Top Air Conditioning Units	Parking Lot Vehicle Movements	Drive-Through Speakerphones	Park/School Athletic Field Activity	RV Idle/ Air Brake Activity	
R1	_[4]	_[4]	_[4]	5.5	25.2	25.3
R2	_[4]	_[4]	_[4]	8.2	27.0	27.1
R3	26.6	23.6	21.9	16.3	_[4]	29.5
R4	31.8	27.6	27.2	24.5	_[4]	34.6
R5	50.0	42.8	40.5	28.0	_[4]	51.2
R6	27.8	24.6	23.8	20.1	_[4]	30.9
R7	_[4]	_[4]	_[4]	16.2	_[4]	16.4
R8	_[4]	_[4]	_[4]	32.4	_[4]	32.4
PA 2	_[4]	_[4]	_[4]	33.6	_[4]	33.6
PA 7	_[4]	_[4]	_[4]	34.4	_[4]	34.4
PA 9	45.1	40.4	44.2	_[4]	_[4]	48.4

[1] See Exhibit 10-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 10-1.
[3] Calculations for each noise source are provided in Appendix 10.1.
[4] Receiver locations are not exposed to the noise source. There is no direct line of sight from the receiver to the source.
"PA" = Planning Area

URBAN CROSSROADS

10.5   OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise standards, the Project-only operational noise levels are evaluated against the City of Colton exterior noise level standards. Table 10-3 shows the operational noise levels associated with the Roquet Ranch Specific Plan will satisfy the noise level standards at the nearby sensitive residential receivers in the City of Colton. Therefore, since the Project will satisfy the noise level standards of the City of Colton, the Project-related operational noise levels will be *less than significant*.

At the time this noise study was prepared the exact location of the commercial land uses in Planning Area 11 was unknown. Depending on the final arrangement of commercial uses, additional analysis may be required to satisfy the City of Colton exterior noise level standards at the closest residential homes. However, based on the results of this noise study, no exterior noise mitigation is required.

TABLE 10-3: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Noise Level At Receiver Locations (dBA Leq)[2]	Noise Level Standards (dBA Leq)[3]	Threshold Exceeded?[4]
R1	25.3	65	No
R2	27.1	65	No
R3	29.5	65	No
R4	34.6	65	No
R5	51.2	65	No
R6	30.9	65	No
R7	16.4	65	No
R8	32.4	65	No
PA 2	33.6	65	No
PA 7	34.4	65	No
PA 9	48.4	65	No

[1] See Exhibit 10-A for the noise receiver and noise source locations.
[2] Project operational noise levels as shown on Table 10-2.
[3] Noise standards as shown on Table 4-2.
[4] Do the estimated Project stationary source noise levels exceed the noise standards on the affected land uses?

10.6   PROJECT OPERATIONAL NOISE CONTRIBUTION

To describe the Project operational noise level contributions, the Project operational noise levels were combined with the existing ambient noise levels measurements for the off-site 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

URBAN CROSSROADS

noise levels cannot be combined using standard arithmetic equations. (3) 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 describe the Project noise level contributions. Noise levels that would be experienced at receiver locations when Project-source noise is added to the ambient daytime and nighttime conditions are presented on Tables 10-4 and 10-5, respectively.

As indicated in Table 10-4, the Project will contribute an operational noise level increase approaching 0.4 dBA Leq during the daytime hours at the existing sensitive receiver locations potentially impacted by the operation of the Project. Further, Table 10-5 shows that the Project will contribute an operational noise level increase approaching 0.5 dBA Leq at the nearby sensitive receiver locations during the nighttime hours. Since the Project-related operational noise level contributions will satisfy the significance criteria discussed in Section 4, the increases at the sensitive receiver locations will be *less than significant*. On this basis, Project operational stationary-source noise would not result in a substantial temporary/periodic, or permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project, and impacts in these regards will be *less than significant*. The future operational noise level contribution is not calculated for the future residential homes within the Project planning areas since the existing ambient noise levels do not represent the ambient conditions once the Project is built and fully occupied.

TABLE 10-4: DAYTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS (DBA LEQ)

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Contribution[6]	Threshold Exceeded?[7]
R1	25.3	L1	55.4	55.4	0.0	No
R2	27.1	L2	50.3	50.3	0.0	No
R3	29.5	L5	52.9	52.9	0.0	No
R4	34.6	L6	55.7	55.7	0.0	No
R5	51.2	L7	61.2	61.6	0.4	No
R6	30.9	L9	56.5	56.5	0.0	No
R7	16.4	L8	51.9	51.9	0.0	No
R8	32.4	L10	60.9	60.9	0.0	No

[1] See Exhibit 10-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 10-3.
[3] Reference 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 Criteria as defined in Section 4.

URBAN CROSSROADS

TABLE 10-5: NIGHTTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS (DBA LEQ)

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Contribution[6]	Threshold Exceeded?[7]
R1	25.3	L1	54.3	54.3	0.0	No
R2	27.1	L2	54.0	54.0	0.0	No
R3	29.5	L5	56.8	56.8	0.0	No
R4	34.6	L6	59.4	59.4	0.0	No
R5	51.2	L7	60.2	60.7	0.5	No
R6	30.9	L9	58.0	58.0	0.0	No
R7	16.4	L8	55.9	55.9	0.0	No
R8	32.4	L10	61.7	61.7	0.0	No

[1] See Exhibit 10-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 10-3.
[3] Reference 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 Criteria as defined in Section 4.

URBAN CROSSROADS

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 activity locations, consistent with the grading limits of the *Roquet Ranch Specific Plan Initial Study*, and the nearby sensitive receiver locations. (16)

11.1   CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Roquet Ranch Specific Plan Project, noise from construction activities are typically limited to the hours of operation established under a City's Municipal Code. However, the City of Colton Municipal Code does not identify specific construction noise level standards or permitted hours of construction activity, and therefore, this noise study uses the permitted hours found in the County of San Bernardino Development Code standards for Project construction.   The County of San Bernardino Development Code, Section 83.01.080 (g) indicates that construction noise levels are considered exempt if they occur between the hours of 7:00 a.m. to 7:00 p.m. Mondays to Fridays, with no activity allowed on Sundays and Federal holidays. (2) Table 3-2 shows the permitted hours by jurisdiction for construction, and the County of San Bernardino Development Code is included in Appendix 3.2. Like the City of Colton, the County of San Bernardino does not establish a numeric maximum acceptable construction source noise level for nearby potentially affected receivers which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. Therefore, applicable standards are discussed below for the Project-related construction noise level threshold.

To evaluate whether the Project will generate a substantial periodic increase in short-term noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (14) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (14) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

EXHIBIT 11-A: CONSTRUCTION ACTIVITY LOCATIONS

LEGEND:

N
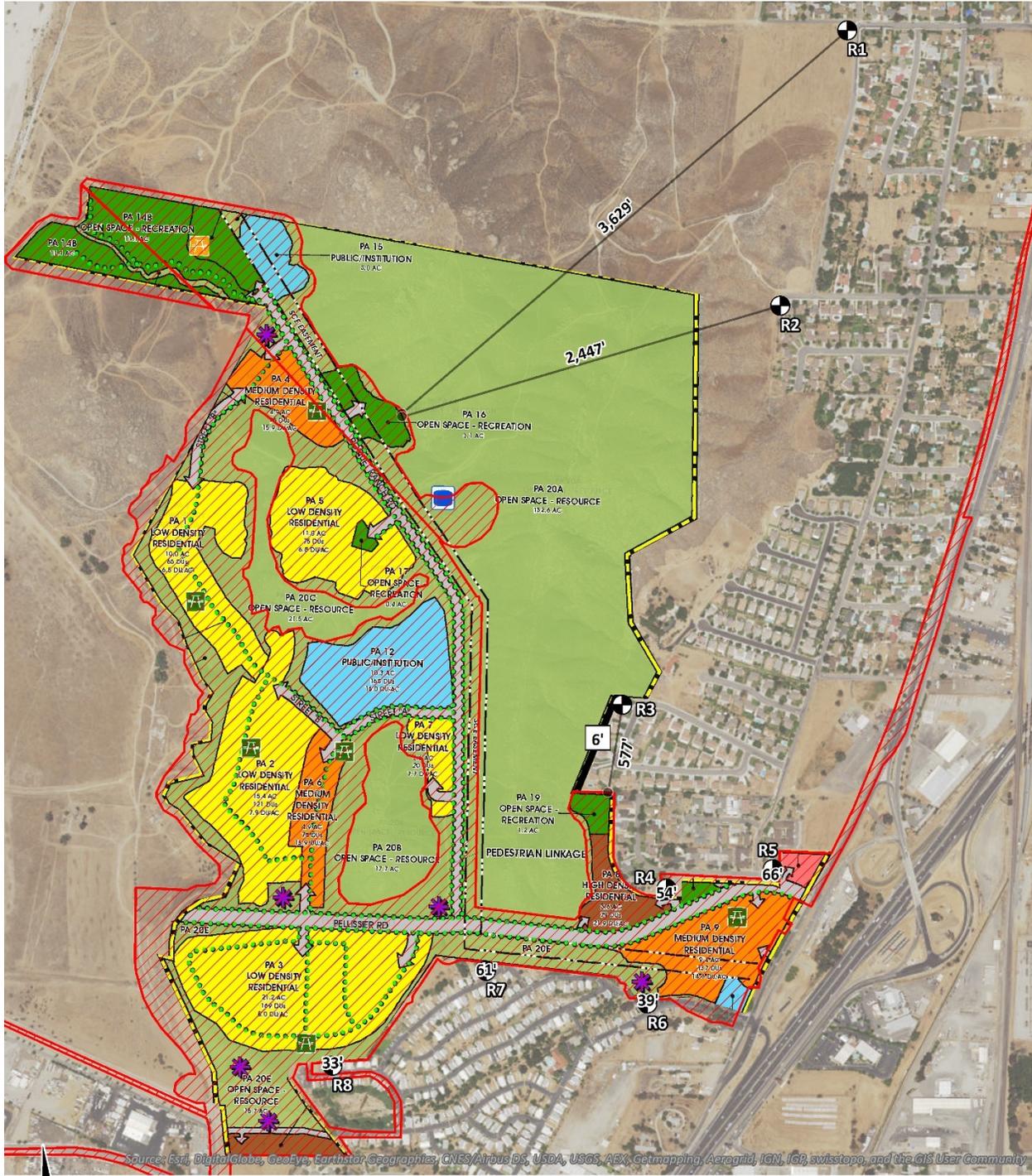
⊕ Receiver Locations

━━● Distance from receiver to construction activity (in feet)

6' Existing Barrier Height (in feet)

▨ Construction Activity (Based on the grading limits from Figure 5 of the Roquet Ranch Specific Plan Initial Study)

━━ Existing Barrier

URBAN CROSSROADS

11.2 CONSTRUCTION NOISE LEVELS

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

- Rough/Fine Grading
- Underground Infrastructure
- Building Construction
- Architectural Coating
- Paving

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the *Roquet Ranch Specific Plan Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (25)

11.3 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 11-1 provides a summary of the sixteen construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 11-1 have been adjusted to describe a common reference distance of 50 feet.

TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA Leq)	Reference Noise Levels @ 50 Feet (dBA Leq)[6]
1	Truck Pass-Bys & Dozer Activity[1]	30'	63.6	59.2
2	Dozer Activity[1]	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities[2]	30'	71.9	67.5
4	Foundation Trenching[2]	30'	72.6	68.2
5	Rough Grading Activities[2]	30'	77.9	73.5
6	Residential Framing[3]	30'	66.7	62.3
7	Water Truck Pass-By & Backup Alarm[4]	30'	76.3	71.9
8	Dozer Pass-By[4]	30'	84.0	79.6
9	Two Scrapers & Water Truck Pass-By[4]	30'	83.4	79.0
10	Two Scrapers Pass-By[4]	30'	83.7	79.3
11	Scraper, Water Truck, & Dozer Activity[4]	30'	79.7	75.3
12	Concrete Mixer Truck Movements[5]	50'	71.2	71.2
13	Concrete Paver Activities[5]	30'	70.0	65.6
14	Concrete Mixer Pour & Paving Activities[5]	30'	70.3	65.9
15	Concrete Mixer Backup Alarms & Air Brakes[5]	50'	71.6	71.6
16	Concrete Mixer Pour Activities[5]	50'	67.7	67.7

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[3] As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.
[4] As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations at an industrial construction site in the City of Ontario.
[5] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[6] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

11.4 CONSTRUCTION NOISE ANALYSIS

Tables 11-2 to 11-6 show the Project construction stages and the reference construction noise levels used for each stage. Table 11-7 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations. Based on the reference construction noise levels, the Project-related construction noise levels when the peak reference noise level is operating at the closest point within the center of construction activity to the nearest the sensitive receiver location will range from 42.3 to 83.2 dBA Leq.

URBAN CROSSROADS

TABLE 11-2: ROUGH/FINE GRADING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Water Truck Pass-By & Backup Alarm	71.9
Dozer Pass-By	79.6
Peak Reference Noise Level at 50 Feet (dBA Leq):	79.6

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	3,629'	-37.2	0.0	42.3
R2	2,447'	-33.8	0.0	45.8
R3	577'	-21.2	0.0	58.3
R4	54'	-0.7	0.0	78.9
R5	66'	-2.4	0.0	77.2
R6	39'	2.2	0.0	81.7
R7	61'	-1.7	0.0	77.8
R8	33'	3.6	0.0	83.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

URBAN CROSSROADS

TABLE 11-3: UNDERGROUND INFRASTRUCTURE EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Truck Pass-Bys & Dozer Activity	59.2
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Peak Reference Noise Level at 50 Feet (dBA Leq):	68.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	3,629'	-37.2	0.0	30.9
R2	2,447'	-33.8	0.0	34.4
R3	577'	-21.2	0.0	46.9
R4	54'	-0.7	0.0	67.5
R5	66'	-2.4	0.0	65.8
R6	39'	2.2	0.0	70.3
R7	61'	-1.7	0.0	66.4
R8	33'	3.6	0.0	71.8

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

URBAN CROSSROADS

TABLE 11-4: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Peak Reference Noise Level at 50 Feet (dBA Leq):	68.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	3,629'	-37.2	0.0	30.9
R2	2,447'	-33.8	0.0	34.4
R3	577'	-21.2	0.0	46.9
R4	54'	-0.7	0.0	67.5
R5	66'	-2.4	0.0	65.8
R6	39'	2.2	0.0	70.3
R7	61'	-1.7	0.0	66.4
R8	33'	3.6	0.0	71.8

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

URBAN CROSSROADS

TABLE 11-5: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Construction Vehicle Maintenance Activities	67.5
Peak Reference Noise Level at 50 Feet (dBA Leq):	67.5

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	3,629'	-37.2	0.0	30.2
R2	2,447'	-33.8	0.0	33.7
R3	577'	-21.2	0.0	46.2
R4	54'	-0.7	0.0	66.8
R5	66'	-2.4	0.0	65.1
R6	39'	2.2	0.0	69.6
R7	61'	-1.7	0.0	65.7
R8	33'	3.6	0.0	71.1

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

URBAN CROSSROADS

TABLE 11-6: PAVING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Concrete Mixer Truck Movements	71.2
Concrete Paver Activities	65.6
Concrete Mixer Pour & Paving Activities	65.9
Concrete Mixer Backup Alarms & Air Brakes	71.6
Concrete Mixer Pour Activities	67.7
Peak Reference Noise Level at 50 Feet (dBA Leq):	71.6

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	3,629'	-37.2	0.0	34.4
R2	2,447'	-33.8	0.0	37.8
R3	577'	-21.2	0.0	50.4
R4	54'	-0.7	0.0	70.9
R5	66'	-2.4	0.0	69.2
R6	39'	2.2	0.0	73.8
R7	61'	-1.7	0.0	69.9
R8	33'	3.6	0.0	75.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 11-7: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY (DBA LEQ)

Receiver Location[1]	Construction Phase Hourly Noise Level (dBA Leq)					
	Rough/Fine Grading	Underground Infrastructure	Building Construction	Architectural Coating	Paving	Peak Activity[2]
R1	42.3	30.9	30.9	30.2	34.4	42.3
R2	45.8	34.4	34.4	33.7	37.8	45.8
R3	58.3	46.9	46.9	46.2	50.4	58.3
R4	78.9	67.5	67.5	66.8	70.9	78.9
R5	77.2	65.8	65.8	65.1	69.2	77.2
R6	81.7	70.3	70.3	69.6	73.8	81.7
R7	77.8	66.4	66.4	65.7	69.9	77.8
R8	83.2	71.8	71.8	71.1	75.2	83.2

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Estimated construction noise levels during peak operating conditions.

11.5 CONSTRUCTION NOISE THRESHOLDS OF SIGNIFICANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the grading limits of Project construction. Table 11-8 shows the unmitigated peak construction noise levels at the nearby sensitive receiver locations will range from 42.3 to 83.2 dBA Leq and will satisfy the construction noise level threshold of 85 dBA Leq at the nearby sensitive receiver locations. Therefore, the construction of the Project will result in a *less than significant* noise impact at the nearby sensitive receiver locations during peak construction activity.

TABLE 11-8: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA Leq)		
	Peak Activity[2]	Threshold[3]	Threshold Exceeded?[4]
R1	42.3	85	No
R2	45.8	85	No
R3	58.3	85	No
R4	78.9	85	No
R5	77.2	85	No
R6	81.7	85	No
R7	77.8	85	No
R8	83.2	85	No

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Estimated construction noise levels during peak operating conditions, as shown on Table 11-7.
[3] Construction noise level threshold as shown on Table 4-2.
[4] Do the estimated Project construction noise levels exceed the construction noise level thresholds?

11.6 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to building, the vibration is usually short-term and is not of sufficient magnitude to cause building damage. It is not expected that heavy equipment such as large bulldozers would operate close enough to any residences to cause a vibration impact.

- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

URBAN CROSSROADS

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading and paving. Using the vibration source level of construction equipment provided on Table 6-7 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-9 presents the expected Project related vibration levels at the nearby sensitive receiver locations.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec (PPV) at a distance of 25 feet. At distances ranging from 54 to 3,629 feet from Project construction activities, construction vibration velocity levels are expected to approach 0.028 in/sec PPV, as shown on Table 11-9. Based on the County of San Bernardino vibration standard of 0.2 in/sec PPV, the construction-related vibration impacts are considered *less than significant.*

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating at the Project site perimeter. Moreover, construction at the Project site will be restricted to daytime hours consistent with City of Colton requirements thereby eliminating potential vibration impacts during the sensitive nighttime hours.

TABLE 11-9: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance To Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]				Peak Particle Vibration (PPV)	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer		
R1	3,629'	0.000	0.000	0.000	0.000	0.000	No
R2	2,447'	0.000	0.000	0.000	0.000	0.000	No
R3	577'	0.000	0.000	0.001	0.001	0.001	No
R4	54'	0.001	0.011	0.024	0.028	0.028	No
R5	66'	0.001	0.008	0.018	0.021	0.021	No
R6	39'	0.002	0.018	0.039	0.046	0.046	No
R7	61'	0.001	0.009	0.020	0.023	0.023	No
R8	33'	0.002	0.023	0.050	0.059	0.059	No

[1] Receiver locations are shown on Exhibit 11-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-7.
[3] Does the peak vibration exceed the maximum acceptable vibration threshold?

URBAN CROSSROADS

11.7 CONSTRUCTION NOISE AND VIBRATION ABATEMENT MEASURES

Though construction noise is temporary, intermittent and of short duration, and will not present any long-term impacts, the following practices would reduce any noise level increases produced by the construction equipment to the nearby noise-sensitive residential land uses.

- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 7:00 a.m. to 7:00 p.m. Monday to Saturday with no activity on Sundays and Federal holidays (County of San Bernardino Development Code, Section 83.01.080 (g)). The Project construction supervisor shall ensure compliance with the note and the City shall conduct periodic inspection at its discretion.

- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site (i.e., to the west) during all Project construction.

- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 7:00 a.m. to 7:00 p.m. Monday to Saturday with no activity on Sundays and Federal holidays). The haul route exhibit shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

12   REFERENCES

1. **Urban Crossroads, Inc.** *Roquet Ranch Specific Plan Traffic Impact Analysis.* July 2016.

2. **County of San Bernardino.** *Development Code, Performance Standards, Section 83.01.080 Noise.*

3. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.

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

5. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* June, 1995.

6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.

7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.

8. **Occupational Safety and Health Administration.** *Standard 29 CRF, Part 1910.*

9. **Center for Disease Control and Prevention.** About Hearing Loss. [Online] [Cited: 04 15, 2016.] http://www.cdc.gov/healthyschools/noise/signs.htm.

10. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* May 2006. FTA-VA-90-1003-06.

11. **Office of Planning and Research.** *State of California General Plan Guidlines 2003.* October 2003.

12. **City of Colton.** *General Plan Noise Element.* 1987.

13. —. *Municipal Code, Chapter 18.42 - Performance Standards.*

14. **National Institute for Occupational Safety and Health.** *Criteria for Recommended Standard: Occupational Noise Exposure.* June 1998.

15. **County of San Bernardino.** *Development Code, Performance Standards, Section 83.01.090 - Vibration.*

16. **City of Colton.** *Roquet Ranch Specific Plan Initial Study.* June 2016.

17. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.

18. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.

19. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*

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

21. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.

22. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

23. —. *Annual Average Daily Truck Traffic on the California Highway System.* 2014.

24. **Federal Transit Administration.** *Noise Impact Assessment Spreadsheet.* 2007.

25. **Urban Crossroads, Inc.** *Roquet Ranch Specific Plan Air Quality Impact Analysis.* July 2016.

26. **Marshall Day Acoustics.** *INSUL Sound Insulation Prediction Software (v 8.0.4).* 2014.

13   CERTIFICATION

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

Bill Lawson, P.E., INCE
Principal
URBAN CROSSROADS, INC.
41 Corporate Park, Suite 300
Irvine, CA 92606
(949) 336-5979
blawson@urbanxroads.com

EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

This page intentionally left blank

APPENDIX 3.1:

CITY OF COLTON MUNICIPAL CODE

This page intentionally left blank

Chapter 18.42 - PERFORMANCE STANDARDS

Sections:

18.42.010 - Purpose.

The purpose of this chapter is to protect Properties in all Residential Zones and the health and safety of Persons from environmental Nuisances and hazards and to provide a pleasing environment in keeping with the nature of the residential character. The Performance Standards set maximum tolerability limits on adverse environmental effects created by any Use or Development of land.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.020 - Fire and explosion hazards.

All activities involving, and all storage of, flammable and explosive Materials Shall be provided with adequate safety devices against hazards of fire and explosion by adequate firefighting and fire-suppression equipment and devices standard in Industry. Burning of waste Material in open fire is prohibited at any point.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.030 - Electrical Interference.

No operation or activity Shall transmit, generate or otherwise cause any electrical, magnetic or electromagnetic radiation disturbance that affects the operation of any Use, equipment or process employed by any Use beyond the boundary of the site.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.040 - Noise.

The maximum sound level radiated by any Use of Facility, when measured at the boundary line of the Property on which the sound is generated, Shall not be obnoxious by reason of its intensity, pitch or dynamic characteristics as determined by the City, and Shall not exceed 65 dBA.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.050 - Vibration.

All activities Shall be operated so as not to generate ground vibration by equipment other than motor Vehicles, trains or by temporary construction or Demolition, which is perceptible without instruments by the average Person at or beyond any Lot Line of the Lot containing the activities.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.060 - Smoke.

No operation or activity is Permitted to have operations which emit excessive Smoke, fumes or dust or which exceed the requirements, or levels, as specified by the South Coast Air Quality Management District (SCAQMD).

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.070 - Odors.

All activities Shall be operated so as not to emit Matter causing unpleasant odors which are perceptible by the average Person at or beyond any Lot Line of the Lot containing the activities.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.080 - Air quality.

No operation or activity Shall cause the emission of any Smoke, fly ash, dust, fumes, vapors, Gases or other forms of air Pollution which can cause damage to health, animals, vegetation, or other forms of Property, or which can cause excessive soiling on any other Lot. No emission Shall be Permitted which exceeds the requirements of the SCAQMD or the requirements of any air quality plan adopted by the City.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.090 - Light.

Lighting where provided to illuminate Private Property Shall be so arranged as to reflect away from adjoining Property or any public way and to be arranged so as not to cause a Nuisance either to Highway traffic or to the living environment.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.100 - Glare.

No direct or reflected Glare, whether produced by Floodlight, high temperature processes such as combustion or welding, or other processes, so as to be visible from the boundary line of Property on which the same is produced, Shall be Permitted. Sky-reflected Glare from Buildings or portions thereof Shall be so controlled by such reasonable means as are practical to the end art), 1992)

18.42.110 - Fissionable or radioactive Materials.

No operation or activities Shall be Permitted which result at any time in the release or emission of any fissionable or radioactive Materials into the atmosphere, the ground or Sewage systems.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.120 - Liquid or solid waste.

No operation or action Shall Discharge at any point into any Public Street, Public Sewer, private Sewage disposal system, stream, body of water or into the ground, of any Materials of such nature or temperature as can contaminate any water supply, interfere with bacterial processes in Sewage treatment, or otherwise cause the emission of dangerous or offensive elements, except in accord with standards Approved by the California Department of Public Health or such other governmental agency as Shall have jurisdiction.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

18.42.130 - Heat or cold.

No operation or activity Shall emit heat or cold which would cause a temperature increase or decrease on any adjacent Property in excess of ten degrees Fahrenheit, whether the change is in the air, on the ground, or in any Structure.

(Ord. 0-14-92 § 1 (Exh. A) (part), 1992)

This page intentionally left blank

APPENDIX 3.2:

COUNTY OF SAN BERNARDINO DEVELOPMENT CODE

This page intentionally left blank

83.01.080   Noise

This Section establishes standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses.

(a) **Noise measurement.** Noise shall be measured:

   (1) At the property line of the nearest site that is occupied by, and/or zoned or designated to allow the development of noise-sensitive land uses;

   (2) With a sound level meter that meets the standards of the American National Standards Institute (ANSI Section SI4 1979, Type 1 or Type 2);

   (3) Using the "A" weighted sound pressure level scale in decibels (ref. pressure = 20 micronewtons per meter squared). The unit of measure shall be designated as dB(A).

(b) **Noise impacted areas.** Areas within the County shall be designated as "noise-impacted" if exposed to existing or projected future exterior noise levels from mobile or stationary sources exceeding the standards listed in Subsection (d) (Noise standards for stationary noise sources) and Subsection (e) (Noise standards for adjacent mobile noise sources), below. New development of residential or other noise-sensitive land uses shall not be allowed in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels to these standards. Noise-sensitive land uses shall include residential uses, schools, hospitals, nursing homes, religious institutions, libraries, and similar uses.

(c) **Noise standards for stationary noise sources.**

   (1) Noise standards. Table 83-2 (Noise Standards for Stationary Noise Sources) describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties:

Table 83-2 Noise Standards for Stationary Noise Sources		
Affected Land Uses (Receiving Noise)	7 am-10 pm Leq	10 pm-7 am Leq
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)
Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically 1, 8 or 24 hours.		
dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.		
Ldn = (Day-Night Noise Level). The average equivalent A-weighted sound level during a 24-hour day obtained by adding 10 decibels to the hourly noise levels measured during the night (from 10 pm to 7 am). In this way Ldn takes into account the lower tolerance of people for noise during nighttime periods.		

(2) Noise limit categories. No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:

(A) The noise standard for the receiving land use as specified in Subsection B (Noise-impacted areas), above, for a cumulative period of more than 30 minutes in any hour.

(B) The noise standard plus 5 dB(A) for a cumulative period of more than 15 minutes in any hour.

(C) The noise standard plus 10 dB(A) for a cumulative period of more than five minutes in any hour.

(D) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour.

(E) The noise standard plus 20 dB(A) for any period of time.

(c) Noise standards for adjacent mobile noise sources. Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards described in the following Table 83-3 (Noise Standards for Adjacent Mobile Noise Sources).

<table>
<tr><th colspan="5">Table 83-3
Noise Standards for Adjacent Mobile Noise Sources</th></tr>
<tr><th colspan="3">Land Use</th><th colspan="2">Ldn (or CNEL) dB(A)</th></tr>
<tr><th colspan="2">Categories</th><th>Uses</th><th>Interior [1]</th><th>Exterior [2]</th></tr>
<tr><td colspan="2">Residential</td><td>Single and multi-family, duplex, mobile homes</td><td>45</td><td>60 [3]</td></tr>
<tr><td colspan="2" rowspan="4">Commercial</td><td>Hotel, motel, transient housing</td><td>45</td><td>60 [3]</td></tr>
<tr><td>Commercial retail, bank, restaurant</td><td>50</td><td>N/A</td></tr>
<tr><td>Office building, research and development, professional offices</td><td>45</td><td>65</td></tr>
<tr><td>Amphitheater, concert hall, auditorium, movie theater</td><td>45</td><td>N/A</td></tr>
<tr><td colspan="2">Institutional/Public</td><td>Hospital, nursing home, school classroom, religious institution, library</td><td>45</td><td>65</td></tr>
<tr><td colspan="2">Open Space</td><td>Park</td><td>N/A</td><td>65</td></tr>
</table>

Notes:
(1) The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.
(2) The outdoor environment shall be limited to:
- Hospital/office building patios
- Hotel and motel recreation areas
- Mobile home parks
- Multi-family private patios or balconies
- Park picnic areas
- Private yard of single-family dwellings
- School playgrounds

(3) An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.

CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7 p.m. to 10 p.m. and 10 decibels to sound levels in the night from 10 p.m. to 7 a.m.

(e) **Increases in allowable noise levels.** If the measured ambient level exceeds any of the first four noise limit categories in Subsection (d)(2), above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category in Subsection (d)(2), above, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

(f) **Reductions in allowable noise levels.** If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in Table 83-2 (Noise Standards for Stationary Noise Sources) shall be reduced by 5 dB(A).

(g) **Exempt noise.** The following sources of noise shall be exempt from the regulations of this Section:

(1) Motor vehicles not under the control of the commercial or industrial use.

(2)   Emergency equipment, vehicles, and devices.

(3)   Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

(h)   **Noise standards for other structures.** All other structures shall be sound attenuated against the combined input of all present and projected exterior noise to not exceed the criteria.

Table 83-4 Noise Standards for Other Structures	
Typical Uses	12-Hour Equivalent Sound Level (Interior) in dBA Ldn
Educational, institutions, libraries, meeting facilities, etc.	45
General office, reception, etc.	50
Retail stores, restaurants, etc.	55
Other areas for manufacturing, assembly, testing, warehousing, etc.	65

In addition, the average of the maximum levels on the loudest of intrusive sounds occurring during a 24-hour period shall not exceed 65 dBA interior.

Adopted Ordinance 4011 (2007); Amended Ordinance 4067 (2009); Amended Ordinance 4245 (2014)

83.01.090   Vibration

(a)   **Vibration standard.** No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths (0.2) inches per second measured at or beyond the lot line.

(b)   **Vibration measurement.** Vibration velocity shall be measured with a seismograph or other instrument capable of measuring and recording displacement and frequency, particle velocity, or acceleration. Readings shall be made at points of maximum vibration along any lot line next to a parcel within a residential, commercial and industrial land use zoning district.

(c)   **Exempt vibrations.** The following sources of vibration shall be exempt from the regulations of this Section.

(1)   Motor vehicles not under the control of the subject use.

(2) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

Adopted Ordinance 4011 (2007); Amended Ordinance 4067 (2009)

83.01.100   Waste Disposal

(a) **Liquid waste disposal and runoff control.** No liquids of any kind shall be discharged into a public or private sewage or drainage system, watercourse, body of water, or into the ground, except in compliance with applicable regulations of the County Code, Title 23 (Waters) of the California Code of Regulations, the California Water Code, and related Federal regulations.

(b) **Hazardous waste.** Refer to Chapter 84.11 (Hazardous Waste Facilities) for regulations relative to hazardous waste facilities.

(c) **Solid waste disposal.** Refer to Chapter 84.24 (Solid Waste/Recyclable Materials Storage) for regulations relative to solid waste disposal.

Adopted Ordinance 4011 (2007); Amended Ordinance 4067 (2009)

83.01.110   External Commercial or Industrial Activity on Private Property.

There shall be no unpermitted external commercial or industrial activity on properties subject to the County's jurisdiction between the hours of 9 p.m. and 7 a.m. that shall at any time impair the quiet enjoyment of neighboring property owners or residents or in any manner disturb the public peace.

Adopted Ordinance 4245 (2014)

This page intentionally left blank

APPENDIX 5.1:

STUDY AREA PHOTOS

This page intentionally left blank

JN:09436 Roquet Ranch

L1
34, 2' 18.084400", 117, 20' 12.753200"

L1_2
34, 2' 18.084400", 117, 20' 12.753200"

L1_E
34, 2' 18.084400", 117, 20' 12.753200"

L1_NE
34, 2' 18.084400", 117, 20' 12.753200"

L1_NW
34, 2' 18.084400", 117, 20' 12.753200"

L1_S
34, 2' 18.084400", 117, 20' 12.753200"

JN:09436 Roquet Ranch

L1_SW
34, 2' 18.084400", 117, 20' 12.753200"

L1_SW2
34, 2' 18.084400", 117, 20' 12.753200"

L1_W
34, 2' 18.084400", 117, 20' 12.753200"

L2
34, 2' 2.428800", 117, 20' 17.449900"

L2_E
34, 2' 2.428800", 117, 20' 17.449900"

L2_NE
34, 2' 2.428800", 117, 20' 17.449900"

JN:09436 Roquet Ranch

L2_NW
34, 2' 2.428800", 117, 20' 17.449900"
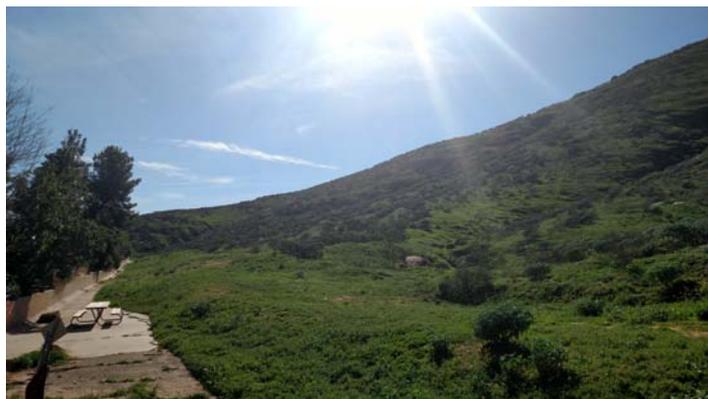
L2_S
34, 2' 2.428800", 117, 20' 17.449900"

L2_SW
34, 2' 2.428800", 117, 20' 17.449900"

L2_W
34, 2' 2.428800", 117, 20' 17.449900"

L3
34, 1' 42.420000", 117, 21' 6.668700"

L3_2
34, 1' 42.420000", 117, 21' 6.668700"

JN:09436 Roquet Ranch

L3_E
34, 1' 42.420000", 117, 21' 6.668700"

L3_N
34, 1' 42.420000", 117, 21' 6.668700"

L3_NE
34, 1' 42.420000", 117, 21' 6.668700"

L3_S
34, 1' 42.735900", 117, 21' 6.558800"

L3_W
34, 1' 42.735900", 117, 21' 6.558800"

L4
34, 1' 23.427400", 117, 21' 3.482600"

JN:09436 Roquet Ranch

L4_E
34, 1' 23.427400", 117, 21' 3.482600"

L4_E2
34, 1' 23.427400", 117, 21' 3.482600"

L4_N
34, 1' 23.427400", 117, 21' 3.482600"

L4_NE
34, 1' 23.427400", 117, 21' 3.482600"

L4_SE
34, 1' 23.427400", 117, 21' 3.482600"

L4_SW
34, 1' 23.427400", 117, 21' 3.482600"

JN:09436 Roquet Ranch

L4_W
34, 1' 23.427400", 117, 21' 3.482600"

L5
34, 1' 37.338800", 117, 20' 26.788300"

L5_2
34, 1' 37.338800", 117, 20' 26.788300"

L5_E
34, 1' 37.338800", 117, 20' 26.788300"

L5_N
34, 1' 37.338800", 117, 20' 26.788300"

L5_NE
34, 1' 37.338800", 117, 20' 26.788300"

JN:09436 Roquet Ranch

L5_NW
34, 1' 37.338800", 117, 20' 26.788300"

L5_NW2
34, 1' 37.338800", 117, 20' 26.788300"

L5_S
34, 1' 37.338800", 117, 20' 26.788300"

L6
34, 1' 25.528500", 117, 20' 22.695900"

L6_2
34, 1' 25.528500", 117, 20' 22.695900"

L6_E
34, 1' 25.528500", 117, 20' 22.695900"

JN:09436 Roquet Ranch

L6_N
34, 1' 25.501000", 117, 20' 22.503600"

L6_S
34, 1' 25.528500", 117, 20' 22.695900"

L6_W
34, 1' 25.501000", 117, 20' 22.503600"

L7
34, 1' 25.473600", 117, 20' 19.619700"

L7_2
34, 1' 25.473600", 117, 20' 19.619700"

L7_E
34, 1' 25.473600", 117, 20' 19.619700"

JN:09436 Roquet Ranch

L7_N
34, 1' 25.473600", 117, 20' 19.619700"

L7_NE
34, 1' 25.473600", 117, 20' 19.619700"

L7_NW
34, 1' 25.473600", 117, 20' 19.619700"

L7_S
34, 1' 25.473600", 117, 20' 19.619700"

L7_SW
34, 1' 25.473600", 117, 20' 19.619700"

L7_W
34, 1' 25.473600", 117, 20' 19.619700"

JN:09436 Roquet Ranch

L8
34, 1' 21.230100", 117, 20' 36.950600"

L8_E
34, 1' 21.230100", 117, 20' 36.950600"

L8_N
34, 1' 21.230100", 117, 20' 36.950600"

L8_NW
34, 1' 21.230100", 117, 20' 36.950600"

L8_NW2
34, 1' 21.230100", 117, 20' 36.950600"

L8_SW
34, 1' 21.230100", 117, 20' 36.950600"

L9
34, 1' 17.851800", 117, 20' 14.016700"

L9_E
34, 1' 17.851800", 117, 20' 14.016700"

L9_N
34, 1' 17.851800", 117, 20' 14.016700"

L9_SE
34, 1' 19.115200", 117, 20' 25.195300"

L10
34, 1' 10.655800", 117, 20' 57.714800"

L10_E
34, 1' 10.655800", 117, 20' 57.714800"

L10_N
34, 1' 10.655800", 117, 20' 57.714800"

L10_NE
34, 1' 10.655800", 117, 20' 57.714800"

L10_NW
34, 1' 10.655800", 117, 20' 57.714800"

L10_S
34, 1' 10.655800", 117, 20' 57.714800"

L10_S2
34, 1' 10.655800", 117, 20' 57.714800"

L10_SE
34, 1' 10.655800", 117, 20' 57.714800"

JN:09436 Roquet Ranch

L10_SW
34, 1' 10.655800", 117, 20' 57.714800"

L10_W
34, 1' 10.655800", 117, 20' 57.714800"

L10_W2_Trucks
34, 1' 10.655800", 117, 20' 57.714800"

PA-18_Park_E
34, 1' 25.501000", 117, 20' 22.503600"

PA-18_Park_E2
34, 1' 26.105300", 117, 20' 20.278900"

PA-18_Park_NE
34, 1' 25.501000", 117, 20' 22.503600"

JN:09436 Roquet Ranch

PA-18_Park_NE2
34, 1' 26.105300", 117, 20' 20.278900"

PA-18_Park_NW
34, 1' 25.501000", 117, 20' 22.503600"

PA-18_Park_NW2
34, 1' 25.501000", 117, 20' 22.503600"

PA-18_Park_S
34, 1' 25.501000", 117, 20' 22.503600"

PA-18_Park_SE
34, 1' 25.501000", 117, 20' 22.503600"
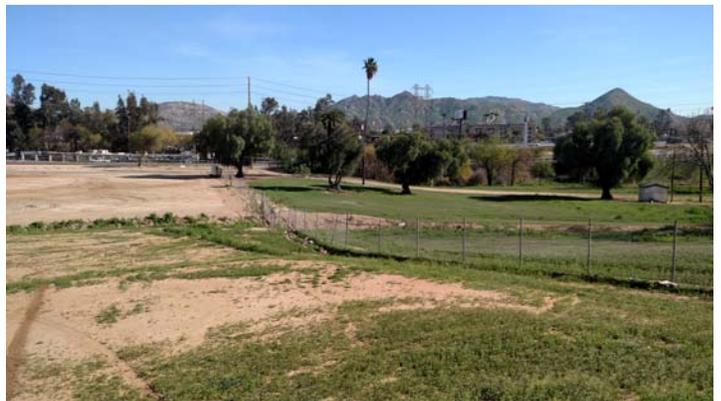
PA-18_Park_SE2
34, 1' 26.105300", 117, 20' 20.278900"

JN:09436 Roquet Ranch

PA-18_Park_SW
34, 1' 25.501000", 117, 20' 22.503600"

SantaAnaRiverTrail_E
34, 1' 58.185400", 117, 21' 19.220500"

SantaAnaRiverTrail_E2
34, 1' 58.185400", 117, 21' 19.220500"

SantaAnaRiverTrail_N
34, 1' 58.185400", 117, 21' 19.220500"

SantaAnaRiverTrail_NE
34, 1' 58.185400", 117, 21' 19.220500"

SantaAnaRiverTrail_NW
34, 1' 58.185400", 117, 21' 19.220500"

JN:09436 Roquet Ranch

SantaAnaRiverTrail_S
34, 1' 58.185400", 117, 21' 19.220500"

SantaAnaRiverTrail_SW
34, 1' 58.185400", 117, 21' 19.220500"

SiteAccess_E
34, 1' 11.905500", 117, 20' 57.989500"

SiteAccess_N
34, 1' 11.905500", 117, 20' 57.989500"

SiteAccess_N2
34, 1' 13.937900", 117, 20' 58.456400"

SiteAccess_NE
34, 1' 13.937900", 117, 20' 58.456400"

JN:09436 Roquet Ranch

SiteAccess_W
34, 1' 11.905500", 117, 20' 57.989500"

SiteAccessTrail_E
34, 1' 21.504800", 117, 21' 3.153000"

SiteAccessTrail_NW
34, 1' 13.937900", 117, 20' 58.456400"

SiteAccessTrail_SW
34, 1' 13.937900", 117, 20' 58.456400"

SiteAccessTrail_W2
34, 1' 21.504800", 117, 21' 3.153000"

SiteAccessTrail2_N
34, 1' 21.504800", 117, 21' 3.153000"

JN:09436 Roquet Ranch

SiteAccessTrail2_SW
34, 1' 21.504800", 117, 21' 3.153000"

SiteAccessTrail2_W
34, 1' 21.504800", 117, 21' 3.153000"

SiteAccessTrail3_E
34, 1' 27.684600", 117, 21' 4.691100"

SiteAccessTrail3_N
34, 1' 23.317500", 117, 21' 3.729800"

SiteAccessTrail3_NE
34, 1' 27.684600", 117, 21' 4.691100"

SiteAccessTrail4_E_Site
34, 1' 28.851900", 117, 21' 4.141800"

JN:09436 Roquet Ranch

SiteAccessTrail4_E2_Site
34, 1' 28.851900", 117, 21' 4.141800"

SiteAccessTrail4_N
34, 1' 27.684600", 117, 21' 4.691100"

SiteAccessTrail5_E
34, 1' 33.452400", 117, 21' 3.949500"

SiteAccessTrail5_E2
34, 1' 33.452400", 117, 21' 3.949500"

SiteAccessTrail5_N
34, 1' 28.851900", 117, 21' 4.141800"

SiteAccessTrail5_NE
34, 1' 33.452400", 117, 21' 3.949500"

JN:09436 Roquet Ranch

SiteAccessTrail6_E_Site
34, 1' 41.403800", 117, 21' 5.542600"

SiteAccessTrail6_N
34, 1' 41.403800", 117, 21' 5.542600"

SiteAccessTrail6_N_Site
34, 1' 41.403800", 117, 21' 5.542600"

SiteAccessTrail6_NE_Site
34, 1' 41.403800", 117, 21' 5.542600"

SiteAccessTrail6_SE
34, 1' 41.403800", 117, 21' 5.542600"

SW_Site_LookingN
34, 1' 23.317500", 117, 21' 3.729800"

JN:09436 Roquet Ranch

SW_Site_LookingNE
34, 1' 23.317500", 117, 21' 3.729800"

W_Site_LookingE
34, 1' 46.581100", 117, 21' 10.211700"

W_Site_LookingE2
34, 1' 46.581100", 117, 21' 10.211700"

W_Site_LookingNE
34, 1' 46.581100", 117, 21' 10.211700"

This page intentionally left blank

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

URBAN
CROSSROADS

This page intentionally left blank

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch

Location: L1 - Located in a vacant lot at the southwest corner of Litton Avenue and Bostick Avenue across the street from existing residential homes.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

Energy Average Leq		24-Hour
Day	Night	CNEL
55.4	54.3	61.1

Hourly Leq dBA Readings (unadjusted)

Hourly Leq (dBA) vs Hour Beginning. Series: Leq (Average) — L2% (1 Minute) — L90% (55 Minutes)

Hourly Leq values (Leq Average) by Hour Beginning: 0: 51.2, 1: 53.2, 2: 52.3, 3: 52.3, 4: 54.7, 5: 57.0, 6: 56.8, 7: 54.2, 8: 55.9, 9: 49.9, 10: 57.3, 11: 49.2, 12: 47.9, 13: 49.6, 14: 49.9, 15: 54.3, 16: 60.6, 17: 54.8, 18: 60.2, 19: 55.2, 20: 52.4, 21: 55.1, 22: 54.3, 23: 52.6
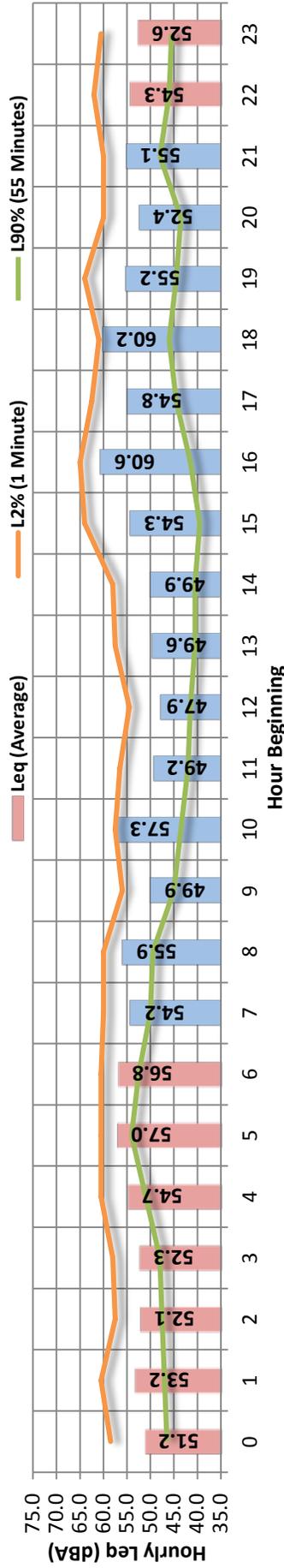
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.9	68.7	38.4	57.5	54.5	51.0	49.0	45.0	42.5	39.5	39.5	39.5
Day	Max	60.6	90.7	48.6	68.0	65.0	61.0	59.0	52.5	52.0	50.0	49.5	49.0
Energy Average		55.4	83.2	43.7	63.9	60.8	56.8	54.8	50.1	47.6	45.2	44.7	44.2
Night	Min	51.2	64.6	43.4	58.5	57.5	56.0	54.5	50.0	48.0	45.5	44.5	44.0
Night	Max	57.0	75.2	52.3	63.5	62.0	59.5	58.5	57.0	56.0	54.0	53.5	53.0
Energy Average		54.3	70.8	47.8	61.6	60.0	58.1	57.0	54.2	52.3	49.7	49.2	48.5

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Night	0	51.2	69.2	45.4	60.0	58.5	56.0	54.5	50.0	48.0	46.5	46.0	45.5
Night	1	53.2	67.3	44.9	62.0	60.5	58.5	57.0	52.5	49.5	47.0	46.5	45.5
Night	2	52.1	66.3	44.4	58.5	57.5	56.0	55.0	53.0	50.0	47.5	46.5	45.5
Night	3	52.3	65.8	46.7	59.0	58.0	56.0	55.5	52.5	50.0	48.0	47.5	47.0
Night	4	54.7	64.6	49.0	61.5	60.5	58.5	57.5	55.0	53.0	51.0	50.5	50.0
Night	5	57.0	75.2	52.3	62.0	60.5	59.0	58.5	57.0	54.0	54.0	53.5	53.0
Night	6	56.8	73.5	50.3	62.5	60.5	59.0	58.5	57.0	56.0	52.5	52.0	51.0
Day	7	54.2	75.3	48.6	63.0	60.0	56.0	54.5	52.5	52.0	50.0	49.5	49.0
Day	8	55.9	83.3	48.4	62.5	60.0	56.0	54.0	51.5	50.5	49.5	49.0	48.5
Day	9	49.9	69.9	42.9	58.0	56.0	53.5	51.5	49.0	47.5	45.0	44.5	44.0
Day	10	57.3	86.0	41.7	60.0	57.5	55.0	53.5	51.0	47.0	43.5	42.5	42.5
Day	11	49.2	68.7	40.8	57.5	56.5	54.0	52.5	49.0	46.0	42.0	41.5	41.5
Day	12	47.9	70.7	39.4	57.5	54.5	51.0	49.0	45.5	43.0	41.5	40.5	40.5
Day	13	49.6	71.5	39.4	61.0	57.5	53.5	51.5	46.0	43.0	40.5	40.0	39.5
Day	14	49.9	72.3	39.5	61.0	58.0	53.0	50.5	45.0	42.5	40.5	39.5	39.5
Day	15	54.3	77.5	38.4	67.5	64.0	56.5	53.0	47.0	43.5	39.5	39.5	39.5
Day	16	60.6	89.8	39.4	68.0	65.0	61.0	59.0	51.0	45.5	41.5	40.5	39.5
Day	17	54.8	76.6	43.2	65.0	62.5	58.5	56.5	50.5	47.0	44.5	44.0	43.5
Day	18	60.2	90.7	44.3	64.5	61.0	58.0	56.5	51.0	48.5	46.0	45.5	45.0
Day	19	55.2	76.9	42.5	67.5	64.0	60.0	56.5	49.5	46.5	44.5	44.0	43.0
Day	20	52.4	72.1	41.7	62.5	60.0	57.0	56.0	51.5	47.5	43.5	42.5	42.0
Day	21	55.1	80.4	46.3	63.5	60.0	57.5	56.0	52.5	50.5	48.0	47.5	47.0
Night	22	54.3	72.1	43.4	63.5	62.0	59.5	58.0	54.0	50.0	46.0	45.5	44.0
Night	23	52.6	70.6	43.6	62.5	60.5	58.5	56.0	51.5	49.0	45.5	44.5	44.0

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch
Location: L2 - Located north of the cul-de-sac of Palm Avenue across from existing single-family homes, east of the Project site.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

	24-Hour CNEL
	60.2

Energy Average Leq	
Day	Night
50.3	54.0

Hourly Leq dBA Readings (unadjusted)

Legend: Leq (Average); L2% (1 Minute); L90% (55 Minutes)

Hourly Leq (dBA) by Hour Beginning:

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Leq	51.0	52.5	54.1	51.7	55.0	57.4	55.6	52.6	51.5	53.1	47.8	44.1	45.5	50.4	50.9	47.7	50.4	48.3	48.8	50.9	52.7	52.3	52.3	51.6

Hourly Summary
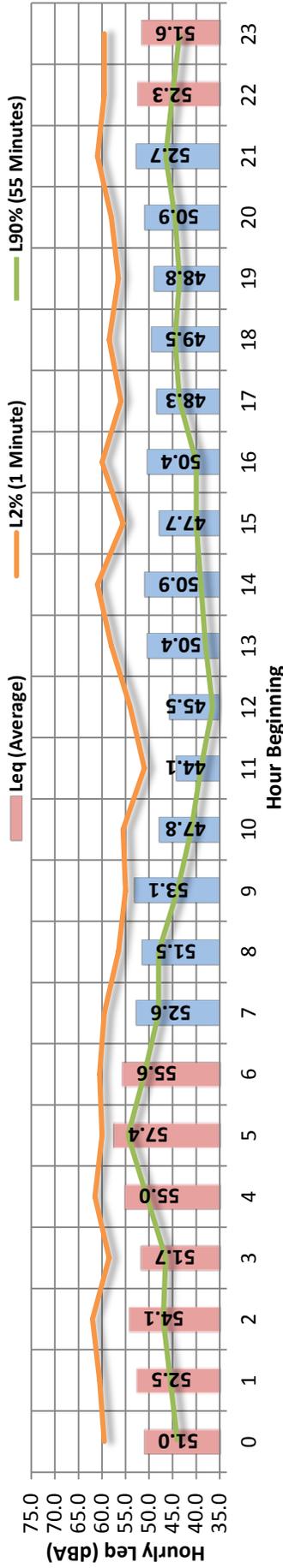
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	44.1	58.7	36.0	52.5	51.0	48.5	47.0	43.0	40.0	36.5	36.0	36.0
Day	Max	53.1	81.1	45.9	63.0	61.0	59.0	56.0	52.0	50.5	48.0	47.5	46.5
Energy Average		50.3	73.4	41.8	60.0	57.8	54.6	52.6	48.3	46.3	43.8	43.2	42.4
Night	Min	51.0	66.7	41.4	60.0	58.5	56.0	54.5	49.5	46.5	43.5	43.0	42.0
Night	Max	57.4	76.8	53.2	64.0	62.0	59.5	59.0	57.5	56.5	54.5	54.0	53.5
Energy Average		54.0	70.5	47.5	61.9	60.3	58.3	56.9	53.7	51.6	49.1	48.6	48.0
Night	0	51.0	67.2	41.4	61.0	59.5	57.5	54.5	49.5	47.0	44.0	43.5	42.5
Night	1	52.5	67.2	42.9	62.5	60.5	58.5	56.5	51.5	48.0	45.5	45.0	44.0
Night	2	54.1	71.0	44.8	64.0	62.0	59.0	57.0	53.5	50.0	47.0	46.5	45.5
Night	3	51.7	66.8	44.5	60.0	58.5	56.0	54.5	51.0	48.5	46.5	46.0	45.5
Night	4	55.0	69.4	48.9	63.0	61.5	58.5	57.5	55.0	53.0	50.5	50.0	49.5
Night	5	57.4	76.8	53.2	62.0	60.0	59.0	58.5	57.5	56.5	54.5	54.0	53.5
Night	6	55.6	66.7	49.3	61.0	60.5	59.5	59.0	56.0	54.0	51.0	50.5	50.0
Day	7	52.6	68.7	45.9	63.0	59.5	55.0	53.5	51.5	50.5	48.0	47.0	46.5
Day	8	51.5	75.4	45.8	58.5	56.5	53.5	52.5	51.0	50.0	48.0	47.5	46.5
Day	9	53.1	81.1	41.6	59.0	55.0	51.5	49.5	47.0	46.0	44.0	43.5	42.5
Day	10	47.8	68.9	38.6	58.5	55.5	51.5	50.0	46.0	43.5	41.0	40.0	39.0
Day	11	44.1	58.7	37.7	52.5	51.0	48.5	47.0	44.0	41.5	39.0	39.0	37.5
Day	12	45.5	66.1	36.0	56.5	54.0	50.5	48.5	43.0	40.0	36.5	36.0	36.0
Day	13	50.4	79.6	36.0	61.5	58.0	53.5	51.0	45.5	42.0	38.0	37.5	36.5
Day	14	50.9	65.9	37.3	62.0	61.0	59.0	55.5	47.5	43.0	39.0	38.0	37.5
Day	15	47.7	62.8	37.7	57.5	55.5	53.0	52.0	46.5	43.5	40.0	39.0	37.5
Day	16	50.4	70.1	38.0	61.5	60.0	56.5	54.0	46.5	43.0	40.0	40.0	39.0
Day	17	48.3	61.8	41.5	58.0	56.0	53.5	52.0	47.0	45.5	43.5	43.0	42.5
Day	18	49.5	67.1	43.4	60.5	58.5	54.0	51.5	47.5	46.0	44.5	44.5	44.0
Day	19	48.8	66.6	41.9	58.0	56.5	53.0	51.0	47.5	46.0	43.5	43.0	42.5
Day	20	50.9	72.9	41.8	59.5	58.0	56.0	55.0	50.0	47.5	44.5	43.5	42.5
Day	21	52.7	69.4	45.0	62.5	61.0	57.5	56.0	52.0	49.5	46.5	46.0	45.5
Night	22	52.3	67.8	43.7	62.0	59.5	57.5	56.0	51.0	48.0	45.0	45.0	44.5
Night	23	51.6	66.8	41.4	60.5	59.5	58.5	56.5	50.5	46.5	43.5	43.0	42.0

URBAN CROSSROADS

124

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch

Location: L3 - Located west of the Project site along an existing trail near the future location of Planning Area 1 residential homes.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

	Energy Average Leq		24-Hour
	Day	Night	CNEL
	48.8	52.7	58.9

Hourly Leq dBA Readings (unadjusted)

Legend: ▬ Leq (Average) ▬ L2% (1 Minute) ▬ L90% (55 Minutes)

Chart axis: Hourly Leq (dBA), Hour Beginning (0–23)

Hourly Leq values plotted: 50.0, 50.8, 52.8, 51.9, 54.1, 54.3, 55.9, 54.2, 53.2, 46.5, 45.9, 45.8, 44.5, 43.8, 45.6, 46.5, 47.9, 49.6, 48.5, 47.6, 47.3, 48.9, 50.3, 50.2
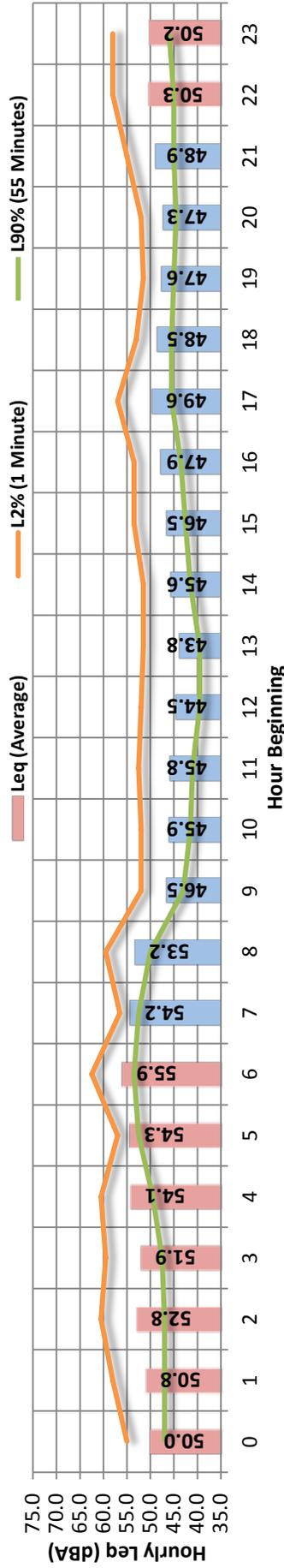
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	43.8	58.1	39.0	52.5	51.5	48.5	47.0	42.0	40.5	39.5	39.5	39.5
	Max	54.2	68.7	51.3	62.5	59.5	55.5	55.5	54.0	53.5	52.5	52.0	51.5
Energy Average		48.8	63.0	44.4	56.2	54.3	51.7	50.8	48.5	47.5	45.7	45.3	44.8
Night	Min	50.0	65.9	43.2	58.0	55.0	52.0	51.0	48.5	47.5	45.0	45.0	44.0
	Max	55.9	71.7	51.6	65.0	62.5	58.0	56.5	55.5	54.5	53.5	53.0	52.0
Energy Average		52.7	69.0	47.6	61.6	59.3	55.9	54.5	52.0	50.8	49.3	48.8	48.1

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Night	0	50.0	68.8	45.6	58.5	55.0	52.0	51.0	49.0	48.0	47.0	46.5	46.0
	1	50.8	67.2	45.8	59.5	58.0	54.5	53.0	50.0	48.5	47.0	46.5	46.5
	2	52.8	71.1	44.9	63.0	60.5	58.0	56.0	51.5	48.5	47.0	46.5	45.5
	3	51.9	70.1	46.0	63.0	59.5	55.5	53.5	50.0	48.5	47.5	47.0	46.5
	4	54.1	69.0	48.0	62.0	60.5	57.5	56.0	53.5	52.5	49.5	49.0	48.5
	5	54.3	65.9	50.5	58.0	57.0	56.0	55.5	54.5	53.5	52.5	52.0	51.0
	6	55.9	71.7	51.6	65.0	62.5	57.5	56.5	55.5	54.5	53.5	53.0	52.0
Day	7	54.2	66.8	51.3	58.0	56.5	55.5	55.5	54.0	53.5	52.5	52.0	51.5
	8	53.2	68.7	48.6	62.5	59.5	54.5	53.5	52.5	52.0	50.0	49.5	49.0
	9	46.5	58.5	39.7	53.5	52.0	50.5	49.5	46.5	45.0	43.0	41.0	39.5
	10	45.9	58.1	39.7	53.5	52.0	50.0	49.0	46.0	44.0	41.5	41.0	40.0
	11	45.8	59.4	39.7	55.0	52.5	50.5	49.0	45.0	43.5	41.0	40.5	40.0
	12	44.5	63.0	39.0	53.5	52.0	49.5	48.0	43.5	41.0	39.5	39.5	39.5
	13	43.8	60.2	39.4	53.5	51.5	48.5	47.0	42.0	40.5	39.5	39.5	39.5
	14	45.6	59.1	39.6	53.0	51.5	49.0	48.5	45.5	44.0	41.5	41.0	39.5
	15	46.5	63.3	41.0	56.0	53.5	50.0	49.0	45.5	44.0	42.5	42.0	41.5
	16	47.9	65.2	41.5	55.0	53.5	51.5	50.5	48.0	46.5	43.5	43.0	42.5
	17	49.6	61.3	44.4	57.5	57.0	54.5	53.0	49.0	47.5	45.5	45.0	45.0
	18	48.5	61.5	44.5	54.0	53.0	51.0	50.0	48.5	47.5	45.5	45.5	45.0
	19	47.6	60.1	43.8	52.5	51.5	49.5	49.0	48.0	47.0	45.0	45.0	44.5
	20	47.3	59.3	43.3	53.5	52.0	49.5	49.0	47.5	46.5	44.5	44.5	44.0
	21	48.9	62.7	43.6	57.0	55.0	53.0	51.5	48.5	47.0	45.0	45.0	44.0
Night	22	50.3	66.4	43.2	59.5	58.0	55.5	54.0	49.5	47.5	45.0	45.0	44.0
	23	50.2	66.3	44.8	61.0	58.0	53.5	51.5	48.5	47.5	46.0	45.5	45.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch

Location: L4 - Located west of the Project site along an existing trail, near the future location of Planning Area 3 residential homes.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

	Energy Average Leq		24-Hour
	Day	Night	CNEL
	50.2	53.2	59.4

Hourly Leq dBA Readings (unadjusted)

Hourly Leq (dBA) vs. Hour Beginning. Legend: Leq (Average); L2% (1 Minute); L90% (55 Minutes)

Hour Beginning	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Leq	50.7	50.9	52.8	52.0	55.5	54.8	55.9	56.3	53.0	45.8	45.3	45.8	43.6	46.0	47.6	48.6	52.1	50.7	49.8	48.3	49.6	50.2	51.1	49.9

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	43.6	55.7	38.9	51.5	51.0	47.5	46.0	42.0	41.0	40.0	39.5	38.5
	Max	56.3	70.2	54.1	61.5	58.5	57.5	57.0	56.5	55.5	55.0	54.5	54.5
Energy Average		50.2	64.0	45.9	56.8	54.5	52.6	51.8	50.2	49.0	47.3	46.9	46.5
Night	Min	49.9	57.2	45.5	53.5	52.5	52.0	51.5	50.0	49.0	47.5	47.0	46.0
	Max	55.9	73.9	53.6	62.0	60.0	58.0	57.0	56.0	55.5	54.5	54.5	54.0
Energy Average		53.2	69.0	49.4	59.9	57.6	55.4	54.5	53.0	52.1	50.6	50.3	49.9
Night	0	50.7	65.8	46.6	59.5	57.0	53.0	52.0	50.0	49.0	47.5	47.5	47.0
	1	50.9	71.1	45.6	58.0	55.5	53.0	52.0	50.0	49.0	47.5	47.0	46.5
	2	52.8	73.9	46.9	62.0	59.5	56.0	54.5	51.0	50.0	48.5	48.0	47.5
	3	52.0	66.4	48.2	58.5	56.0	54.0	53.0	52.0	51.0	50.0	49.5	49.0
	4	55.5	70.1	52.0	62.0	60.0	58.0	57.0	55.5	54.5	53.0	52.5	52.5
	5	54.8	66.3	50.6	60.5	58.0	56.5	56.0	55.0	54.5	52.0	51.5	51.0
	6	55.9	69.4	53.6	61.0	58.0	56.5	56.5	56.0	55.5	54.5	54.5	54.0
	7	56.3	66.4	54.1	60.0	58.5	57.5	57.0	56.5	55.5	55.0	54.5	54.5
	8	53.0	69.0	44.5	60.5	58.0	56.0	55.5	54.0	52.0	45.5	45.5	45.5
	9	45.8	57.5	41.0	54.0	52.0	49.5	48.0	45.5	44.0	42.5	42.0	41.5
	10	45.3	62.1	40.1	56.5	52.0	49.0	47.5	43.5	42.5	41.5	41.0	41.0
	11	45.8	61.8	39.5	55.0	53.5	51.0	49.0	44.5	42.5	41.0	40.5	40.0
	12	43.6	59.8	38.9	53.5	51.0	47.5	46.0	42.0	41.0	40.0	39.5	38.5
	13	46.0	60.0	39.5	53.5	52.0	50.0	49.0	46.5	44.0	41.0	40.5	40.0
Day	14	47.6	62.7	43.2	54.0	52.0	50.5	49.5	47.5	46.0	44.5	44.5	44.0
	15	48.6	61.9	42.9	55.0	53.0	51.0	50.5	48.5	47.5	45.5	45.5	44.5
	16	52.1	70.2	45.3	61.5	58.0	54.0	53.0	50.5	49.5	47.5	46.5	46.0
	17	50.7	62.3	46.6	55.0	54.0	52.5	52.0	51.0	50.0	48.5	48.0	47.5
	18	49.8	60.8	45.3	56.0	53.5	52.0	51.5	50.0	49.0	47.5	47.0	46.0
	19	48.3	55.7	45.2	51.5	51.0	50.5	50.0	48.5	48.0	46.5	46.5	46.0
	20	49.6	60.0	45.9	55.0	53.5	52.0	51.0	49.5	49.0	47.5	47.0	46.5
	21	50.2	62.1	44.6	56.0	54.5	53.5	52.5	50.5	49.0	46.5	46.0	45.0
Night	22	51.1	64.1	45.5	59.5	58.0	55.5	54.0	50.5	49.0	47.5	47.0	46.0
	23	49.9	57.2	46.2	53.5	52.5	52.0	51.5	50.5	49.0	47.5	47.5	47.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch
Location: L5 - Located east of the Project site where Lark Street turns south into Lomita Lane adjacent to existing residential homes.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

Energy Average Leq		24-Hour
Day	Night	CNEL
52.9	56.8	63.1

Hourly Leq dBA Readings (unadjusted)

Hourly Leq (dBA) vs Hour Beginning — Leq (Average), L2% (1 Minute), L90% (55 Minutes)

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Leq	59.1	56.9	55.5	56.0	57.1	57.0	55.8	54.4	52.4	50.5	50.0	47.8	48.0	48.6	47.0	52.4	52.7	51.4	52.9	56.1	57.4	55.8	56.2	56.8

Summary
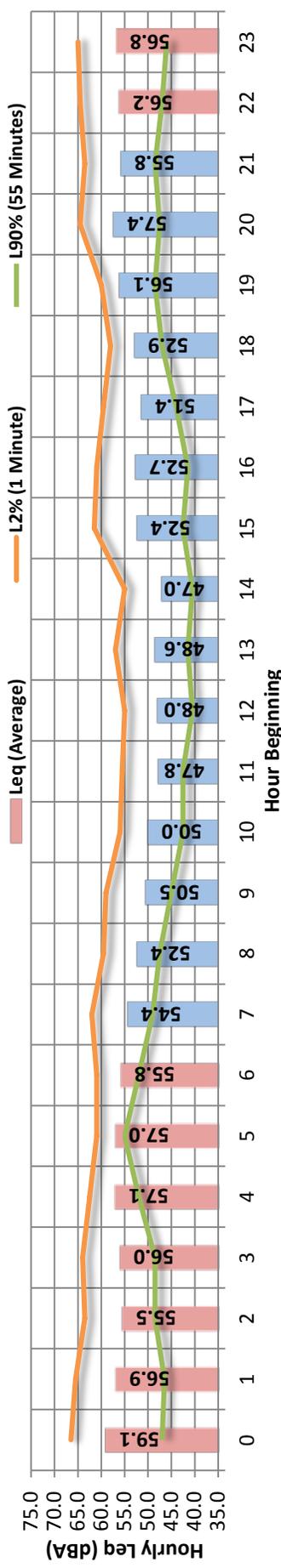
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.0	61.8	37.8	57.0	55.0	51.5	49.5	45.0	42.5	40.5	40.0	39.5
	Max	57.4	81.8	48.0	67.0	64.5	62.0	60.5	53.5	51.5	49.0	49.0	48.5
Energy Average		52.9	76.0	43.5	62.9	60.1	56.7	55.0	50.2	48.1	45.6	45.0	44.2
Night	Min	55.5	71.5	43.2	62.0	61.0	58.5	57.5	51.5	49.0	46.0	45.5	44.5
	Max	59.1	84.3	53.5	71.0	66.5	63.5	60.5	57.0	56.0	55.0	54.5	54.0
Energy Average		56.8	80.2	48.6	66.5	64.1	61.2	59.0	54.3	52.4	50.3	49.8	49.2

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Night	0	59.1	82.1	45.3	71.0	66.5	61.5	59.0	53.0	49.0	47.0	46.5	46.0
	1	56.9	82.0	44.5	66.5	65.5	62.5	59.5	52.0	49.0	46.5	46.0	45.0
	2	55.5	77.9	46.0	66.0	63.5	60.0	58.0	53.5	51.5	45.0	47.5	46.5
	3	56.0	74.7	46.8	66.0	64.0	62.0	59.5	54.0	53.5	48.5	48.5	47.5
	4	57.1	76.6	50.4	66.0	62.5	60.5	60.0	56.0	56.0	48.5	51.5	51.0
	5	57.0	71.5	53.5	62.0	61.0	59.0	58.5	57.0	55.0	52.0	54.5	54.0
	6	55.8	71.9	50.7	62.5	61.0	58.5	57.5	56.0	55.0	52.0	51.5	51.0
Day	7	54.4	73.3	48.0	66.0	62.0	58.0	56.0	52.5	51.5	49.0	49.0	48.5
	8	52.4	71.5	45.1	61.5	59.5	55.0	53.5	51.0	49.5	47.5	46.5	46.0
	9	50.5	70.6	43.2	61.0	59.0	53.5	52.0	49.5	47.0	45.0	44.5	44.0
	10	50.0	75.3	39.5	57.5	56.0	52.0	51.0	47.5	45.5	42.5	42.0	40.5
	11	47.8	61.8	40.8	57.0	55.5	53.0	51.5	47.5	45.0	42.5	42.0	41.5
	12	48.0	71.1	39.4	58.5	55.0	51.5	49.5	45.0	42.5	40.5	40.0	39.5
	13	48.6	70.1	39.4	60.5	57.0	52.5	50.0	46.5	44.0	41.5	40.5	39.5
	14	47.0	63.6	37.8	57.5	55.0	51.5	50.0	46.0	43.0	40.5	40.0	40.0
	15	52.4	72.0	39.3	63.0	61.5	58.0	55.5	49.5	46.0	42.5	41.5	40.5
	16	52.7	75.4	39.5	63.5	61.0	56.5	54.5	48.0	45.0	41.5	41.5	40.5
	17	51.4	71.5	41.7	61.5	59.5	56.0	54.0	50.0	47.5	44.0	43.5	43.0
	18	52.9	79.2	44.9	63.5	58.0	54.5	52.5	50.5	49.0	47.0	46.5	45.5
	19	56.1	81.8	45.9	64.0	60.0	56.0	54.5	52.0	50.5	48.5	48.0	46.5
	20	57.4	81.7	43.1	67.0	64.5	62.0	60.5	53.0	51.0	47.5	46.0	44.5
	21	55.8	75.9	46.9	66.0	63.5	61.0	59.5	53.5	50.5	48.5	48.0	47.5
Night	22	56.2	84.3	45.4	66.0	64.5	60.5	57.5	52.0	49.5	47.0	47.0	46.0
	23	56.8	82.7	43.2	66.0	65.0	63.5	60.5	51.5	49.0	46.0	45.5	44.5

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch

Location: L6 - Located within the Project site, north of the proposed park in Planning Area 18 and adjacent to Planning Area 8 townhomes.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

	Energy Average Leq		24-Hour
	Day	Night	CNEL
	55.7	59.4	65.7

Hourly Leq dBA Readings (unadjusted)

Hour Beginning	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Hourly Leq (dBA)	59.3	57.4	57.6	61.5	59.6	61.1	59.0	57.5	55.2	53.5	51.6	52.3	50.7	51.8	50.9	52.7	54.0	57.3	56.9	57.9	59.7	58.3	57.5	59.9

Legend: Leq (Average) — L2% (1 Minute) — L90% (55 Minutes)
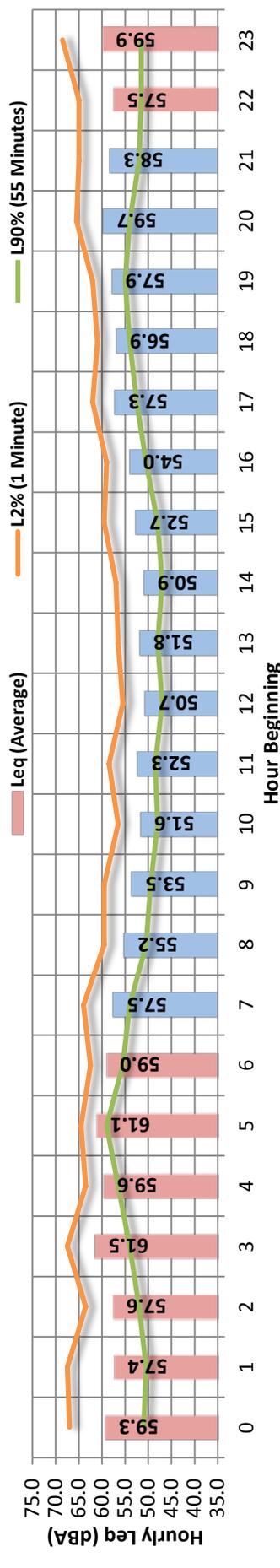
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.7	63.2	44.9	56.5	55.5	54.0	53.0	51.0	49.5	47.0	46.5	45.5
	Max	59.7	82.8	53.3	67.5	65.5	63.5	62.5	58.0	57.0	55.0	54.5	54.0
Energy Average		55.7	74.6	49.1	63.0	61.2	59.0	57.8	55.2	53.7	51.4	50.9	49.9
Night	Min	57.4	67.8	48.4	63.0	62.5	61.0	59.5	55.0	52.5	50.5	50.0	49.0
	Max	61.5	82.1	57.8	71.0	68.5	65.5	64.0	61.0	60.0	59.0	58.5	58.0
Energy Average		59.4	78.4	52.8	68.1	66.0	63.1	61.9	58.7	56.6	54.5	54.1	53.3

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Night	0	59.3	81.3	48.6	70.5	67.0	63.5	62.0	57.5	53.5	51.0	50.5	49.5
	1	57.4	70.3	48.4	68.0	67.5	62.5	61.0	56.0	52.5	50.5	50.0	49.0
	2	57.6	75.7	48.9	66.0	63.5	61.0	60.0	57.5	55.0	52.0	51.5	50.0
	3	61.5	82.1	52.2	71.0	67.5	65.0	64.0	60.0	58.0	54.0	53.5	53.0
	4	59.6	73.5	54.3	65.0	63.5	62.0	61.5	60.0	58.5	56.5	56.0	55.0
	5	61.1	77.9	57.8	66.0	64.5	62.5	62.0	61.0	60.0	59.0	58.5	58.0
	6	59.0	67.8	54.3	63.0	62.5	62.0	61.5	60.5	57.5	55.5	55.5	55.0
Day	7	57.5	77.0	51.9	66.0	64.0	60.0	58.5	56.0	55.0	54.0	53.5	52.5
	8	55.2	77.2	47.7	63.0	59.5	57.5	56.5	55.0	53.5	50.5	49.5	48.5
	9	53.5	68.5	47.0	61.5	59.5	56.5	55.5	53.5	52.0	49.5	49.0	48.0
	10	51.6	63.2	45.7	57.5	56.5	55.0	54.0	52.0	50.5	48.0	47.5	46.5
	11	52.3	67.9	45.6	60.0	58.5	56.0	54.5	52.0	50.5	48.5	47.5	46.5
	12	50.7	63.4	45.3	56.5	55.5	54.0	53.0	51.0	49.5	47.0	46.5	45.5
	13	51.8	67.7	45.8	58.5	56.5	54.5	53.5	51.5	50.5	48.0	47.5	46.5
	14	50.9	63.3	44.9	58.0	57.0	55.0	53.5	51.0	49.5	47.0	46.5	45.5
	15	52.7	67.3	45.2	61.0	59.5	56.5	55.0	52.5	51.0	48.0	47.5	46.5
	16	54.0	66.6	48.0	61.0	59.0	57.5	56.5	54.5	52.5	50.5	49.5	48.5
	17	57.3	76.9	49.8	64.5	62.0	59.5	59.0	57.5	55.5	52.5	52.0	51.0
	18	56.9	66.1	51.8	62.5	61.0	59.5	59.0	57.0	56.0	54.0	53.5	52.5
	19	57.9	71.1	53.3	63.5	62.0	60.5	59.5	58.0	57.0	55.0	54.5	54.0
	20	59.7	82.8	51.4	67.5	65.5	63.5	61.0	58.0	56.5	54.0	53.5	52.5
	21	58.3	75.4	49.5	66.5	65.0	63.5	62.5	57.5	55.0	52.0	51.5	50.5
Night	22	57.5	79.9	48.9	68.0	65.0	61.5	59.5	55.0	53.5	51.5	51.0	50.0
	23	59.9	79.5	50.2	69.5	68.5	65.5	63.5	57.0	54.0	51.5	51.0	50.5

URBAN CROSSROADS

128

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch
JN: 9436
Analyst: A. Wolfe
Location: L7 - Located within the Project site at the future location of Planning Area 8 townhomes, adjacent to South La Cadena Drive.
Date: 2/3/2015

	Energy Average Leq		24-Hour
	Day	Night	CNEL
	61.2	60.2	67.3

Hourly Leq dBA Readings (unadjusted)

Legend: Leq (Average) · L2% (1 Minute) · L90% (55 Minutes)

Hour (Hour Beginning)	Hourly Leq (dBA)
0	56.7
1	58.5
2	57.7
3	57.6
4	62.0
5	60.7
6	62.3
7	62.2
8	61.2
9	59.8
10	58.4
11	57.3
12	57.2
13	56.3
14	57.6
15	57.4
16	59.9
17	60.9
18	64.5
19	62.5
20	66.2
21	61.5
22	59.9
23	62.2
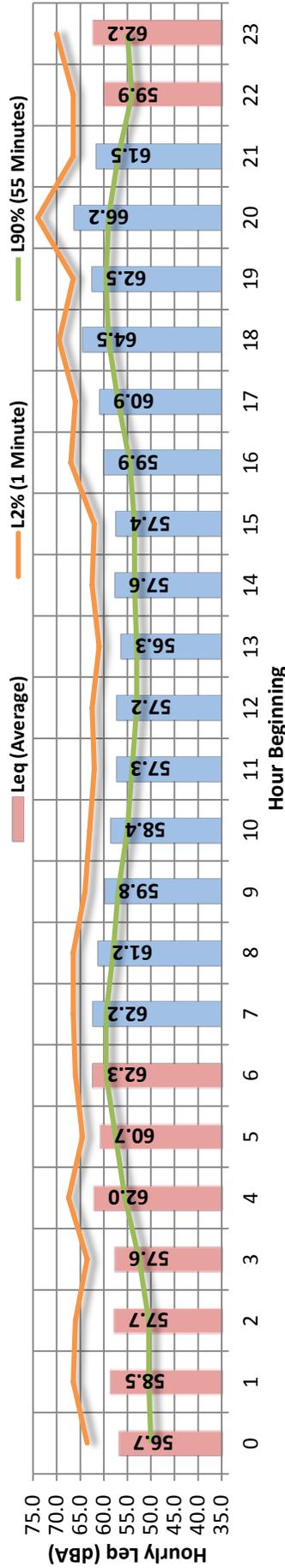
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	56.3	66.7	49.8	62.0	61.0	59.5	58.5	56.5	55.5	53.0	52.5	51.0
	Max	66.2	88.6	58.1	78.0	74.0	67.0	65.5	63.0	61.5	59.5	59.0	58.5
Energy Average		61.2	80.2	54.1	69.9	66.9	63.7	62.6	60.4	59.1	56.8	56.2	55.2
Night	Min	56.7	70.8	47.3	65.0	63.5	61.0	59.5	55.5	53.0	50.0	49.5	48.5
	Max	62.3	81.9	57.1	73.5	70.0	66.5	64.0	62.5	61.5	59.5	59.5	58.5
Energy Average		60.2	78.1	52.4	68.8	66.5	63.8	62.6	59.6	57.9	55.0	54.7	53.6

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Night	0	56.7	76.0	47.9	66.0	63.5	61.0	59.5	55.5	53.0	50.0	49.5	48.5
	1	58.5	79.6	48.4	68.5	66.5	62.5	61.0	57.0	54.0	50.5	50.0	49.0
	2	57.7	73.6	47.3	66.5	66.0	62.5	61.5	57.5	54.0	50.5	49.5	48.5
	3	57.6	75.7	48.9	65.0	63.5	61.5	60.5	57.5	56.0	52.5	51.5	50.5
	4	62.0	81.9	52.8	70.5	67.5	65.0	64.0	60.5	59.0	55.5	55.0	53.5
	5	60.7	70.8	54.9	66.0	64.5	63.0	62.5	61.0	60.0	57.5	57.0	56.0
	6	62.3	76.5	57.1	67.5	66.0	64.5	64.0	62.5	61.5	59.5	59.5	58.5
Day	7	62.2	74.2	58.1	67.5	66.5	65.0	64.0	62.5	61.0	59.5	59.0	58.5
	8	61.2	75.2	55.7	68.0	66.5	64.0	63.0	61.5	60.0	58.0	57.5	56.5
	9	59.8	71.1	54.7	66.0	64.0	62.5	61.5	60.0	59.0	57.0	57.0	56.0
	10	58.4	70.4	52.5	65.0	63.0	61.0	60.5	58.5	57.5	55.0	54.5	53.5
	11	57.3	66.9	50.5	63.5	62.0	60.5	59.5	57.5	56.5	54.0	53.5	51.5
	12	57.2	73.6	50.3	65.0	62.5	60.0	59.0	57.0	56.0	53.0	52.5	51.5
	13	56.3	66.7	49.8	66.0	61.0	59.5	58.5	56.5	55.5	53.0	52.5	51.0
	14	57.6	71.3	50.0	64.0	62.5	60.5	60.0	58.0	56.5	53.5	53.0	51.5
	15	57.4	75.7	50.9	64.0	62.0	60.5	59.5	57.5	56.0	53.5	53.0	51.5
	16	59.9	77.8	52.2	70.0	67.0	64.0	62.0	59.0	57.5	54.5	54.0	53.0
	17	60.9	78.6	54.1	67.0	66.0	64.0	63.0	61.0	59.5	57.0	56.5	55.5
	18	64.5	86.0	55.5	74.0	69.5	66.5	65.5	63.0	61.5	59.0	58.0	57.0
	19	62.5	79.9	55.6	68.0	66.5	65.0	64.0	62.5	61.5	59.5	58.5	57.5
	20	66.2	88.6	56.3	78.0	74.0	67.0	65.5	62.5	61.0	59.0	58.5	57.0
	21	61.5	78.3	54.4	68.0	66.5	65.5	64.5	61.5	59.5	57.0	56.5	55.5
Night	22	59.9	74.8	50.7	67.5	66.5	65.0	63.5	60.0	57.5	54.0	53.5	52.5
	23	62.2	81.6	52.5	73.5	70.0	66.5	64.0	60.0	58.0	55.0	54.5	53.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch
Location: L8 - Located south of the Project site within an existing mobile home community.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

	Energy Average Leq		24-Hour
	Day	Night	CNEL
	51.9	55.9	62.1

Hourly Leq dBA Readings (unadjusted)

Legend: Leq (Average) — L2% (1 Minute) — L90% (55 Minutes)

Hour Beginning	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Hourly Leq (dBA)	53.3	56.2	55.8	53.4	57.8	57.3	57.1	55.2	53.5	50.0	49.2	49.4	47.4	46.8	48.4	47.3	49.0	50.4	53.8	52.2	54.1	56.0	55.4	54.0
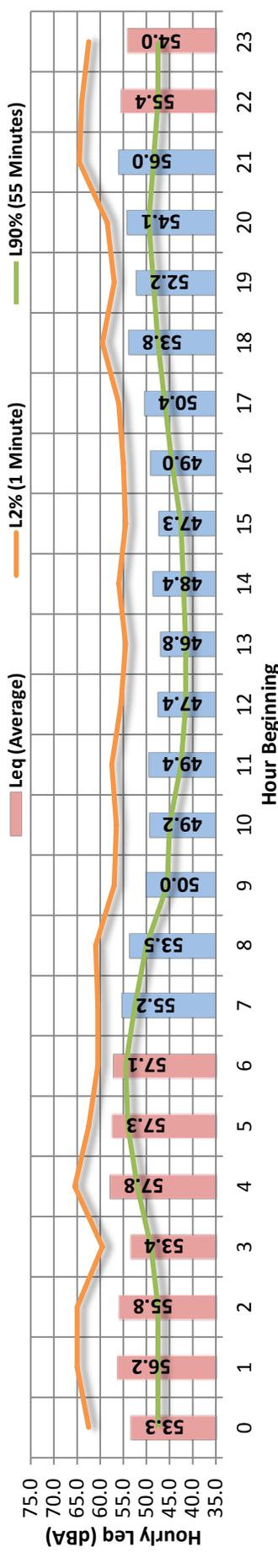
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	46.8	61.3	39.5	56.5	54.5	51.0	49.0	45.5	43.5	41.5	41.0	40.5
Day	Max	56.0	76.8	51.2	69.0	64.5	59.0	57.0	54.5	54.0	52.5	52.0	52.0
Energy Average		51.9	72.0	45.2	61.6	58.6	55.0	53.5	50.6	49.1	47.2	46.7	46.0
Night	Min	53.3	70.9	45.4	63.0	59.5	56.0	54.5	50.5	49.0	47.5	47.0	46.0
Night	Max	57.8	76.7	52.5	68.5	65.5	61.0	60.0	57.0	56.0	54.5	54.0	53.5
Energy Average		55.9	74.3	48.8	65.7	63.4	59.9	58.1	54.7	52.8	50.7	50.3	49.6

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Night	0	53.3	74.6	45.5	64.5	62.5	58.5	55.5	50.5	49.0	47.5	47.0	46.5
	1	56.2	74.6	45.8	67.5	65.0	61.0	59.0	54.5	50.5	47.5	47.0	46.5
	2	55.8	75.6	45.4	67.0	65.0	60.0	58.5	53.5	50.5	47.5	47.0	46.0
	3	53.4	73.6	46.5	63.0	59.5	56.0	54.5	52.0	51.0	49.0	48.5	47.5
	4	57.8	76.7	50.7	68.5	65.5	61.0	60.0	56.5	55.0	52.0	52.0	51.5
	5	57.3	70.9	52.3	64.0	62.5	60.0	59.0	57.0	56.0	54.0	53.5	52.5
	6	57.1	73.6	52.5	63.0	60.5	59.0	58.5	57.0	56.0	54.5	54.0	53.5
Day	7	55.2	69.8	51.2	62.5	60.5	57.5	56.5	54.5	54.0	52.5	52.0	52.0
	8	53.5	69.4	47.6	62.5	61.0	57.0	55.0	52.5	51.5	50.0	49.5	48.5
	9	50.0	68.4	43.3	59.5	57.0	53.5	52.0	49.0	47.5	45.5	45.0	44.0
	10	49.2	63.4	42.8	58.0	56.5	54.0	52.0	48.5	47.0	45.0	44.5	43.5
	11	49.4	71.5	40.7	59.0	57.5	54.0	52.0	47.5	45.0	42.5	42.0	41.0
	12	47.4	62.6	39.5	57.5	55.5	52.5	51.0	46.5	43.5	41.5	41.0	40.5
	13	46.8	63.7	40.3	56.5	54.5	51.5	50.5	46.0	43.5	41.5	41.0	40.5
	14	48.4	74.0	40.7	59.0	56.0	51.0	49.0	45.5	43.5	42.0	41.5	41.0
	15	47.3	61.3	40.7	56.5	54.5	52.0	50.5	47.0	44.5	42.5	42.0	41.5
	16	49.0	73.2	41.8	56.5	55.0	52.5	51.0	48.0	46.5	44.5	43.5	42.5
	17	50.4	65.6	44.2	57.5	56.0	54.5	53.5	50.5	48.0	46.0	45.5	45.0
	18	53.8	76.8	45.8	64.0	59.5	56.0	54.5	51.0	49.5	47.5	47.5	46.5
	19	52.2	70.5	46.5	58.0	57.0	55.0	54.0	52.5	51.0	48.5	48.0	47.0
	20	54.1	76.7	46.7	61.0	58.5	55.5	55.0	53.0	51.5	49.5	49.0	48.0
	21	56.0	75.2	46.3	69.0	64.5	59.0	57.0	53.0	51.0	48.5	48.0	47.0
Night	22	55.4	73.8	45.4	65.5	64.0	61.0	58.5	54.0	50.0	47.5	47.0	46.5
	23	54.0	72.8	45.5	65.0	62.5	59.5	56.0	52.0	49.5	47.5	47.0	46.0

URBAN CROSSROADS

130

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch

Location: L9 - Located south of the Project site within an existing mobile home community, southwest of the proposed commercial land use within the Project site.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

	Energy Average Leq		24-Hour
	Day	Night	CNEL
	56.5	58.0	64.4

Hourly Leq dBA Readings (unadjusted)

Chart: Hourly Leq (dBA) vs Hour Beginning (0–23). Series: Leq (Average), L2% (1 Minute), L90% (55 Minutes). Hourly Leq bar values: 55.6, 56.7, 55.5, 56.0, 59.3, 59.9, 60.8, 56.4, 58.0, 56.3, 53.7, 56.6, 53.4, 55.6, 54.7, 57.9, 56.4, 55.4, 57.6, 57.3, 57.4, 57.5, 57.7, 56.4
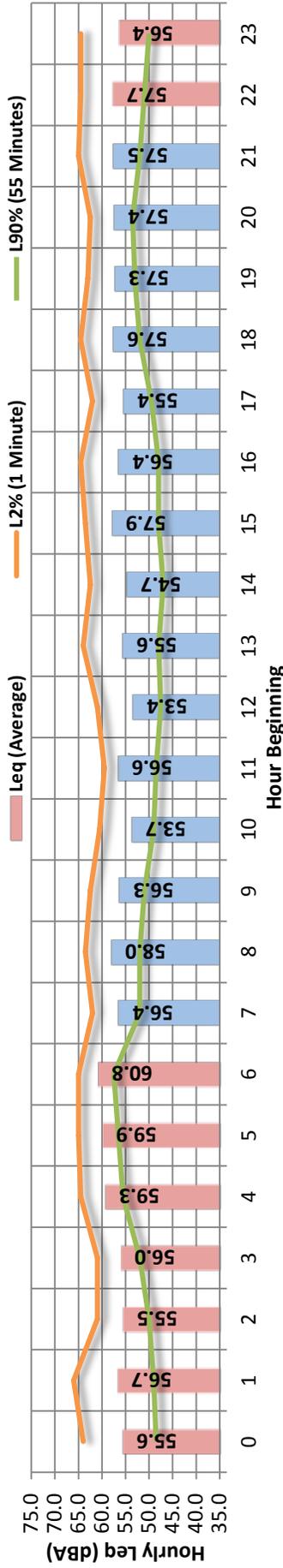
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.4	66.0	44.2	61.0	59.5	57.5	56.5	53.0	50.0	47.0	46.0	45.0
	Max	58.0	87.3	50.8	67.0	65.0	62.0	60.5	57.5	55.5	53.5	53.0	52.0
Energy Average		56.5	79.7	47.8	65.0	62.9	60.2	59.0	55.5	53.2	50.6	49.9	48.9
Night	Min	55.5	68.6	46.0	62.0	61.0	59.5	58.5	54.0	51.5	48.5	48.0	47.0
	Max	60.8	79.3	56.0	68.0	66.0	63.0	62.0	60.5	59.5	57.5	57.5	56.5
Energy Average		58.0	76.1	51.3	65.9	64.2	61.8	60.6	57.5	55.8	53.5	53.1	52.1

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Night	0	55.6	76.3	46.3	66.5	64.0	60.0	58.5	54.0	51.5	48.5	48.0	47.0
	1	56.7	76.0	46.0	67.0	66.0	62.0	60.0	55.0	52.0	49.0	48.5	47.0
	2	55.5	68.6	47.4	62.0	61.0	59.5	59.0	56.0	53.5	50.0	49.0	48.5
	3	56.0	70.7	49.2	62.5	60.5	59.5	58.5	56.5	54.5	52.0	51.5	50.0
	4	59.3	76.7	52.5	66.0	64.5	63.0	62.0	59.0	57.5	55.5	55.0	53.5
	5	59.9	75.0	54.5	67.0	65.0	63.0	62.0	59.5	58.5	56.5	56.0	55.5
	6	60.8	78.9	56.0	68.0	65.0	63.0	62.0	60.5	59.5	57.5	57.5	56.5
Day	7	56.4	72.1	49.1	63.5	62.0	60.0	59.0	56.5	54.5	52.0	51.0	50.0
	8	58.0	83.2	50.0	66.0	63.5	60.5	59.5	56.0	54.0	52.0	51.5	50.5
	9	56.3	77.6	47.7	64.5	62.5	60.5	59.5	55.5	53.5	51.0	50.0	49.0
	10	53.7	66.0	45.8	62.0	60.5	59.0	57.5	53.5	51.0	49.0	48.0	47.0
	11	56.6	87.3	45.2	61.0	59.5	57.5	56.5	53.0	50.0	48.5	47.5	46.0
	12	53.4	68.6	44.2	62.5	61.0	58.5	57.5	53.0	50.0	47.5	47.0	45.5
	13	55.6	77.4	45.2	66.0	64.0	59.5	58.0	53.5	51.0	48.0	47.5	46.5
	14	54.7	73.8	44.6	65.0	62.5	60.0	58.0	53.5	50.0	47.0	46.0	45.0
	15	57.9	85.2	45.4	66.5	63.5	60.5	59.0	55.0	51.5	48.0	47.5	46.0
	16	56.4	74.2	45.6	67.0	64.5	61.0	59.5	55.0	51.5	48.0	47.0	46.0
	17	55.4	70.7	47.1	63.5	62.0	60.0	59.0	55.5	52.5	49.5	48.5	48.0
	18	57.6	75.5	49.4	67.0	64.5	61.5	60.0	57.5	54.5	52.0	51.5	50.5
	19	57.3	74.1	50.8	65.0	63.0	61.0	60.0	57.0	55.5	53.0	52.5	51.5
	20	57.4	77.0	49.9	64.0	62.5	60.5	59.5	57.0	55.5	53.5	53.0	52.0
	21	57.5	71.8	49.3	66.0	65.0	62.0	60.5	57.0	55.0	52.0	51.5	50.5
Night	22	57.7	79.3	48.9	65.5	64.5	62.5	61.0	56.5	54.0	51.0	50.5	49.5
	23	56.4	73.2	47.6	65.5	64.5	61.5	60.0	55.5	53.0	50.0	49.5	48.5

URBAN CROSSROADS

131

24-Hour Noise Level Measurement Summary

Project Name: Roquet Ranch
Location: L10 - Located south of the Project site along Orange Street adjacent to existing industrial land uses.

JN: 9436
Analyst: A. Wolfe
Date: 2/3/2015

	Energy Average Leq		24-Hour
	Day	Night	CNEL
	60.9	61.7	68.1

Hourly Leq dBA Readings (unadjusted)

Hourly Leq (dBA) by Hour Beginning: 56.0, 58.9, 61.9, 63.7, 64.2, 63.8, 63.9, 62.1, 60.4, 60.8, 65.7, 62.1, 59.8, 61.4, 60.0, 62.0, 61.0, 60.5, 57.9, 56.1, 54.7, 56.2, 55.7, 56.4

Legend: Leq (Average); L2% (1 Minute); L90% (55 Minutes)
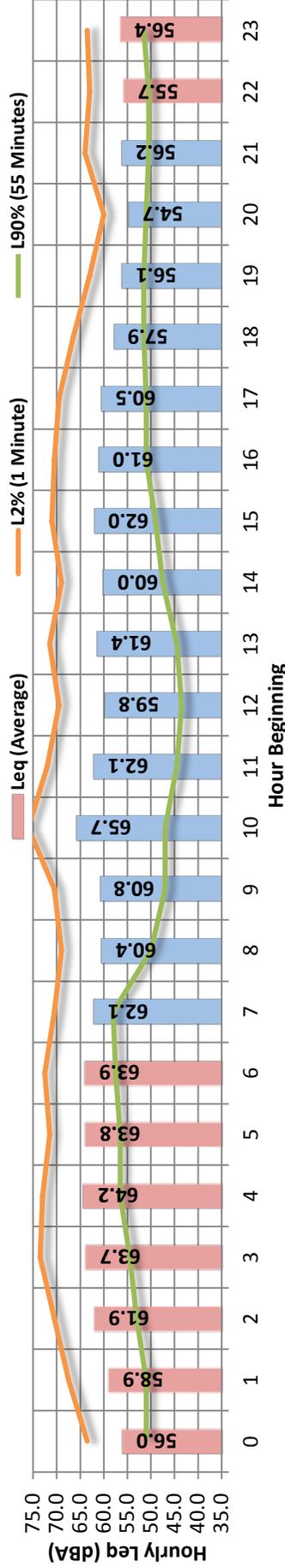
Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.7	72.0	40.9	62.5	60.0	57.5	56.5	51.0	47.0	43.5	42.5	42.0
	Max	65.7	87.7	56.0	78.0	76.0	72.0	70.0	60.5	59.0	58.0	57.5	57.0
Energy Average		60.9	82.0	48.6	73.1	70.3	65.8	63.1	56.2	53.5	50.8	50.4	49.6
Night	Min	55.7	73.8	48.5	64.0	63.0	60.5	58.5	54.5	52.5	50.5	50.5	49.5
	Max	64.2	86.3	56.5	76.5	73.5	68.5	66.0	60.5	59.0	57.5	57.5	57.0
Energy Average		61.7	83.3	52.7	73.0	70.4	65.7	62.9	57.9	56.2	54.3	54.0	53.4

Hourly Summary

Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Night	0	56.0	73.8	49.9	65.5	63.5	60.5	59.0	54.5	53.0	51.0	51.0	50.5
	1	58.9	82.9	49.9	70.5	67.5	62.0	59.5	54.5	53.0	51.0	51.0	50.5
	2	61.9	84.5	50.9	74.0	70.5	64.5	62.0	57.0	55.0	53.0	52.5	51.5
	3	63.7	83.8	52.4	76.5	73.5	68.5	65.0	58.0	56.0	54.5	54.0	53.5
	4	64.2	85.8	55.2	75.5	73.0	68.5	66.0	60.5	58.5	56.5	56.0	55.5
	5	63.8	86.3	54.2	74.0	71.5	66.5	63.5	60.0	58.5	56.5	56.0	55.0
	6	63.9	85.1	56.5	74.5	72.5	68.5	65.5	60.5	59.0	57.5	57.5	57.0
Day	7	62.1	79.7	56.0	72.5	70.5	66.0	63.5	60.0	59.0	58.0	57.5	57.0
	8	60.4	84.4	47.4	72.0	69.0	62.5	60.0	57.5	55.0	50.0	49.5	48.5
	9	60.8	81.9	45.0	75.0	70.5	64.0	60.0	53.5	50.5	47.0	46.5	46.0
	10	65.7	87.7	43.5	78.0	76.0	72.0	70.0	60.5	55.0	47.0	46.0	44.5
	11	62.1	83.7	42.2	74.5	72.0	67.5	65.0	55.0	49.5	44.5	44.0	43.0
	12	59.8	80.9	40.9	73.5	69.5	64.5	60.5	51.0	47.0	43.5	42.5	42.0
	13	61.4	81.4	42.7	75.0	71.5	67.0	63.5	52.5	49.0	44.5	44.0	43.5
	14	60.0	83.0	45.2	72.0	69.0	64.5	60.0	54.0	51.0	47.5	47.0	46.0
	15	62.0	83.1	46.2	73.5	71.0	67.0	64.0	56.0	52.5	49.0	48.5	47.0
	16	61.0	80.0	47.5	73.0	70.5	66.5	64.0	57.5	54.0	51.0	50.5	49.5
	17	60.5	80.7	48.4	73.0	69.5	65.0	61.5	56.0	54.0	51.0	50.5	49.5
	18	57.9	79.2	49.0	69.5	66.5	62.0	60.0	55.0	53.0	51.5	51.0	50.0
	19	56.1	75.1	50.1	66.0	63.0	59.5	57.5	54.5	53.0	51.5	51.5	50.5
	20	54.7	72.0	48.8	62.5	60.0	57.5	56.5	54.5	53.0	51.0	50.5	49.5
	21	56.2	73.3	48.8	66.5	64.0	60.0	58.5	54.5	52.5	50.5	50.0	49.5
Night	22	55.7	74.2	48.5	64.0	63.0	60.5	59.0	55.0	52.5	50.5	50.5	49.5
	23	56.4	74.3	49.6	66.0	63.5	60.5	58.5	55.0	53.5	51.5	51.0	50.0

URBAN CROSSROADS

132

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

This page intentionally left blank

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: S Riverside Av.
Road Segment: n/o Placentia Ln.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,180 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.98	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.26	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.22	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.5	61.4	70.0	70.6
Medium Trucks:	64.7	63.2	56.8	55.3	63.8	64.0
Heavy Trucks:	65.1	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	72.8	71.1	68.0	63.2	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	136	294	632
CNEL:	68	146	315	679

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Main St.
Road Segment: s/o Placentia Ln.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,050 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.71	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.53	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.49	0.34	-1.20	-5.43	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:	70.0	68.1	66.4	60.3	68.9	69.5
Medium Trucks:	63.6	62.1	55.7	54.2	62.7	62.9
Heavy Trucks:	64.0	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	71.7	70.0	66.9	62.1	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	258	556
CNEL:	60	129	277	597

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Main St.
Road Segment: n/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,550 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.66	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.58	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.54	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	64.6	63.0	56.7	55.1	63.6	63.8
Heavy Trucks:	65.0	63.6	54.5	55.8	64.1	64.2
Vehicle Noise:	72.7	70.9	67.9	63.1	71.6	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	139	299	643
CNEL:	69	149	321	691

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Main St.
Road Segment: s/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,830 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.67	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-16.56	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.52	0.34	-1.20	-5.43	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	66.3	64.6	58.5	67.1	67.8
Medium Trucks:	62.0	60.5	54.2	52.6	61.1	61.3
Heavy Trucks:	62.9	61.4	52.4	53.7	62.0	62.1
Vehicle Noise:	70.1	68.3	65.2	60.5	69.1	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	43	93	201	433
CNEL:	46	100	216	464

Tuesday, August 02, 2016

135

Top Left

Scenario: Existing Without Project
Road Name: Orange St.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	260 vehicles
Vehicle Speed:	40 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.29	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	77.72	-24.53	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-28.48	2.69	-1.20	-5.69	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:	60.7	58.8	57.0	50.9	59.6	60.2
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	56.0	54.6	45.5	46.8	55.1	55.3
Vehicle Noise:	62.7	61.0	57.7	53.1	61.7	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	20	43	92
CNEL:	10	21	46	98

Tuesday, August 02, 2016

Top Right

Scenario: Existing Without Project
Road Name: Orange St.
Road Segment: n/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	450 vehicles
Vehicle Speed:	35 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-4.33	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-21.57	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-25.52	2.69	-1.20	-5.69	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:	61.4	59.5	57.7	51.7	60.3	60.9
Medium Trucks:	55.7	54.2	47.8	46.3	54.7	55.0
Heavy Trucks:	57.5	56.1	47.1	48.3	56.7	56.8
Vehicle Noise:	63.7	61.9	58.5	54.1	62.6	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	23	49	107
CNEL:	11	25	53	114

Tuesday, August 02, 2016

Bottom Left

Scenario: Existing Without Project
Road Name: Orange St.
Road Segment: s/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	600 vehicles
Vehicle Speed:	35 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.08	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-20.32	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-24.27	2.69	-1.20	-5.69	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	60.8	59.0	52.9	61.6	62.2
Medium Trucks:	56.9	55.4	49.1	47.5	56.0	56.2
Heavy Trucks:	58.8	57.4	48.3	49.6	57.9	58.1
Vehicle Noise:	64.9	63.2	59.7	55.4	63.9	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	60	129
CNEL:	14	30	64	138

Tuesday, August 02, 2016

Bottom Right

Scenario: Existing Without Project
Road Name: La Cadena Dr.
Road Segment: n/o S Rancho Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,050 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.20	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-19.44	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.39	1.18	-1.20	-5.45	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:	68.0	66.1	64.3	58.2	66.9	67.5
Medium Trucks:	61.5	60.0	53.7	52.1	60.6	60.8
Heavy Trucks:	62.0	60.5	51.5	52.8	61.1	61.2
Vehicle Noise:	69.7	67.9	64.9	60.1	68.6	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	180	389
CNEL:	42	90	194	417

Tuesday, August 02, 2016

Table 1 (top-left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: La Cadena Dr.
Road Segment: s/o S Rancho Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,840 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.24	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-17.00	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.95	1.18	-1.20	-5.45	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:	70.4	68.5	66.7	60.7	69.3	69.9
Medium Trucks:	64.0	62.5	56.1	54.6	63.0	63.3
Heavy Trucks:	64.4	63.0	53.9	55.2	63.5	63.7
Vehicle Noise:	72.1	70.3	67.3	62.5	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	122	262	565
CNEL:	61	131	282	607

Tuesday, August 02, 2016

Table 2 (top-right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: La Cadena Dr.
Road Segment: s/o W Litton Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,880 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.33	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.91	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.86	1.18	-1.20	-5.45	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:	70.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.5	63.1	54.0	55.3	63.6	63.8
Vehicle Noise:	72.2	70.4	67.4	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	123	266	573
CNEL:	62	133	286	616

Tuesday, August 02, 2016

Table 3 (bottom-left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: La Cadena Dr.
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,770 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.07	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-17.17	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.12	1.18	-1.20	-5.45	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:	70.2	68.3	66.6	60.5	69.1	69.7
Medium Trucks:	63.8	62.3	55.9	54.4	62.9	63.1
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	71.9	70.2	67.1	62.3	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	255	550
CNEL:	59	127	274	591

Tuesday, August 02, 2016

Table 4 (bottom-right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: La Cadena Dr.
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,620 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.31	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-17.55	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.51	1.18	-1.20	-5.45	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:	69.8	67.9	66.2	60.1	68.7	69.3
Medium Trucks:	63.4	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.8	62.4	53.4	54.6	63.0	63.1
Vehicle Noise:	71.5	69.8	66.7	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	112	241	519
CNEL:	56	120	259	557

Tuesday, August 02, 2016

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: La Cadena Dr.
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,110 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.96	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-19.19	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.15	1.18	-1.20	-5.45	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	66.3	64.5	58.5	67.1	67.7
Medium Trucks:	61.8	60.3	53.9	52.4	60.8	61.1
Heavy Trucks:	62.2	60.8	51.7	53.0	61.4	61.5
Vehicle Noise:	69.9	68.1	65.1	60.3	68.9	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	87	187	403
CNEL:	43	93	201	433

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: La Cadena Dr.
Road Segment: s/o Pellissier Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	920 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.77	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-20.01	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.96	1.18	-1.20	-5.45	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:	67.4	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	61.0	59.5	53.1	51.6	60.0	60.2
Heavy Trucks:	61.4	60.0	50.9	52.2	60.5	60.7
Vehicle Noise:	69.1	67.3	64.3	59.5	68.0	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	36	77	165	356
CNEL:	38	82	177	382

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: I-215 SB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,010 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.25	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.84	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.39	-2.16	-1.20	-5.20	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:	74.4	72.5	70.8	64.7	73.3	73.9
Medium Trucks:	69.7	68.2	61.8	60.2	68.7	68.9
Heavy Trucks:	74.4	73.0	64.0	65.2	73.6	73.7
Vehicle Noise:	78.1	76.5	72.0	68.7	77.1	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	257	554	1,194	2,572
CNEL:	271	584	1,259	2,713

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: I-215 SB Fwy
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,900 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.16	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.94	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.49	-2.16	-1.20	-5.20	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:	74.3	72.4	70.7	64.6	73.2	73.8
Medium Trucks:	69.6	68.1	61.7	60.2	68.6	68.8
Heavy Trucks:	74.3	72.9	63.9	65.1	73.5	73.6
Vehicle Noise:	78.0	76.4	71.9	68.6	77.0	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	253	546	1,176	2,534
CNEL:	267	576	1,241	2,673

Tuesday, August 02, 2016

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: I-215 SB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,900 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.16	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.94	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.49	-2.16	-1.20	-5.20	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:	74.3	72.4	70.7	64.6	73.2	73.8
Medium Trucks:	69.6	68.1	61.7	60.2	68.6	68.8
Heavy Trucks:	74.3	72.9	63.9	65.1	73.5	73.6
Vehicle Noise:	78.0	76.4	71.9	68.6	77.0	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	253	546	1,176	2,534
CNEL:	267	576	1,241	2,673

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: I-215 SB Fwy
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,730 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.00	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-12.09	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.64	-2.16	-1.20	-5.20	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:	74.2	72.3	70.5	64.5	73.1	73.7
Medium Trucks:	69.4	67.9	61.5	60.0	68.5	68.7
Heavy Trucks:	74.2	72.8	63.7	65.0	73.3	73.5
Vehicle Noise:	77.9	76.2	71.8	68.4	76.9	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	248	533	1,149	2,475
CNEL:	261	563	1,212	2,611

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: I-215 NB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	55,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,550 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.70	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.40	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.95	-2.16	-1.20	-5.20	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:	74.9	73.0	71.2	65.2	73.8	74.4
Medium Trucks:	70.1	68.6	62.2	60.7	69.2	69.4
Heavy Trucks:	74.9	73.4	64.4	65.7	74.0	74.1
Vehicle Noise:	78.6	76.9	72.5	69.1	77.6	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	275	593	1,278	2,754
CNEL:	290	626	1,348	2,905

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: I-215 NB Fwy
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,610 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.74	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.35	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.90	-2.16	-1.20	-5.20	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:	74.9	73.0	71.3	65.2	73.8	74.4
Medium Trucks:	70.2	68.6	62.3	60.7	69.2	69.4
Heavy Trucks:	74.9	73.5	64.5	65.7	74.1	74.2
Vehicle Noise:	78.6	77.0	72.5	69.1	77.6	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	277	598	1,287	2,774
CNEL:	293	630	1,358	2,925

Tuesday, August 02, 2016

Table 1 (Top Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: I-215 NB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,610 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.74	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.35	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.90	-2.16	-1.20	-5.20	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:	74.9	73.0	71.3	65.2	73.8	74.4
Medium Trucks:	70.2	68.6	62.3	60.7	69.2	69.4
Heavy Trucks:	74.9	73.5	64.5	65.7	74.1	74.2
Vehicle Noise:	78.6	77.0	72.5	69.1	77.6	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	277	598	1,287	2,774
CNEL:	293	630	1,358	2,925

Tuesday, August 02, 2016

Table 2 (Top Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: I-215 NB Fwy
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	53,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,320 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.51	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.58	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.13	-2.16	-1.20	-5.20	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:	74.7	72.8	71.0	65.0	73.6	74.2
Medium Trucks:	69.9	68.4	62.1	60.5	69.0	69.2
Heavy Trucks:	74.7	73.3	64.2	65.5	73.8	74.0
Vehicle Noise:	78.4	76.7	72.3	68.9	77.4	77.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	268	577	1,243	2,677
CNEL:	282	608	1,311	2,824

Tuesday, August 02, 2016

Table 3 (Bottom Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Iowa Av.
Road Segment: n/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,570 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.01	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-17.23	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-21.19	-0.97	-1.20	-5.31	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:	66.3	64.4	62.6	56.6	65.2	65.8
Medium Trucks:	60.0	58.5	52.2	50.6	59.1	59.3
Heavy Trucks:	60.9	59.5	50.4	51.7	60.0	60.2
Vehicle Noise:	68.1	66.4	63.2	58.6	67.1	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	88	190	410
CNEL:	44	95	204	439

Tuesday, August 02, 2016

Table 4 (Bottom Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Iowa Av.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,620 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.14	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-17.09	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-21.05	-0.97	-1.20	-5.31	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:	66.4	64.5	62.8	56.7	65.3	65.9
Medium Trucks:	60.2	58.7	52.3	50.8	59.2	59.5
Heavy Trucks:	61.0	59.6	50.6	51.8	60.2	60.3
Vehicle Noise:	68.3	66.5	63.4	58.7	67.2	67.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	90	194	418
CNEL:	45	97	208	449

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Mt. Vernon Av.
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	10,100 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,010 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	40 mph		
Near/Far Lane Distance:	32 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.40	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-18.63	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.59	1.17	-1.20	-5.50	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:	65.1	63.2	61.4	55.3	64.0	64.6
Medium Trucks:	59.1	57.5	51.2	49.6	58.1	58.3
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.1	65.3	62.1	57.5	66.1	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	52	111	240
CNEL:	26	55	119	257

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Mt. Vernon Av.
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	14,500 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,450 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	40 mph		
Near/Far Lane Distance:	32 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.17	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-17.06	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.02	1.17	-1.20	-5.50	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:	66.6	64.7	63.0	56.9	65.5	66.1
Medium Trucks:	60.6	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.9	60.5	51.5	52.7	61.1	61.2
Vehicle Noise:	68.6	66.9	63.6	59.1	67.6	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	66	142	306
CNEL:	33	70	152	327

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: S Rancho Av.
Road Segment: w/o La Cadena Dr.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	8,600 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	860 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	30 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-0.85	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	73.48	-18.08	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	79.92	-22.04	1.18	-1.20	-5.45	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:	60.9	59.0	57.2	51.1	59.8	60.4
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	57.9	56.4	47.4	48.6	57.0	57.1
Vehicle Noise:	63.4	61.7	58.0	53.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	69	149
CNEL:	16	34	74	158

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Barton Rd.
Road Segment: w/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	14,200 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,420 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	40 mph		
Near/Far Lane Distance:	36 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.08	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-17.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.11	0.34	-1.20	-5.43	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:	65.7	63.8	62.0	56.0	64.6	65.2
Medium Trucks:	59.7	58.2	51.8	50.3	58.7	59.0
Heavy Trucks:	61.0	59.6	50.6	51.8	60.2	60.3
Vehicle Noise:	67.7	66.0	62.7	58.2	66.7	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	65	140	301
CNEL:	32	70	150	323

Tuesday, August 02, 2016

Panel 1 (Top Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project *Project Name:* Roquet Ranchq
Road Name: Barton Rd. *Job Number:* 9436
Road Segment: e/o Mt. Vernon Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 15,300 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 1,530 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 45 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 50.0 feet	**Noise Source Elevations (in feet)**
Centerline Dist. to Observer: 50.0 feet	Autos: 0.000
Barrier Distance to Observer: 0.0 feet	Medium Trucks: 2.297
Observer Height (Above Pad): 5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0
Pad Elevation: 0.0 feet	
Road Elevation: 0.0 feet	**Lane Equivalent Distance (in feet)**
Road Grade: 0.0%	Autos: 46.915
Left View: -90.0 degrees	Medium Trucks: 46.726
Right View: 90.0 degrees	Heavy Trucks: 46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.10	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-17.34	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.30	0.34	-1.20	-5.43	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:	67.5	65.6	63.8	57.7	66.4	67.0
Medium Trucks:	61.2	59.7	53.4	51.8	60.3	60.5
Heavy Trucks:	62.1	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	69.3	67.6	64.4	59.7	68.3	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	83	178	384
CNEL:	41	89	191	412

Tuesday, August 02, 2016

Panel 2 (Top Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project *Project Name:* Roquet Ranchq
Road Name: W Main St. *Job Number:* 9436
Road Segment: e/o S Iowa Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 5,500 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 550 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 40 mph	
Near/Far Lane Distance: 32 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 44.0 feet	**Noise Source Elevations (in feet)**
Centerline Dist. to Observer: 44.0 feet	Autos: 0.000
Barrier Distance to Observer: 0.0 feet	Medium Trucks: 2.297
Observer Height (Above Pad): 5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0
Pad Elevation: 0.0 feet	
Road Elevation: 0.0 feet	**Lane Equivalent Distance (in feet)**
Road Grade: 0.0%	Autos: 41.292
Left View: -90.0 degrees	Medium Trucks: 41.077
Right View: 90.0 degrees	Heavy Trucks: 41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.04	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-21.27	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.23	1.17	-1.20	-5.50	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:	62.4	60.5	58.8	52.7	61.3	61.9
Medium Trucks:	56.4	54.9	48.5	47.0	55.5	55.7
Heavy Trucks:	57.7	56.3	47.3	48.5	56.9	57.0
Vehicle Noise:	64.4	62.7	59.4	54.9	63.4	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	74	160
CNEL:	17	37	80	171

Tuesday, August 02, 2016

Panel 3 (Bottom Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project *Project Name:* Roquet Ranchq
Road Name: W Main St. *Job Number:* 9436
Road Segment: w/o Michigan Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 4,400 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 440 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 25 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 50.0 feet	**Noise Source Elevations (in feet)**
Centerline Dist. to Observer: 50.0 feet	Autos: 0.000
Barrier Distance to Observer: 0.0 feet	Medium Trucks: 2.297
Observer Height (Above Pad): 5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0
Pad Elevation: 0.0 feet	
Road Elevation: 0.0 feet	**Lane Equivalent Distance (in feet)**
Road Grade: 0.0%	Autos: 46.915
Left View: -90.0 degrees	Medium Trucks: 46.726
Right View: 90.0 degrees	Heavy Trucks: 46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-2.96	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	70.80	-20.20	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-24.16	0.34	-1.20	-5.43	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:	54.9	53.0	51.2	45.2	53.8	54.4
Medium Trucks:	49.7	48.2	41.9	40.3	48.8	49.0
Heavy Trucks:	53.0	51.5	42.5	43.7	52.1	52.2
Vehicle Noise:	57.8	56.1	52.2	48.3	56.8	57.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	14	31	66
CNEL:	7	15	32	70

Tuesday, August 02, 2016

Panel 4 (Bottom Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project *Project Name:* Roquet Ranchq
Road Name: W Main St. *Job Number:* 9436
Road Segment: e/o Michigan Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 3,000 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 300 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 40 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 50.0 feet	**Noise Source Elevations (in feet)**
Centerline Dist. to Observer: 50.0 feet	Autos: 0.000
Barrier Distance to Observer: 0.0 feet	Medium Trucks: 2.297
Observer Height (Above Pad): 5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0
Pad Elevation: 0.0 feet	
Road Elevation: 0.0 feet	**Lane Equivalent Distance (in feet)**
Road Grade: 0.0%	Autos: 46.915
Left View: -90.0 degrees	Medium Trucks: 46.726
Right View: 90.0 degrees	Heavy Trucks: 46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.67	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-23.91	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-27.86	0.34	-1.20	-5.43	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:	59.0	57.1	55.3	49.2	57.9	58.5
Medium Trucks:	52.9	51.4	45.1	43.5	52.0	52.2
Heavy Trucks:	54.3	52.8	43.8	45.1	53.4	53.5
Vehicle Noise:	61.0	59.2	56.0	51.4	59.9	60.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	23	50	107
CNEL:	11	25	53	114

Tuesday, August 02, 2016

142

Top-Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Placentia Ln.
Road Segment: e/o S Riverside Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	410 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-3.27	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	70.80	-20.51	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-24.46	1.18	-1.20	-5.45	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:	55.4	53.5	51.7	45.7	54.3	54.9
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.5
Heavy Trucks:	53.5	52.1	43.0	44.3	52.6	52.8
Vehicle Noise:	58.3	56.6	52.7	48.8	57.3	57.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	68
CNEL:	7	16	34	73

Tuesday, August 02, 2016

Top-Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: W Center St.
Road Segment: w/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	400 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.42	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-22.66	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-26.61	1.31	-1.20	-5.50	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:	61.2	59.3	57.5	51.4	60.1	60.7
Medium Trucks:	55.2	53.7	47.3	45.8	54.2	54.4
Heavy Trucks:	56.5	55.1	46.0	47.3	55.6	55.8
Vehicle Noise:	63.2	61.5	58.2	53.6	62.2	62.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	61	132
CNEL:	14	30	66	142

Tuesday, August 02, 2016

Bottom-Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: W Center St.
Road Segment: w/o Stephens Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	660 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.24	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.48	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.44	0.34	-1.20	-5.43	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:	62.4	60.5	58.7	52.7	61.3	61.9
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.6
Heavy Trucks:	57.7	56.3	47.2	48.5	56.8	57.0
Vehicle Noise:	64.4	62.7	59.4	54.8	63.4	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	39	84	181
CNEL:	19	42	90	194

Tuesday, August 02, 2016

Bottom-Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Columbia Av.
Road Segment: e/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,460 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.31	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-17.55	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.50	0.34	-1.20	-5.43	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:	67.3	65.4	63.6	57.5	66.2	66.8
Medium Trucks:	61.0	59.5	53.2	51.6	60.1	60.3
Heavy Trucks:	61.9	60.5	51.4	52.7	61.0	61.2
Vehicle Noise:	69.1	67.4	64.2	59.5	68.1	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	80	173	372
CNEL:	40	86	185	399

Tuesday, August 02, 2016

143

Panel 1 (Top Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: S Riverside Av.
Road Segment: n/o Placentia Ln.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,230 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.07	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.16	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.12	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.6	61.5	70.1	70.7
Medium Trucks:	64.8	63.3	56.9	55.4	63.9	64.1
Heavy Trucks:	65.2	63.8	54.8	56.0	64.4	64.5
Vehicle Noise:	72.9	71.2	68.1	63.3	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	138	298	642
CNEL:	69	149	320	690

Tuesday, August 02, 2016

Panel 2 (Top Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Main St.
Road Segment: s/o Placentia Ln.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,160 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.94	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.30	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.26	0.34	-1.20	-5.43	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:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	63.8	62.3	56.0	54.4	62.9	63.1
Heavy Trucks:	64.3	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	72.0	70.2	67.2	62.4	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	124	267	576
CNEL:	62	133	287	619

Tuesday, August 02, 2016

Panel 3 (Bottom Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Main St.
Road Segment: n/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,640 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.81	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.43	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.39	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.5	61.4	70.0	70.6
Medium Trucks:	64.7	63.2	56.8	55.3	63.8	64.0
Heavy Trucks:	65.1	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	72.8	71.1	68.0	63.2	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	142	306	658
CNEL:	71	152	328	707

Tuesday, August 02, 2016

Panel 4 (Bottom Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Main St.
Road Segment: s/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,900 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.84	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-16.40	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.36	0.34	-1.20	-5.43	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	66.5	64.7	58.7	67.3	67.9
Medium Trucks:	62.2	60.7	54.3	52.8	61.2	61.5
Heavy Trucks:	63.0	61.6	52.6	53.8	62.2	62.3
Vehicle Noise:	70.3	68.5	65.4	60.7	69.2	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	96	206	444
CNEL:	48	103	221	476

Tuesday, August 02, 2016

144

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project *Project Name:* Roquet Ranchq
Road Name: Orange St. *Job Number:* 9436
Road Segment: s/o Center St.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	3,400 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	340 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	40 mph		
Near/Far Lane Distance:	12 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.12	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	77.72	-23.36	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-27.32	2.69	-1.20	-5.69	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:	61.8	59.9	58.2	52.1	60.7	61.3
Medium Trucks:	55.8	54.3	48.0	46.4	54.9	55.1
Heavy Trucks:	57.2	55.7	46.7	48.0	56.3	56.4
Vehicle Noise:	63.8	62.1	58.8	54.3	62.8	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	24	51	110
CNEL:	12	25	55	117

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project *Project Name:* Roquet Ranchq
Road Name: Orange St. *Job Number:* 9436
Road Segment: n/o Columbia Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	5,300 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	530 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	35 mph		
Near/Far Lane Distance:	12 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.62	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-20.86	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-24.81	2.69	-1.20	-5.69	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:	62.1	60.2	58.5	52.4	61.0	61.6
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	58.2	56.8	47.8	49.0	57.4	57.5
Vehicle Noise:	64.4	62.7	59.2	54.8	63.4	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	26	55	119
CNEL:	13	27	59	127

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project *Project Name:* Roquet Ranchq
Road Name: Orange St. *Job Number:* 9436
Road Segment: s/o Columbia Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	6,400 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	640 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	35 mph		
Near/Far Lane Distance:	12 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.80	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-20.04	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.99	2.69	-1.20	-5.69	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:	62.9	61.0	59.3	53.2	61.8	62.4
Medium Trucks:	57.2	55.7	49.3	47.8	56.3	56.5
Heavy Trucks:	59.1	57.6	48.6	49.9	58.2	58.3
Vehicle Noise:	65.2	63.5	60.0	55.6	64.2	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	29	63	135
CNEL:	14	31	67	144

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project *Project Name:* Roquet Ranchq
Road Name: La Cadena Dr. *Job Number:* 9436
Road Segment: n/o S Rancho Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	11,400 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,140 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.84	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-19.08	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.03	1.18	-1.20	-5.45	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	66.4	64.6	58.6	67.2	67.8
Medium Trucks:	61.9	60.4	54.0	52.5	60.9	61.2
Heavy Trucks:	62.3	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	70.0	68.3	65.2	60.4	69.0	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	88	191	410
CNEL:	44	95	205	441

Tuesday, August 02, 2016

145

Table 1 (Top Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: La Cadena Dr.
Road Segment: s/o S Rancho Av.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,010 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.62	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.61	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.57	1.18	-1.20	-5.45	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:	70.8	68.9	67.1	61.1	69.7	70.3
Medium Trucks:	64.4	62.9	56.5	55.0	63.4	63.6
Heavy Trucks:	64.8	63.4	54.3	55.6	63.9	64.1
Vehicle Noise:	72.5	70.7	67.7	62.9	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	278	599
CNEL:	64	139	299	644

Tuesday, August 02, 2016

Table 2 (Top Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: La Cadena Dr.
Road Segment: s/o W Litton Av.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,060 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.73	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.51	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.46	1.18	-1.20	-5.45	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:	70.9	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	64.5	63.0	56.6	55.1	63.5	63.8
Heavy Trucks:	64.9	63.5	54.4	55.7	64.0	64.2
Vehicle Noise:	72.6	70.8	67.8	63.0	71.6	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	131	283	609
CNEL:	65	141	304	654

Tuesday, August 02, 2016

Table 3 (Bottom Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: La Cadena Dr.
Road Segment: s/o Barton Rd.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,180 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.98	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.26	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.22	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.5	61.4	70.0	70.6
Medium Trucks:	64.7	63.2	56.8	55.3	63.8	64.0
Heavy Trucks:	65.1	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	72.8	71.1	68.0	63.2	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	136	294	632
CNEL:	68	146	315	679

Tuesday, August 02, 2016

Table 4 (Bottom Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: La Cadena Dr.
Road Segment: n/o S Iowa Av.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,040 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.69	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.55	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.51	1.18	-1.20	-5.45	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:	70.8	68.9	67.2	61.1	69.7	70.3
Medium Trucks:	64.4	62.9	56.6	55.0	63.5	63.7
Heavy Trucks:	64.8	63.4	54.4	55.6	64.0	64.1
Vehicle Noise:	72.5	70.8	67.7	63.0	71.5	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	130	281	605
CNEL:	65	140	302	650

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: La Cadena Dr.
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt):	17,500 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,750 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.02	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-17.22	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.17	1.18	-1.20	-5.45	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:	70.2	68.3	66.5	60.5	69.1	69.7
Medium Trucks:	63.8	62.3	55.9	54.3	62.8	63.0
Heavy Trucks:	64.2	62.8	53.7	55.0	63.3	63.5
Vehicle Noise:	71.9	70.1	67.1	62.3	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	254	546
CNEL:	59	126	272	587

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: La Cadena Dr.
Road Segment: s/o Pellissier Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt):	10,300 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,030 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.28	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-19.52	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.47	1.18	-1.20	-5.45	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:	67.9	66.0	64.2	58.1	66.8	67.4
Medium Trucks:	61.5	60.0	53.6	52.0	60.5	60.7
Heavy Trucks:	61.9	60.5	51.4	52.7	61.0	61.2
Vehicle Noise:	69.6	67.8	64.8	60.0	68.5	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	83	178	384
CNEL:	41	89	191	412

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: I-215 SB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt):	51,200 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	5,120 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.35	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.75	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.30	-2.16	-1.20	-5.20	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:	74.5	72.6	70.9	64.8	73.4	74.0
Medium Trucks:	69.8	68.2	61.9	60.3	68.8	69.0
Heavy Trucks:	74.5	73.1	64.1	65.3	73.7	73.8
Vehicle Noise:	78.2	76.6	72.1	68.8	77.2	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	261	562	1,211	2,610
CNEL:	275	593	1,278	2,753

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: I-215 SB Fwy
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt):	49,600 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	4,960 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.21	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.89	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.44	-2.16	-1.20	-5.20	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:	74.4	72.5	70.7	64.7	73.3	73.9
Medium Trucks:	69.6	68.1	61.7	60.2	68.7	68.9
Heavy Trucks:	74.4	73.0	63.9	65.2	73.5	73.7
Vehicle Noise:	78.1	76.4	72.0	68.6	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	256	550	1,186	2,555
CNEL:	269	581	1,251	2,695

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: I-215 SB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	49,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,960 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.21	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.89	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.44	-2.16	-1.20	-5.20	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:	74.4	72.5	70.7	64.7	73.3	73.9
Medium Trucks:	69.6	68.1	61.7	60.2	68.7	68.9
Heavy Trucks:	74.4	73.0	63.9	65.2	73.5	73.7
Vehicle Noise:	78.1	76.4	72.0	68.6	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	256	550	1,186	2,555
CNEL:	269	581	1,251	2,695

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: I-215 SB Fwy
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	47,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,780 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.05	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-12.05	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.60	-2.16	-1.20	-5.20	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:	74.2	72.3	70.6	64.5	73.1	73.7
Medium Trucks:	69.5	67.9	61.6	60.0	68.5	68.7
Heavy Trucks:	74.2	72.8	63.8	65.0	73.4	73.5
Vehicle Noise:	77.9	76.3	71.8	68.5	76.9	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	249	537	1,157	2,493
CNEL:	263	566	1,220	2,629

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: I-215 NB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	56,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,610 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.74	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.35	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.90	-2.16	-1.20	-5.20	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:	74.9	73.0	71.3	65.2	73.8	74.4
Medium Trucks:	70.2	68.6	62.3	60.7	69.2	69.4
Heavy Trucks:	74.9	73.5	64.5	65.7	74.1	74.2
Vehicle Noise:	78.6	77.0	72.5	69.1	77.6	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	277	598	1,287	2,774
CNEL:	293	630	1,358	2,925

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: I-215 NB Fwy
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	56,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,640 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.77	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.33	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.88	-2.16	-1.20	-5.20	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:	74.9	73.0	71.3	65.2	73.8	74.4
Medium Trucks:	70.2	68.7	62.3	60.8	69.2	69.5
Heavy Trucks:	74.9	73.5	64.5	65.7	74.1	74.2
Vehicle Noise:	78.6	77.0	72.5	69.2	77.7	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	278	600	1,292	2,784
CNEL:	294	633	1,363	2,936

Tuesday, August 02, 2016

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: I-215 NB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,640 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.77	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.33	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.88	-2.16	-1.20	-5.20	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:	74.9	73.0	71.3	65.2	73.8	74.4
Medium Trucks:	70.2	68.7	62.3	60.8	69.2	69.5
Heavy Trucks:	74.9	73.5	64.5	65.7	74.1	74.2
Vehicle Noise:	78.6	77.0	72.5	69.2	77.7	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	278	600	1,292	2,784
CNEL:	294	633	1,363	2,936

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: I-215 NB Fwy
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	54,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,400 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.58	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.52	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.07	-2.16	-1.20	-5.20	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:	74.8	72.9	71.1	65.0	73.7	74.3
Medium Trucks:	70.0	68.5	62.1	60.6	69.0	69.3
Heavy Trucks:	74.8	73.3	64.3	65.5	73.9	74.0
Vehicle Noise:	78.4	76.8	72.3	69.0	77.5	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	270	583	1,255	2,704
CNEL:	285	614	1,324	2,852

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Iowa Av.
Road Segment: n/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,600 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.09	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-17.15	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-21.10	-0.97	-1.20	-5.31	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:	66.4	64.5	62.7	56.6	65.3	65.9
Medium Trucks:	60.1	58.6	52.3	50.7	59.2	59.4
Heavy Trucks:	61.0	59.6	50.5	51.8	60.1	60.3
Vehicle Noise:	68.2	66.5	63.3	58.6	67.2	67.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	89	193	415
CNEL:	44	96	207	445

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Iowa Av.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,680 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.30	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.94	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.89	-0.97	-1.20	-5.31	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:	66.6	64.7	62.9	56.9	65.5	66.1
Medium Trucks:	60.3	58.8	52.5	50.9	59.4	59.6
Heavy Trucks:	61.2	59.8	50.7	52.0	60.3	60.5
Vehicle Noise:	68.4	66.7	63.5	58.8	67.4	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	43	92	199	429
CNEL:	46	99	213	460

Tuesday, August 02, 2016

149

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Mt. Vernon Av.
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,030 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.31	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-18.55	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.51	1.17	-1.20	-5.50	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:	65.1	63.2	61.5	55.4	64.0	64.7
Medium Trucks:	59.1	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	60.5	59.0	50.0	51.3	59.6	59.7
Vehicle Noise:	67.2	65.4	62.1	57.6	66.1	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	52	113	243
CNEL:	26	56	121	260

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Mt. Vernon Av.
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,470 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.23	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-17.00	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.96	1.17	-1.20	-5.50	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:	66.7	64.8	63.0	57.0	65.6	66.2
Medium Trucks:	60.7	59.2	52.8	51.3	59.7	60.0
Heavy Trucks:	62.0	60.6	51.6	52.8	61.2	61.3
Vehicle Noise:	68.7	67.0	63.7	59.1	67.7	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	66	143	308
CNEL:	33	71	153	330

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: S Rancho Av.
Road Segment: w/o La Cadena Dr.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	940 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-0.46	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	73.48	-17.70	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	79.92	-21.65	1.18	-1.20	-5.45	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:	61.2	59.3	57.6	51.5	60.1	60.7
Medium Trucks:	55.8	54.3	47.9	46.3	54.8	55.0
Heavy Trucks:	58.2	56.8	47.8	49.0	57.4	57.5
Vehicle Noise:	63.8	62.1	58.4	54.2	62.8	63.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	73	158
CNEL:	17	36	78	168

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Barton Rd.
Road Segment: w/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,530 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.41	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-16.83	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.79	0.34	-1.20	-5.43	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:	66.0	64.1	62.4	56.3	64.9	65.5
Medium Trucks:	60.0	58.5	52.2	50.6	59.1	59.3
Heavy Trucks:	61.3	59.9	50.9	52.1	60.5	60.6
Vehicle Noise:	68.0	66.3	63.0	58.5	67.0	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	68	147	317
CNEL:	34	73	157	339

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Barton Rd.
Road Segment: e/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,600 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.09	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-17.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.10	0.34	-1.20	-5.43	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:	67.7	65.8	64.0	57.9	66.6	67.2
Medium Trucks:	61.4	59.9	53.6	52.0	60.5	60.7
Heavy Trucks:	62.3	60.9	51.8	53.1	61.4	61.6
Vehicle Noise:	69.5	67.8	64.6	59.9	68.5	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	85	184	396
CNEL:	42	91	197	425

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: W Main St.
Road Segment: e/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.81	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-21.04	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.00	1.17	-1.20	-5.50	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:	62.6	60.8	59.0	52.9	61.6	62.2
Medium Trucks:	56.6	55.1	48.8	47.2	55.7	55.9
Heavy Trucks:	58.0	56.5	47.5	48.8	57.1	57.2
Vehicle Noise:	64.7	62.9	59.7	55.1	63.6	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	77	166
CNEL:	18	38	82	178

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: W Main St.
Road Segment: w/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	460 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-2.77	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	70.80	-20.01	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-23.96	0.34	-1.20	-5.43	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:	55.1	53.2	51.4	45.4	54.0	54.6
Medium Trucks:	49.9	48.4	42.1	40.5	49.0	49.2
Heavy Trucks:	53.1	51.7	42.7	43.9	52.3	52.4
Vehicle Noise:	58.0	56.3	52.4	48.5	57.0	57.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	31	68
CNEL:	7	15	33	72

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: W Main St.
Road Segment: e/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	310 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	*Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.53	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-23.76	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-27.72	0.34	-1.20	-5.43	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:	59.1	57.2	55.4	49.4	58.0	58.6
Medium Trucks:	53.1	51.6	45.2	43.7	52.1	52.4
Heavy Trucks:	54.4	53.0	44.0	45.2	53.6	53.7
Vehicle Noise:	61.1	59.4	56.1	51.6	60.1	60.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	24	51	109
CNEL:	12	25	54	117

Tuesday, August 02, 2016

151

Top Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Placentia Ln.
Road Segment: e/o S Riverside Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 5,700 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 570 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 25 mph	
Near/Far Lane Distance: 50 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.84	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	70.80	-19.08	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-23.03	1.18	-1.20	-5.45	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:	56.8	54.9	53.2	47.1	55.7	56.3
Medium Trucks:	51.7	50.2	43.8	42.3	50.7	51.0
Heavy Trucks:	54.9	53.5	44.5	45.7	54.1	54.2
Vehicle Noise:	59.7	58.1	54.1	50.2	58.7	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	18	40	85
CNEL:	9	20	42	91

Tuesday, August 02, 2016

Top Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: W Center St.
Road Segment: w/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 5,600 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 560 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 40 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.96	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-21.20	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.15	1.31	-1.20	-5.50	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:	62.6	60.7	59.0	52.9	61.5	62.1
Medium Trucks:	56.6	55.1	48.8	47.2	55.7	55.9
Heavy Trucks:	58.0	56.5	47.5	48.7	57.1	57.2
Vehicle Noise:	64.6	62.9	59.6	55.1	63.6	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	77	165
CNEL:	18	38	82	177

Tuesday, August 02, 2016

Bottom Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: W Center St.
Road Segment: w/o Stephens Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 6,900 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 690 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 40 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.05	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.29	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.25	0.34	-1.20	-5.43	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:	62.6	60.7	58.9	52.9	61.5	62.1
Medium Trucks:	56.6	55.1	48.7	47.1	55.6	55.8
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.2
Vehicle Noise:	64.6	62.9	59.6	55.0	63.6	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	40	86	186
CNEL:	20	43	93	199

Tuesday, August 02, 2016

Bottom Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Columbia Av.
Road Segment: e/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 14,900 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 1,490 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 45 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.22	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-17.46	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.41	0.34	-1.20	-5.43	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:	67.4	65.5	63.7	57.6	66.3	66.9
Medium Trucks:	61.1	59.6	53.3	51.7	60.2	60.4
Heavy Trucks:	62.0	60.6	51.5	52.8	61.1	61.2
Vehicle Noise:	69.2	67.5	64.3	59.6	68.2	68.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	81	175	377
CNEL:	40	87	188	405

Tuesday, August 02, 2016

152

Table 1 (Top Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project	*Project Name:* Roquet Ranchq
Road Name: S Riverside Av.	*Job Number:* 9436
Road Segment: n/o Placentia Ln.	

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 23,300 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 2,330 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 50 mph	
Near/Far Lane Distance: 50 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 48.0 feet	
Centerline Dist. to Observer: 48.0 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 Source Elevations (in feet)

Autos: 0.000	
Medium Trucks: 2.297	
Heavy Trucks: 8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos: 41.280	
Medium Trucks: 41.065	
Heavy Trucks: 41.086	

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.26	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-15.97	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.93	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	65.0	63.5	57.1	55.6	64.1	64.3
Heavy Trucks:	65.4	64.0	55.0	56.2	64.6	64.7
Vehicle Noise:	73.1	71.4	68.3	63.5	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	142	307	661
CNEL:	71	153	330	710

Tuesday, August 02, 2016

Table 2 (Top Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project	*Project Name:* Roquet Ranchq
Road Name: Main St.	*Job Number:* 9436
Road Segment: s/o Placentia Ln.	

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 22,800 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 2,280 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 50 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 50.0 feet	
Centerline Dist. to Observer: 50.0 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 Source Elevations (in feet)

Autos: 0.000	
Medium Trucks: 2.297	
Heavy Trucks: 8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos: 46.915	
Medium Trucks: 46.726	
Heavy Trucks: 46.744	

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.17	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.07	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.02	0.34	-1.20	-5.43	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:	70.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.3
Heavy Trucks:	64.5	63.1	54.0	55.3	63.6	63.8
Vehicle Noise:	72.2	70.4	67.4	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	277	597
CNEL:	64	138	298	641

Tuesday, August 02, 2016

Table 3 (Bottom Left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project	*Project Name:* Roquet Ranchq
Road Name: Main St.	*Job Number:* 9436
Road Segment: n/o Columbia Av.	

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 27,500 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 2,750 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 50 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 50.0 feet	
Centerline Dist. to Observer: 50.0 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 Source Elevations (in feet)

Autos: 0.000	
Medium Trucks: 2.297	
Heavy Trucks: 8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos: 46.915	
Medium Trucks: 46.726	
Heavy Trucks: 46.744	

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.98	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.25	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.21	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	64.9	63.4	57.0	55.5	63.9	64.2
Heavy Trucks:	65.3	63.9	54.8	56.1	64.5	64.6
Vehicle Noise:	73.0	71.2	68.2	63.4	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	146	314	676
CNEL:	73	157	337	727

Tuesday, August 02, 2016

Table 4 (Bottom Right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project	*Project Name:* Roquet Ranchq
Road Name: Main St.	*Job Number:* 9436
Road Segment: s/o Columbia Av.	

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 19,600 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 1,960 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 45 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 50.0 feet	
Centerline Dist. to Observer: 50.0 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 Source Elevations (in feet)

Autos: 0.000	
Medium Trucks: 2.297	
Heavy Trucks: 8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos: 46.915	
Medium Trucks: 46.726	
Heavy Trucks: 46.744	

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.97	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-16.27	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.22	0.34	-1.20	-5.43	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	66.6	64.9	58.8	67.4	68.1
Medium Trucks:	62.3	60.8	54.5	52.9	61.4	61.6
Heavy Trucks:	63.2	61.7	52.7	54.0	62.3	62.4
Vehicle Noise:	70.4	68.6	65.5	60.8	69.4	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	98	210	453
CNEL:	49	105	226	486

Tuesday, August 02, 2016

153

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: Orange St.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	300 vehicles
Vehicle Speed:	40 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.67	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	77.72	-23.91	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-27.86	2.69	-1.20	-5.69	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:	61.3	59.4	57.6	51.6	60.2	60.8
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	56.6	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	63.3	61.6	58.3	53.7	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	22	47	101
CNEL:	11	23	50	108

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: Orange St.
Road Segment: n/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	490 vehicles
Vehicle Speed:	35 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.96	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-21.20	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-25.15	2.69	-1.20	-5.69	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:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	56.0	54.5	48.2	46.6	55.1	55.3
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.2
Vehicle Noise:	64.0	62.3	58.9	54.5	63.0	63.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	24	52	113
CNEL:	12	26	56	121

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: Orange St.
Road Segment: s/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	650 vehicles
Vehicle Speed:	35 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.73	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.97	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.92	2.69	-1.20	-5.69	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:	63.0	61.1	59.3	53.3	61.9	62.5
Medium Trucks:	57.3	55.8	49.4	47.9	56.3	56.6
Heavy Trucks:	59.1	57.7	48.7	49.9	58.3	58.4
Vehicle Noise:	65.3	63.5	60.1	55.7	64.2	64.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	29	63	136
CNEL:	15	31	68	146

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: La Cadena Dr.
Road Segment: n/o S Rancho Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,140 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.84	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-19.08	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.03	1.18	-1.20	-5.45	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	66.4	64.6	58.6	67.2	67.8
Medium Trucks:	61.9	60.4	54.0	52.5	60.9	61.2
Heavy Trucks:	62.3	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	70.0	68.3	65.2	60.4	69.0	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	88	191	410
CNEL:	44	95	205	441

Tuesday, August 02, 2016

154

Panel 1 (top left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: La Cadena Dr.
Road Segment: s/o S Rancho Av.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,000 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.60	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.64	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.59	1.18	-1.20	-5.45	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:	70.8	68.9	67.1	61.0	69.7	70.3
Medium Trucks:	64.3	62.8	56.5	54.9	63.4	63.6
Heavy Trucks:	64.8	63.3	54.3	55.6	63.9	64.0
Vehicle Noise:	72.5	70.7	67.7	62.9	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	277	597
CNEL:	64	138	298	641

Tuesday, August 02, 2016

Panel 2 (top right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: La Cadena Dr.
Road Segment: s/o W Litton Av.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,050 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.71	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.53	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.49	1.18	-1.20	-5.45	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:	70.9	69.0	67.2	61.1	69.8	70.4
Medium Trucks:	64.5	62.9	56.6	55.0	63.5	63.7
Heavy Trucks:	64.9	63.4	54.4	55.7	64.0	64.1
Vehicle Noise:	72.6	70.8	67.8	63.0	71.5	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	131	282	607
CNEL:	65	140	303	652

Tuesday, August 02, 2016

Panel 3 (bottom left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: La Cadena Dr.
Road Segment: s/o Barton Rd.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,940 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.47	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.77	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.72	1.18	-1.20	-5.45	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:	70.6	68.7	67.0	60.9	69.5	70.1
Medium Trucks:	64.2	62.7	56.3	54.8	63.3	63.5
Heavy Trucks:	64.6	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	72.3	70.6	67.5	62.7	71.3	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	59	126	272	585
CNEL:	63	135	292	629

Tuesday, August 02, 2016

Panel 4 (bottom right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: La Cadena Dr.
Road Segment: n/o S Iowa Av.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,800 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.14	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-17.09	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.05	1.18	-1.20	-5.45	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:	70.3	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	63.9	62.4	56.0	54.5	62.9	63.2
Heavy Trucks:	64.3	62.9	53.8	55.1	63.5	63.6
Vehicle Noise:	72.0	70.2	67.2	62.4	71.0	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	258	557
CNEL:	60	129	278	598

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: La Cadena Dr. *Project Name:* Roquet Ranchq
Road Segment: s/o S Iowa Av. *Job Number:* 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	12,600 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,260 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.40	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-18.64	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-22.60	1.18	-1.20	-5.45	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	66.8	65.1	59.0	67.6	68.3
Medium Trucks:	62.3	60.8	54.5	52.9	61.4	61.6
Heavy Trucks:	62.8	61.3	52.3	53.5	61.9	62.0
Vehicle Noise:	70.4	68.7	65.6	60.9	69.4	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	95	204	439
CNEL:	47	102	219	471

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: La Cadena Dr. *Project Name:* Roquet Ranchq
Road Segment: s/o Pellissier Rd. *Job Number:* 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	10,600 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,060 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.16	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-19.39	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.35	1.18	-1.20	-5.45	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:	68.0	66.1	64.3	58.3	66.9	67.5
Medium Trucks:	61.6	60.1	53.7	52.2	60.6	60.9
Heavy Trucks:	62.0	60.6	51.5	52.8	61.2	61.3
Vehicle Noise:	69.7	67.9	64.9	60.1	68.7	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	182	391
CNEL:	42	91	195	420

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: I-215 SB Fwy *Project Name:* Roquet Ranchq
Road Segment: n/o Barton Rd. *Job Number:* 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	54,400 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	5,440 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.61	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.48	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.04	-2.16	-1.20	-5.20	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:	74.8	72.9	71.1	65.1	73.7	74.3
Medium Trucks:	70.0	68.5	62.2	60.6	69.1	69.3
Heavy Trucks:	74.8	73.4	64.3	65.6	73.9	74.1
Vehicle Noise:	78.5	76.8	72.4	69.0	77.5	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	272	585	1,261	2,717
CNEL:	287	617	1,330	2,866

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: I-215 SB Fwy *Project Name:* Roquet Ranchq
Road Segment: s/o Barton Rd. *Job Number:* 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	53,500 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	5,350 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.54	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.56	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.11	-2.16	-1.20	-5.20	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:	74.7	72.8	71.0	65.0	73.6	74.2
Medium Trucks:	69.9	68.4	62.1	60.5	69.0	69.2
Heavy Trucks:	74.7	73.3	64.3	65.5	73.9	74.0
Vehicle Noise:	78.4	76.8	72.3	68.9	77.4	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	269	579	1,247	2,687
CNEL:	283	611	1,316	2,834

Tuesday, August 02, 2016

156

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project   *Project Name:* Roquet Ranchq
Road Name: I-215 SB Fwy   *Job Number:* 9436
Road Segment: n/o S Iowa Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt):	53,500 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	5,350 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.54	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.56	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.11	-2.16	-1.20	-5.20	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:	74.7	72.8	71.0	65.0	73.6	74.2
Medium Trucks:	69.9	68.4	62.1	60.5	69.0	69.2
Heavy Trucks:	74.7	73.3	64.3	65.5	73.9	74.0
Vehicle Noise:	78.4	76.8	72.3	68.9	77.4	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	269	579	1,247	2,687
CNEL:	283	611	1,316	2,834

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project   *Project Name:* Roquet Ranchq
Road Name: I-215 SB Fwy   *Job Number:* 9436
Road Segment: s/o S Iowa Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt):	50,000 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	5,000 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.24	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.85	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.40	-2.16	-1.20	-5.20	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:	74.4	72.5	70.8	64.7	73.3	73.9
Medium Trucks:	69.7	68.1	61.8	60.2	68.7	68.9
Heavy Trucks:	74.4	73.0	64.0	65.2	73.6	73.7
Vehicle Noise:	78.1	76.5	72.0	68.6	77.1	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	257	553	1,192	2,569
CNEL:	271	584	1,258	2,709

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project   *Project Name:* Roquet Ranchq
Road Name: I-215 NB Fwy   *Job Number:* 9436
Road Segment: n/o S Barton Rd.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt):	60,000 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	6,000 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	4.04	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.06	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.61	-2.16	-1.20	-5.20	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:	75.2	73.3	71.5	65.5	74.1	74.7
Medium Trucks:	70.4	68.9	62.6	61.0	69.5	69.7
Heavy Trucks:	75.2	73.8	64.8	66.0	74.4	74.5
Vehicle Noise:	78.9	77.3	72.8	69.4	77.9	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	290	625	1,346	2,901
CNEL:	306	659	1,420	3,060

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project   *Project Name:* Roquet Ranchq
Road Name: I-215 NB Fwy   *Job Number:* 9436
Road Segment: s/o S Barton Rd.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt):	60,700 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	6,070 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	4.09	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.01	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.56	-2.16	-1.20	-5.20	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:	75.3	73.4	71.6	65.5	74.2	74.8
Medium Trucks:	70.5	69.0	62.6	61.1	69.5	69.8
Heavy Trucks:	75.3	73.8	64.8	66.1	74.4	74.5
Vehicle Noise:	78.9	77.3	72.9	69.5	78.0	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	292	630	1,357	2,923
CNEL:	308	664	1,431	3,083

Tuesday, August 02, 2016

Panel 1 (top-left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: I-215 NB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	60,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,070 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	4.09	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.01	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.56	-2.16	-1.20	-5.20	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:	75.3	73.4	71.6	65.5	74.2	74.8
Medium Trucks:	70.5	69.0	62.6	61.1	69.5	69.8
Heavy Trucks:	75.3	73.8	64.8	66.1	74.4	74.5
Vehicle Noise:	78.9	77.3	72.9	69.5	78.0	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	292	630	1,357	2,923
CNEL:	308	664	1,431	3,083

Tuesday, August 02, 2016

Panel 2 (top-right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: I-215 NB Fwy
Road Segment: s/o Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,660 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.78	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.31	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.86	-2.16	-1.20	-5.20	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:	75.0	73.1	71.3	65.2	73.9	74.5
Medium Trucks:	70.2	68.7	62.3	60.8	69.2	69.5
Heavy Trucks:	75.0	73.5	64.5	65.7	74.1	74.2
Vehicle Noise:	78.6	77.0	72.6	69.2	77.7	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	279	601	1,295	2,790
CNEL:	294	634	1,366	2,943

Tuesday, August 02, 2016

Panel 3 (bottom-left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: Iowa Av.
Road Segment: n/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,750 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.48	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.76	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.71	-0.97	-1.20	-5.31	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:	66.8	64.9	63.1	57.0	65.7	66.3
Medium Trucks:	60.5	59.0	52.7	51.1	59.6	59.8
Heavy Trucks:	61.4	59.9	50.9	52.2	60.5	60.6
Vehicle Noise:	68.6	66.8	63.7	59.0	67.6	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	95	204	440
CNEL:	47	102	219	472

Tuesday, August 02, 2016

Panel 4 (bottom-right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: Iowa Av.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,730 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.43	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.81	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.76	-0.97	-1.20	-5.31	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:	66.7	64.8	63.0	57.0	65.6	66.2
Medium Trucks:	60.5	59.0	52.6	51.1	59.5	59.7
Heavy Trucks:	61.3	59.9	50.9	52.1	60.5	60.6
Vehicle Noise:	68.5	66.8	63.6	59.0	67.5	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	94	203	437
CNEL:	47	101	218	469

Tuesday, August 02, 2016

158

Top Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project	*Project Name:* Roquet Ranchq
Road Name: Mt. Vernon Av.	*Job Number:* 9436
Road Segment: n/o Barton Rd.	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 11,800 vehicles	Autos:	15		
Peak Hour Percentage: 10%	Medium Trucks (2 Axles):	15		
Peak Hour Volume: 1,180 vehicles	Heavy Trucks (3+ Axles):	15		
Vehicle Speed: 40 mph				
Near/Far Lane Distance: 32 feet				

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.72	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-17.96	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.91	1.17	-1.20	-5.50	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:	65.7	63.8	62.1	56.0	64.6	65.2
Medium Trucks:	59.7	58.2	51.9	50.3	58.8	59.0
Heavy Trucks:	61.1	59.6	50.6	51.8	60.2	60.3
Vehicle Noise:	67.8	66.0	62.7	58.2	66.7	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	57	124	266
CNEL:	29	61	132	285

Tuesday, August 02, 2016

Top Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project	*Project Name:* Roquet Ranchq
Road Name: Mt. Vernon Av.	*Job Number:* 9436
Road Segment: s/o Barton Rd.	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 17,000 vehicles	Autos:	15		
Peak Hour Percentage: 10%	Medium Trucks (2 Axles):	15		
Peak Hour Volume: 1,700 vehicles	Heavy Trucks (3+ Axles):	15		
Vehicle Speed: 40 mph				
Near/Far Lane Distance: 32 feet				

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.86	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-16.37	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.33	1.17	-1.20	-5.50	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:	67.3	65.4	63.7	57.6	66.2	66.8
Medium Trucks:	61.3	59.8	53.4	51.9	60.4	60.6
Heavy Trucks:	62.6	61.2	52.2	53.4	61.8	61.9
Vehicle Noise:	69.3	67.6	64.3	59.8	68.3	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	73	158	340
CNEL:	36	78	169	364

Tuesday, August 02, 2016

Bottom Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project	*Project Name:* Roquet Ranchq
Road Name: S Rancho Av.	*Job Number:* 9436
Road Segment: w/o La Cadena Dr.	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 9,400 vehicles	Autos:	15		
Peak Hour Percentage: 10%	Medium Trucks (2 Axles):	15		
Peak Hour Volume: 940 vehicles	Heavy Trucks (3+ Axles):	15		
Vehicle Speed: 30 mph				
Near/Far Lane Distance: 50 feet				

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-0.46	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	73.48	-17.70	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	79.92	-21.65	1.18	-1.20	-5.45	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:	61.2	59.3	57.6	51.5	60.1	60.7
Medium Trucks:	55.8	54.3	47.9	46.3	54.8	55.0
Heavy Trucks:	58.2	56.8	47.8	49.0	57.4	57.5
Vehicle Noise:	63.8	62.1	58.4	54.2	62.8	63.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	73	158
CNEL:	17	36	78	168

Tuesday, August 02, 2016

Bottom Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project	*Project Name:* Roquet Ranchq
Road Name: Barton Rd.	*Job Number:* 9436
Road Segment: w/o Mt. Vernon Av.	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 15,900 vehicles	Autos:	15		
Peak Hour Percentage: 10%	Medium Trucks (2 Axles):	15		
Peak Hour Volume: 1,590 vehicles	Heavy Trucks (3+ Axles):	15		
Vehicle Speed: 40 mph				
Near/Far Lane Distance: 36 feet				

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.57	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-16.66	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.62	0.34	-1.20	-5.43	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:	66.2	64.3	62.5	56.5	65.1	65.7
Medium Trucks:	60.2	58.7	52.3	50.8	59.2	59.5
Heavy Trucks:	61.5	60.1	51.1	52.3	60.7	60.8
Vehicle Noise:	68.2	66.5	63.2	58.7	67.2	67.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	70	151	325
CNEL:	35	75	161	348

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: Barton Rd.
Road Segment: e/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,670 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.28	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-16.96	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.92	0.34	-1.20	-5.43	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:	67.8	65.9	64.2	58.1	66.8	67.4
Medium Trucks:	61.6	60.1	53.8	52.2	60.7	60.9
Heavy Trucks:	62.5	61.0	52.0	53.3	61.6	61.7
Vehicle Noise:	69.7	67.9	64.8	60.1	68.7	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	88	189	407
CNEL:	44	94	203	437

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: W Main St.
Road Segment: e/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	660 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.24	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-20.48	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.44	1.17	-1.20	-5.50	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:	63.2	61.3	59.5	53.5	62.1	62.7
Medium Trucks:	57.2	55.7	49.3	47.8	56.3	56.5
Heavy Trucks:	58.5	57.1	48.1	49.3	57.7	57.8
Vehicle Noise:	65.2	63.5	60.2	55.7	64.2	64.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	39	84	181
CNEL:	19	42	90	194

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: W Main St.
Road Segment: w/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.99	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	70.80	-19.23	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-23.19	0.34	-1.20	-5.43	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:	55.9	54.0	52.2	46.1	54.8	55.4
Medium Trucks:	50.7	49.2	42.8	41.3	49.7	50.0
Heavy Trucks:	53.9	52.5	43.5	44.7	53.1	53.2
Vehicle Noise:	58.7	57.1	53.2	49.2	57.8	58.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	16	35	76
CNEL:	8	17	38	81

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: W Main St.
Road Segment: e/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	400 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.42	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-22.66	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-26.61	0.34	-1.20	-5.43	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:	60.2	58.3	56.5	50.5	59.1	59.7
Medium Trucks:	54.2	52.7	46.3	44.8	53.2	53.5
Heavy Trucks:	55.5	54.1	45.1	46.3	54.7	54.8
Vehicle Noise:	62.2	60.5	57.2	52.7	61.2	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	60	129
CNEL:	14	30	64	139

Tuesday, August 02, 2016

160

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: Placentia Ln.
Road Segment: e/o S Riverside Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	590 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.69	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	70.80	-18.93	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-22.88	1.18	-1.20	-5.45	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:	57.0	55.1	53.3	47.3	55.9	56.5
Medium Trucks:	51.8	50.3	44.0	42.4	50.9	51.1
Heavy Trucks:	55.1	53.6	44.6	45.9	54.2	54.3
Vehicle Noise:	59.9	58.2	54.3	50.4	58.9	59.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	19	40	87
CNEL:	9	20	43	93

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: W Center St.
Road Segment: w/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.12	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-21.35	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.31	1.31	-1.20	-5.50	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	60.6	58.8	52.8	61.4	62.0
Medium Trucks:	56.5	55.0	48.6	47.1	55.5	55.8
Heavy Trucks:	57.8	56.4	47.3	48.6	56.9	57.1
Vehicle Noise:	64.5	62.8	59.5	54.9	63.5	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	75	161
CNEL:	17	37	80	173

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: W Center St.
Road Segment: w/o Stephens Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	870 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.04	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.28	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.24	0.34	-1.20	-5.43	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	61.7	59.9	53.9	62.5	63.1
Medium Trucks:	57.6	56.1	49.7	48.2	56.6	56.8
Heavy Trucks:	58.9	57.5	48.4	49.7	58.0	58.2
Vehicle Noise:	65.6	63.9	60.6	56.0	64.6	65.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	47	101	217
CNEL:	23	50	108	233

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 Without Project
Road Name: Columbia Av.
Road Segment: e/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,530 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.10	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-17.34	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.30	0.34	-1.20	-5.43	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:	67.5	65.6	63.8	57.7	66.4	67.0
Medium Trucks:	61.2	59.7	53.4	51.8	60.3	60.5
Heavy Trucks:	62.1	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	69.3	67.6	64.4	59.7	68.3	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	83	178	384
CNEL:	41	89	191	412

Tuesday, August 02, 2016

161

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: S Riverside Av.
Road Segment: n/o Placentia Ln.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,370 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.34	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-15.90	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.86	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.6	67.8	61.8	70.4	71.0
Medium Trucks:	65.1	63.6	57.2	55.7	64.1	64.4
Heavy Trucks:	65.5	64.1	55.0	56.3	64.6	64.8
Vehicle Noise:	73.2	71.4	68.4	63.6	72.2	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	144	310	669
CNEL:	72	155	333	718

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Main St.
Road Segment: s/o Placentia Ln.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,380 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.36	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.88	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.84	0.34	-1.20	-5.43	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:	70.7	68.8	67.0	61.0	69.6	70.2
Medium Trucks:	64.3	62.7	56.4	54.8	63.3	63.5
Heavy Trucks:	64.7	63.3	54.2	55.5	63.8	64.0
Vehicle Noise:	72.4	70.6	67.6	62.8	71.3	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	132	285	614
CNEL:	66	142	306	660

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Main St.
Road Segment: n/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,840 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.12	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.11	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.07	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.8	61.7	70.3	70.9
Medium Trucks:	65.0	63.5	57.2	55.6	64.1	64.3
Heavy Trucks:	65.4	64.0	55.0	56.2	64.6	64.7
Vehicle Noise:	73.1	71.4	68.3	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	691
CNEL:	74	160	345	743

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Main St.
Road Segment: s/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,030 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.12	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-16.11	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.07	0.34	-1.20	-5.43	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	66.8	65.0	59.0	67.6	68.2
Medium Trucks:	62.5	61.0	54.6	53.1	61.5	61.8
Heavy Trucks:	63.3	61.9	52.9	54.1	62.5	62.6
Vehicle Noise:	70.5	68.8	65.6	61.0	69.5	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	100	215	464
CNEL:	50	107	231	498

Tuesday, August 02, 2016

162

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Orange St.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	380 vehicles
Vehicle Speed:	40 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.64	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	77.72	-22.88	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-26.84	2.69	-1.20	-5.69	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:	62.3	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	56.3	54.8	48.5	46.9	55.4	55.6
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	64.3	62.6	59.3	54.8	63.3	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	25	55	118
CNEL:	13	27	59	127

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Orange St.
Road Segment: n/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	570 vehicles
Vehicle Speed:	35 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.30	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-20.54	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-24.49	2.69	-1.20	-5.69	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:	62.4	60.5	58.8	52.7	61.3	61.9
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	56.0
Heavy Trucks:	58.6	57.1	48.1	49.3	57.7	57.8
Vehicle Noise:	64.7	63.0	59.5	55.1	63.7	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	27	58	125
CNEL:	13	29	62	133

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Orange St.
Road Segment: s/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	690 vehicles
Vehicle Speed:	35 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.47	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.71	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.67	2.69	-1.20	-5.69	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:	63.3	61.4	59.6	53.5	62.2	62.8
Medium Trucks:	57.5	56.0	49.7	48.1	56.6	56.8
Heavy Trucks:	59.4	58.0	48.9	50.2	58.5	58.7
Vehicle Noise:	65.5	63.8	60.3	56.0	64.5	64.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	31	66	142
CNEL:	15	33	70	151

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: La Cadena Dr.
Road Segment: n/o S Rancho Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,230 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.51	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-18.75	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-22.70	1.18	-1.20	-5.45	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	66.7	65.0	58.9	67.5	68.1
Medium Trucks:	62.2	60.7	54.4	52.8	61.3	61.5
Heavy Trucks:	62.7	61.2	52.2	53.4	61.8	61.9
Vehicle Noise:	70.3	68.6	65.5	60.8	69.3	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	43	93	200	432
CNEL:	46	100	215	464

Tuesday, August 02, 2016

163

Top Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: La Cadena Dr.
Road Segment: s/o S Rancho Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,170 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.96	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.28	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.24	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.4	61.4	70.0	70.6
Medium Trucks:	64.7	63.2	56.8	55.3	63.7	64.0
Heavy Trucks:	65.1	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	72.8	71.1	68.0	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	136	293	630
CNEL:	68	146	314	677

Tuesday, August 02, 2016

Top Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: La Cadena Dr.
Road Segment: s/o W Litton Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,230 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.07	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.16	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.12	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.6	61.5	70.1	70.7
Medium Trucks:	64.8	63.3	56.9	55.4	63.9	64.1
Heavy Trucks:	65.2	63.8	54.8	56.0	64.4	64.5
Vehicle Noise:	72.9	71.2	68.1	63.3	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	138	298	642
CNEL:	69	149	320	690

Tuesday, August 02, 2016

Bottom Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: La Cadena Dr.
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,360 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.32	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-15.92	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.87	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.6	67.8	61.8	70.4	71.0
Medium Trucks:	65.1	63.6	57.2	55.6	64.1	64.3
Heavy Trucks:	65.5	64.1	55.0	56.3	64.6	64.8
Vehicle Noise:	73.2	71.4	68.4	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	144	309	667
CNEL:	72	154	332	716

Tuesday, August 02, 2016

Bottom Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: La Cadena Dr.
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,200 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.02	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.22	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.18	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.5	61.4	70.1	70.7
Medium Trucks:	64.8	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	65.2	63.8	54.7	56.0	64.3	64.4
Vehicle Noise:	72.9	71.1	68.1	63.3	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	137	295	636
CNEL:	68	147	317	684

Tuesday, August 02, 2016

Top Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project	*Project Name:* Roquet Ranchq
Road Name: La Cadena Dr.	*Job Number:* 9436
Road Segment: s/o S Iowa Av.	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt): 19,000 vehicles	Autos:	15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles):	15
Peak Hour Volume: 1,900 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed: 50 mph		
Near/Far Lane Distance: 50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 48.0 feet	
Centerline Dist. to Observer: 48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.38	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.86	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.82	1.18	-1.20	-5.45	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:	70.5	68.6	66.9	60.8	69.4	70.0
Medium Trucks:	64.1	62.6	56.3	54.7	63.2	63.4
Heavy Trucks:	64.5	63.1	54.1	55.3	63.7	63.8
Vehicle Noise:	72.2	70.5	67.4	62.7	71.2	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	124	268	577
CNEL:	62	134	288	620

Tuesday, August 02, 2016

Top Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project	*Project Name:* Roquet Ranchq
Road Name: La Cadena Dr.	*Job Number:* 9436
Road Segment: s/o Pellissier Rd.	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt): 12,600 vehicles	Autos:	15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles):	15
Peak Hour Volume: 1,260 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed: 50 mph		
Near/Far Lane Distance: 50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 48.0 feet	
Centerline Dist. to Observer: 48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.40	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-18.64	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-22.60	1.18	-1.20	-5.45	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	66.8	65.1	59.0	67.6	68.3
Medium Trucks:	62.3	60.8	54.5	52.9	61.4	61.6
Heavy Trucks:	62.8	61.3	52.3	53.5	61.9	62.0
Vehicle Noise:	70.4	68.7	65.6	60.9	69.4	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	95	204	439
CNEL:	47	102	219	471

Tuesday, August 02, 2016

Bottom Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project	*Project Name:* Roquet Ranchq
Road Name: I-215 SB Fwy	*Job Number:* 9436
Road Segment: n/o Barton Rd.	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt): 55,600 vehicles	Autos:	15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles):	15
Peak Hour Volume: 5,560 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed: 65 mph		
Near/Far Lane Distance: 104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 86.0 feet	
Centerline Dist. to Observer: 86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.71	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.39	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.94	-2.16	-1.20	-5.20	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:	74.9	73.0	71.2	65.2	73.8	74.4
Medium Trucks:	70.1	68.6	62.2	60.7	69.2	69.4
Heavy Trucks:	74.9	73.5	64.4	65.7	74.0	74.2
Vehicle Noise:	78.6	76.9	72.5	69.1	77.6	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	276	594	1,280	2,757
CNEL:	291	627	1,350	2,908

Tuesday, August 02, 2016

Bottom Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project	*Project Name:* Roquet Ranchq
Road Name: I-215 SB Fwy	*Job Number:* 9436
Road Segment: s/o Pellissier Rd.	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data — **Site Conditions (Hard = 10, Soft = 15)**

Average Daily Traffic (Adt): 54,100 vehicles	Autos:	15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles):	15
Peak Hour Volume: 5,410 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed: 65 mph		
Near/Far Lane Distance: 104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 86.0 feet	
Centerline Dist. to Observer: 86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.59	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.51	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.06	-2.16	-1.20	-5.20	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:	74.8	72.9	71.1	65.0	73.7	74.3
Medium Trucks:	70.0	68.5	62.1	60.6	69.0	69.3
Heavy Trucks:	74.8	73.3	64.3	65.6	73.9	74.0
Vehicle Noise:	78.4	76.8	72.4	69.0	77.5	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	271	583	1,257	2,707
CNEL:	286	615	1,325	2,856

Tuesday, August 02, 2016

165

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: I-215 SB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	54,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,410 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.59	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.51	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.06	-2.16	-1.20	-5.20	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:	74.8	72.9	71.1	65.0	73.7	74.3
Medium Trucks:	70.0	68.5	62.1	60.6	69.0	69.3
Heavy Trucks:	74.8	73.3	64.3	65.6	73.9	74.0
Vehicle Noise:	78.4	76.8	72.4	69.0	77.5	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	271	583	1,257	2,707
CNEL:	286	615	1,325	2,856

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: I-215 SB Fwy
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,050 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.29	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.81	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-10.36	-2.16	-1.20	-5.20	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:	74.5	72.6	70.8	64.7	73.4	74.0
Medium Trucks:	69.7	68.2	61.8	60.3	68.7	69.0
Heavy Trucks:	74.5	73.0	64.0	65.3	73.6	73.7
Vehicle Noise:	78.1	76.5	72.1	68.7	77.2	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	259	557	1,200	2,586
CNEL:	273	588	1,266	2,727

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: I-215 NB Fwy
Road Segment: n/o S Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	60,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,070 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	4.09	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.01	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.56	-2.16	-1.20	-5.20	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:	75.3	73.4	71.6	65.5	74.2	74.8
Medium Trucks:	70.5	69.0	62.6	61.1	69.5	69.8
Heavy Trucks:	75.3	73.8	64.8	66.1	74.4	74.5
Vehicle Noise:	78.9	77.3	72.9	69.5	78.0	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	292	630	1,357	2,923
CNEL:	308	664	1,431	3,083

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: I-215 NB Fwy
Road Segment: s/o S Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	61,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,110 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	4.12	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-10.98	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.53	-2.16	-1.20	-5.20	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:	75.3	73.4	71.6	65.6	74.2	74.8
Medium Trucks:	70.5	69.0	62.7	61.1	69.6	69.8
Heavy Trucks:	75.3	73.9	64.8	66.1	74.4	74.6
Vehicle Noise:	79.0	77.3	72.9	69.5	78.0	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	294	633	1,363	2,936
CNEL:	310	667	1,437	3,097

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: I-215 NB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA — NOISE MODEL INPUTS

Highway Data — Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt):	61,100 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	6,110 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	4.12	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-10.98	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.53	-2.16	-1.20	-5.20	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:	75.3	73.4	71.6	65.6	74.2	74.8
Medium Trucks:	70.5	69.0	62.7	61.1	69.6	69.8
Heavy Trucks:	75.3	73.9	64.8	66.1	74.4	74.6
Vehicle Noise:	79.0	77.3	72.9	69.5	78.0	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	294	633	1,363	2,936
CNEL:	310	667	1,437	3,097

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: I-215 NB Fwy
Road Segment: s/o Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA — NOISE MODEL INPUTS

Highway Data — Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt):	57,400 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	5,740 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	65 mph		
Near/Far Lane Distance:	104 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	3.84	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-11.25	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.80	-2.16	-1.20	-5.20	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:	75.0	73.1	71.4	65.3	73.9	74.5
Medium Trucks:	70.3	68.7	62.4	60.8	69.3	69.5
Heavy Trucks:	75.0	73.6	64.6	65.8	74.2	74.3
Vehicle Noise:	78.7	77.1	72.6	69.2	77.7	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	282	607	1,307	2,816
CNEL:	297	640	1,379	2,970

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Iowa Av.
Road Segment: n/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA — NOISE MODEL INPUTS

Highway Data — Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt):	17,800 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,780 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	58 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.55	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.69	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.64	-0.97	-1.20	-5.31	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:	66.8	64.9	63.2	57.1	65.7	66.3
Medium Trucks:	60.6	59.1	52.7	51.2	59.6	59.9
Heavy Trucks:	61.4	60.0	51.0	52.2	60.6	60.7
Vehicle Noise:	68.7	66.9	63.8	59.1	67.6	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	96	207	445
CNEL:	48	103	222	478

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Iowa Av.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA — NOISE MODEL INPUTS

Highway Data — Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt):	17,900 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,790 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	58 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.58	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.66	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.62	-0.97	-1.20	-5.31	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:	66.9	65.0	63.2	57.1	65.8	66.4
Medium Trucks:	60.6	59.1	52.7	51.2	59.7	59.9
Heavy Trucks:	61.5	60.0	51.0	52.3	60.6	60.7
Vehicle Noise:	68.7	66.9	63.8	59.1	67.7	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	96	207	447
CNEL:	48	103	223	480

Tuesday, August 02, 2016

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Mt. Vernon Av.
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,210 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.61	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-17.85	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.81	1.17	-1.20	-5.50	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:	65.8	63.9	62.2	56.1	64.7	65.4
Medium Trucks:	59.8	58.3	52.0	50.4	58.9	59.1
Heavy Trucks:	61.2	59.7	50.7	52.0	60.3	60.4
Vehicle Noise:	67.9	66.1	62.8	58.3	66.8	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	58	126	271
CNEL:	29	62	135	290

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Mt. Vernon Av.
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,730 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.94	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-16.30	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.25	1.17	-1.20	-5.50	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:	67.4	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	61.4	59.9	53.5	52.0	60.4	60.7
Heavy Trucks:	62.7	61.3	52.3	53.5	61.9	62.0
Vehicle Noise:	69.4	67.7	64.4	59.9	68.4	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	74	160	344
CNEL:	37	79	171	368

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: S Rancho Av.
Road Segment: w/o La Cadena Dr.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,030 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-0.06	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	73.48	-17.30	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	79.92	-21.26	1.18	-1.20	-5.45	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:	61.6	59.7	58.0	51.9	60.5	61.1
Medium Trucks:	56.2	54.7	48.3	46.7	55.2	55.4
Heavy Trucks:	58.6	57.2	48.2	49.4	57.8	57.9
Vehicle Noise:	64.2	62.5	58.8	54.6	63.1	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	78	168
CNEL:	18	38	83	179

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Barton Rd.
Road Segment: w/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,710 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.89	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-16.35	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.30	0.34	-1.20	-5.43	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:	66.5	64.6	62.8	56.8	65.4	66.0
Medium Trucks:	60.5	59.0	52.6	51.1	59.6	59.8
Heavy Trucks:	61.8	60.4	51.4	52.6	61.0	61.1
Vehicle Noise:	68.5	66.8	63.5	59.0	67.5	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	73	158	341
CNEL:	37	79	169	365

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Barton Rd.
Road Segment: e/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	17,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,730 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.43	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-16.81	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.76	0.34	-1.20	-5.43	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:	68.0	66.1	64.3	58.3	66.9	67.5
Medium Trucks:	61.8	60.3	53.9	52.4	60.8	61.1
Heavy Trucks:	62.6	61.2	52.2	53.4	61.8	61.9
Vehicle Noise:	69.8	68.1	64.9	60.3	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	90	194	417
CNEL:	45	96	208	447

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: W Main St.
Road Segment: e/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	6,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.05	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-20.29	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.25	1.17	-1.20	-5.50	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:	63.4	61.5	59.7	53.7	62.3	62.9
Medium Trucks:	57.4	55.9	49.5	48.0	56.4	56.7
Heavy Trucks:	58.7	57.3	48.3	49.5	57.9	58.0
Vehicle Noise:	65.4	63.7	60.4	55.9	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	40	86	186
CNEL:	20	43	93	199

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: W Main St.
Road Segment: w/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	5,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	570 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.84	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	70.80	-19.08	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-23.03	0.34	-1.20	-5.43	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:	56.0	54.1	52.3	46.3	54.9	55.5
Medium Trucks:	50.9	49.3	43.0	41.4	49.9	50.1
Heavy Trucks:	54.1	52.7	43.6	44.9	53.2	53.3
Vehicle Noise:	58.9	57.2	53.3	49.4	57.9	58.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	17	36	78
CNEL:	8	18	38	83

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: W Main St.
Road Segment: e/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA / NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	4,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	420 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 — Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.21	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-22.45	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-26.40	0.34	-1.20	-5.43	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:	60.4	58.5	56.8	50.7	59.3	59.9
Medium Trucks:	54.4	52.9	46.5	45.0	53.5	53.7
Heavy Trucks:	55.7	54.3	45.3	46.5	54.9	55.0
Vehicle Noise:	62.4	60.7	57.4	52.9	61.4	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	29	62	134
CNEL:	14	31	66	143

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Placentia Ln.
Road Segment: e/o S Riverside Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	740 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.71	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	70.80	-17.94	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-21.90	1.18	-1.20	-5.45	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:	58.0	56.1	54.3	48.3	56.9	57.5
Medium Trucks:	52.8	51.3	45.0	43.4	51.9	52.1
Heavy Trucks:	56.0	54.6	45.6	46.8	55.2	55.3
Vehicle Noise:	60.9	59.2	55.3	51.4	59.9	60.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	22	47	101
CNEL:	11	23	50	108

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: W Center St.
Road Segment: w/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	710 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.93	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-20.17	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.12	1.31	-1.20	-5.50	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:	63.7	61.8	60.0	53.9	62.6	63.2
Medium Trucks:	57.7	56.2	49.8	48.2	56.7	56.9
Heavy Trucks:	59.0	57.6	48.5	49.8	58.1	58.3
Vehicle Noise:	65.7	63.9	60.7	56.1	64.7	65.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	42	90	194
CNEL:	21	45	96	207

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: W Center St.
Road Segment: w/o Stephens Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	900 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.90	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.14	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.09	0.34	-1.20	-5.43	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:	63.7	61.8	60.1	54.0	62.6	63.2
Medium Trucks:	57.7	56.2	49.8	48.3	56.8	57.0
Heavy Trucks:	59.0	57.6	48.6	49.8	58.2	58.3
Vehicle Noise:	65.7	64.0	60.7	56.2	64.7	65.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	103	222
CNEL:	24	51	110	238

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2020 With Project
Road Name: Columbia Av.
Road Segment: e/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,570 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.01	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-17.23	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.19	0.34	-1.20	-5.43	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:	67.6	65.7	63.9	57.9	66.5	67.1
Medium Trucks:	61.4	59.8	53.5	51.9	60.4	60.6
Heavy Trucks:	62.2	60.8	51.7	53.0	61.3	61.5
Vehicle Noise:	69.4	67.7	64.5	59.9	68.4	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	181	391
CNEL:	42	90	195	419

Tuesday, August 02, 2016

170

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: S Riverside Av.
Road Segment: n/o Placentia Ln.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	50,600 vehicles	*Autos:*	15
Peak Hour Percentage:	10%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	5,060 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.63	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-12.61	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-16.56	1.18	-1.20	-5.45	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:	74.8	72.9	71.1	65.1	73.7	74.3
Medium Trucks:	68.4	66.9	60.5	59.0	67.4	67.7
Heavy Trucks:	68.8	67.4	58.3	59.6	67.9	68.1
Vehicle Noise:	76.5	74.7	71.7	66.9	75.5	75.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	239	515	1,109
CNEL:	119	257	553	1,191

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Main St.
Road Segment: s/o Placentia Ln.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	43,500 vehicles	*Autos:*	15
Peak Hour Percentage:	10%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	4,350 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	36 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.98	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.26	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.22	0.34	-1.20	-5.43	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:	73.3	71.4	69.6	63.6	72.2	72.8
Medium Trucks:	66.9	65.4	59.0	57.5	65.9	66.2
Heavy Trucks:	67.3	65.9	56.8	58.1	66.4	66.6
Vehicle Noise:	75.0	73.2	70.2	65.4	74.0	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	198	426	918
CNEL:	99	213	458	987

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Main St.
Road Segment: n/o Columbia Av.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	38,400 vehicles	*Autos:*	15
Peak Hour Percentage:	10%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	3,840 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	36 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.43	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.80	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.76	0.34	-1.20	-5.43	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:	72.8	70.9	69.1	63.0	71.7	72.3
Medium Trucks:	66.3	64.8	58.5	56.9	65.4	65.6
Heavy Trucks:	66.8	65.3	56.3	57.5	65.9	66.0
Vehicle Noise:	74.5	72.7	69.7	64.9	73.4	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	182	392	845
CNEL:	91	196	421	908

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Main St.
Road Segment: s/o Columbia Av.

Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	32,100 vehicles	*Autos:*	15
Peak Hour Percentage:	10%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	3,210 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	36 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.11	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-14.12	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-18.08	0.34	-1.20	-5.43	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:	70.7	68.8	67.0	61.0	69.6	70.2
Medium Trucks:	64.5	63.0	56.6	55.0	63.5	63.7
Heavy Trucks:	65.3	63.9	54.9	56.1	64.5	64.6
Vehicle Noise:	72.5	70.8	67.6	63.0	71.5	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	136	292	630
CNEL:	68	145	313	675

Tuesday, August 02, 2016

171

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Project Name: Roquet Ranchq
Road Name: Orange St.
Job Number: 9436
Road Segment: s/o Center St.

SITE SPECIFIC INPUT DATA — NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	3,600 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	360 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	40 mph		
Near/Far Lane Distance:	12 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 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 Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.88	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	77.72	-23.11	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-27.07	2.69	-1.20	-5.69	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:	62.1	60.2	58.4	52.4	61.0	61.6
Medium Trucks:	56.1	54.6	48.2	46.7	55.1	55.4
Heavy Trucks:	57.4	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	64.1	62.4	59.1	54.5	63.1	63.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	25	53	114
CNEL:	12	26	57	122

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Project Name: Roquet Ranchq
Road Name: Orange St.
Job Number: 9436
Road Segment: n/o Columbia Av.

SITE SPECIFIC INPUT DATA — NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	6,000 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	600 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	35 mph		
Near/Far Lane Distance:	12 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 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 Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.08	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-20.32	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-24.27	2.69	-1.20	-5.69	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	60.8	59.0	52.9	61.6	62.2
Medium Trucks:	56.9	55.4	49.1	47.5	56.0	56.2
Heavy Trucks:	58.8	57.4	48.3	49.6	57.9	58.1
Vehicle Noise:	64.9	63.2	59.7	55.4	63.9	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	60	129
CNEL:	14	30	64	138

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Project Name: Roquet Ranchq
Road Name: Orange St.
Job Number: 9436
Road Segment: s/o Columbia Av.

SITE SPECIFIC INPUT DATA — NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	7,900 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	790 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	35 mph		
Near/Far Lane Distance:	12 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 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 Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.88	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.12	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.08	2.69	-1.20	-5.69	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:	63.9	62.0	60.2	54.1	62.8	63.4
Medium Trucks:	58.1	56.6	50.2	48.7	57.2	57.4
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.2
Vehicle Noise:	66.1	64.4	60.9	56.6	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	33	72	155
CNEL:	17	36	77	166

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Project Name: Roquet Ranchq
Road Name: La Cadena Dr.
Job Number: 9436
Road Segment: n/o S Rancho Av.

SITE SPECIFIC INPUT DATA — NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	15,400 vehicles	Autos:	15
Peak Hour Percentage:	10%	Medium Trucks (2 Axles):	15
Peak Hour Volume:	1,540 vehicles	Heavy Trucks (3+ Axles):	15
Vehicle Speed:	50 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.53	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-17.77	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.73	1.18	-1.20	-5.45	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:	69.6	67.7	66.0	59.9	68.5	69.1
Medium Trucks:	63.2	61.7	55.3	53.8	62.3	62.5
Heavy Trucks:	63.6	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	71.3	69.6	66.5	61.7	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	233	502
CNEL:	54	116	250	539

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Top Left)

Scenario: Year 2040 Without Project
Project Name: Roquet Ranchq
Road Name: La Cadena Dr.
Job Number: 9436
Road Segment: s/o S Rancho Av.

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt):	35,300 vehicles	
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,530 vehicles	
Vehicle Speed:	50 mph	
Near/Far Lane Distance:	50 feet	

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.07	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-14.17	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.13	1.18	-1.20	-5.45	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:	73.2	71.3	69.6	63.5	72.1	72.7
Medium Trucks:	66.8	65.3	58.9	57.4	65.9	66.1
Heavy Trucks:	67.2	65.8	56.8	58.0	66.4	66.5
Vehicle Noise:	74.9	73.2	70.1	65.3	73.9	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	87	188	405	872
CNEL:	94	202	435	937

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Top Right)

Scenario: Year 2040 Without Project
Project Name: Roquet Ranchq
Road Name: La Cadena Dr.
Job Number: 9436
Road Segment: s/o W Litton Av.

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt):	24,800 vehicles	
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,480 vehicles	
Vehicle Speed:	50 mph	
Near/Far Lane Distance:	50 feet	

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.54	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-15.70	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.66	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	69.8	68.0	62.0	70.6	71.2
Medium Trucks:	65.3	63.8	57.4	55.9	64.3	64.6
Heavy Trucks:	65.7	64.3	55.2	56.5	64.8	65.0
Vehicle Noise:	73.4	71.6	68.6	63.8	72.4	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	320	689
CNEL:	74	160	344	740

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Bottom Left)

Scenario: Year 2040 Without Project
Project Name: Roquet Ranchq
Road Name: La Cadena Dr.
Job Number: 9436
Road Segment: s/o S Barton Rd.

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt):	32,200 vehicles	
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,220 vehicles	
Vehicle Speed:	50 mph	
Near/Far Lane Distance:	50 feet	

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.67	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-14.57	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.52	1.18	-1.20	-5.45	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:	72.8	70.9	69.2	63.1	71.7	72.3
Medium Trucks:	66.4	64.9	58.5	57.0	65.5	65.7
Heavy Trucks:	66.8	65.4	56.4	57.6	66.0	66.1
Vehicle Noise:	74.5	72.8	69.7	64.9	73.5	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	177	381	820
CNEL:	88	190	409	881

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Bottom Right)

Scenario: Year 2040 Without Project
Project Name: Roquet Ranchq
Road Name: La Cadena Dr.
Job Number: 9436
Road Segment: n/o S Iowa Av.

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt):	25,300 vehicles	
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,530 vehicles	
Vehicle Speed:	50 mph	
Near/Far Lane Distance:	50 feet	

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.62	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-15.62	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.57	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.9	68.1	62.1	70.7	71.3
Medium Trucks:	65.4	63.9	57.5	55.9	64.4	64.6
Heavy Trucks:	65.8	64.4	55.3	56.6	64.9	65.1
Vehicle Noise:	73.5	71.7	68.7	63.9	72.4	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	324	698
CNEL:	75	162	348	750

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: La Cadena Dr.
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,770 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.07	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-17.17	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.12	1.18	-1.20	-5.45	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:	70.2	68.3	66.6	60.5	69.1	69.7
Medium Trucks:	63.8	62.3	55.9	54.4	62.9	63.1
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	71.9	70.2	67.1	62.3	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	255	550
CNEL:	59	127	274	591

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: La Cadena Dr.
Road Segment: s/o Pellissier Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,910 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.40	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.84	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.79	1.18	-1.20	-5.45	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:	70.6	68.7	66.9	60.8	69.5	70.1
Medium Trucks:	64.1	62.6	56.3	54.7	63.2	63.4
Heavy Trucks:	64.6	63.1	54.1	55.4	63.7	63.8
Vehicle Noise:	72.3	70.5	67.5	62.7	71.2	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	579
CNEL:	62	134	289	622

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: I-215 SB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	75,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	7,590 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.06	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-10.04	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.59	-2.16	-1.20	-5.20	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:	76.2	74.3	72.6	66.5	75.1	75.7
Medium Trucks:	71.5	70.0	63.6	62.1	70.5	70.7
Heavy Trucks:	76.2	74.8	65.8	67.0	75.4	75.5
Vehicle Noise:	79.9	78.3	73.8	70.5	78.9	79.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	339	731	1,575	3,393
CNEL:	358	771	1,661	3,579

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: I-215 SB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	77,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	7,790 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.17	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.93	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.48	-2.16	-1.20	-5.20	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:	76.3	74.4	72.7	66.6	75.2	75.9
Medium Trucks:	71.6	70.1	63.7	62.2	70.6	70.9
Heavy Trucks:	76.3	74.9	65.9	67.1	75.5	75.6
Vehicle Noise:	80.0	78.4	73.9	70.6	79.1	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	345	744	1,602	3,452
CNEL:	364	784	1,690	3,641

Tuesday, August 02, 2016

Top Left

Scenario: Year 2040 Without Project
Road Name: I-215 SB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	77,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	7,790 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.17	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.93	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.48	-2.16	-1.20	-5.20	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:	76.3	74.4	72.7	66.6	75.2	75.9
Medium Trucks:	71.6	70.1	63.7	62.2	70.6	70.9
Heavy Trucks:	76.3	74.9	65.9	67.1	75.5	75.6
Vehicle Noise:	80.0	78.4	73.9	70.6	79.1	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn	345	744	1,602	3,452
CNEL:	364	784	1,690	3,641

Tuesday, August 02, 2016

Top Right

Scenario: Year 2040 Without Project
Road Name: I-215 SB Fwy
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	68,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,870 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	4.62	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-10.47	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-9.02	-2.16	-1.20	-5.20	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:	75.8	73.9	72.1	66.1	74.7	75.3
Medium Trucks:	71.0	69.5	63.2	61.6	70.1	70.3
Heavy Trucks:	75.8	74.4	65.3	66.6	74.9	75.1
Vehicle Noise:	79.5	77.8	73.4	70.0	78.5	78.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn	317	684	1,474	3,175
CNEL:	335	721	1,554	3,349

Tuesday, August 02, 2016

Bottom Left

Scenario: Year 2040 Without Project
Road Name: I-215 NB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	85,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	8,550 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.57	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.52	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.07	-2.16	-1.20	-5.20	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:	76.7	74.8	73.1	67.0	75.7	76.3
Medium Trucks:	72.0	70.5	64.1	62.6	71.0	71.3
Heavy Trucks:	76.7	75.3	66.3	67.5	75.9	76.0
Vehicle Noise:	80.4	78.8	74.3	71.0	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn	367	791	1,705	3,673
CNEL:	387	835	1,798	3,874

Tuesday, August 02, 2016

Bottom Right

Scenario: Year 2040 Without Project
Road Name: I-215 NB Fwy
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	85,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	8,550 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.57	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.52	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.07	-2.16	-1.20	-5.20	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:	76.7	74.8	73.1	67.0	75.7	76.3
Medium Trucks:	72.0	70.5	64.1	62.6	71.0	71.3
Heavy Trucks:	76.7	75.3	66.3	67.5	75.9	76.0
Vehicle Noise:	80.4	78.8	74.3	71.0	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn	367	791	1,705	3,673
CNEL:	387	835	1,798	3,874

Tuesday, August 02, 2016

Top Left Table

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project *Project Name:* Roquet Ranchq
Road Name: I-215 NB Fwy *Job Number:* 9436
Road Segment: n/o S Iowa Av.

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 85,500 vehicles		Autos:	15	
Peak Hour Percentage: 10%		Medium Trucks (2 Axles):	15	
Peak Hour Volume: 8,550 vehicles		Heavy Trucks (3+ Axles):	15	
Vehicle Speed: 65 mph				
Near/Far Lane Distance: 104 feet				

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.57	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.52	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.07	-2.16	-1.20	-5.20	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:	76.7	74.8	73.1	67.0	75.7	76.3
Medium Trucks:	72.0	70.5	64.1	62.6	71.0	71.3
Heavy Trucks:	76.7	75.3	66.3	67.5	75.9	76.0
Vehicle Noise:	80.4	78.8	74.3	71.0	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	367	791	1,705	3,673
CNEL:	387	835	1,798	3,874

Tuesday, August 02, 2016

Top Right Table

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project *Project Name:* Roquet Ranchq
Road Name: I-215 NB Fwy *Job Number:* 9436
Road Segment: s/o Iowa Av.

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 79,700 vehicles		Autos:	15	
Peak Hour Percentage: 10%		Medium Trucks (2 Axles):	15	
Peak Hour Volume: 7,970 vehicles		Heavy Trucks (3+ Axles):	15	
Vehicle Speed: 65 mph				
Near/Far Lane Distance: 104 feet				

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.27	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.83	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.38	-2.16	-1.20	-5.20	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:	76.4	74.5	72.8	66.7	75.3	76.0
Medium Trucks:	71.7	70.2	63.8	62.3	70.7	71.0
Heavy Trucks:	76.4	75.0	66.0	67.2	75.6	75.7
Vehicle Noise:	80.1	78.5	74.0	70.7	79.2	79.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	351	755	1,627	3,505
CNEL:	370	797	1,716	3,697

Tuesday, August 02, 2016

Bottom Left Table

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project *Project Name:* Roquet Ranchq
Road Name: Iowa Av. *Job Number:* 9436
Road Segment: n/o Center St.

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 21,100 vehicles		Autos:	15	
Peak Hour Percentage: 10%		Medium Trucks (2 Axles):	15	
Peak Hour Volume: 2,110 vehicles		Heavy Trucks (3+ Axles):	15	
Vehicle Speed: 45 mph				
Near/Far Lane Distance: 58 feet				

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.29	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.95	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.90	-0.97	-1.20	-5.31	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:	67.6	65.7	63.9	57.8	66.5	67.1
Medium Trucks:	61.3	59.8	53.5	51.9	60.4	60.6
Heavy Trucks:	62.2	60.8	51.7	53.0	61.3	61.5
Vehicle Noise:	69.4	67.7	64.5	59.8	68.4	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	107	232	499
CNEL:	54	115	248	535

Tuesday, August 02, 2016

Bottom Right Table

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project *Project Name:* Roquet Ranchq
Road Name: Iowa Av. *Job Number:* 9436
Road Segment: s/o Center St.

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 23,400 vehicles		Autos:	15	
Peak Hour Percentage: 10%		Medium Trucks (2 Axles):	15	
Peak Hour Volume: 2,340 vehicles		Heavy Trucks (3+ Axles):	15	
Vehicle Speed: 45 mph				
Near/Far Lane Distance: 58 feet				

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.74	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.50	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.45	-0.97	-1.20	-5.31	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:	68.0	66.1	64.3	58.3	66.9	67.5
Medium Trucks:	61.8	60.3	53.9	52.4	60.8	61.1
Heavy Trucks:	62.6	61.2	52.2	53.4	61.8	61.9
Vehicle Noise:	69.9	68.1	65.0	60.3	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	115	248	534
CNEL:	57	124	266	573

Tuesday, August 02, 2016

176

Top Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Mt. Vernon Av.
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,910 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.37	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-15.87	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.82	1.17	-1.20	-5.50	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:	67.8	65.9	64.2	58.1	66.7	67.3
Medium Trucks:	61.8	60.3	54.0	52.4	60.9	61.1
Heavy Trucks:	63.1	61.7	52.7	53.9	62.3	62.4
Vehicle Noise:	69.8	68.1	64.8	60.3	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	170	367
CNEL:	39	85	182	393

Tuesday, August 02, 2016

Top Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Mt. Vernon Av.
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.61	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-14.63	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.59	1.17	-1.20	-5.50	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	67.2	65.4	59.3	68.0	68.6
Medium Trucks:	63.1	61.6	55.2	53.6	62.1	62.3
Heavy Trucks:	64.4	63.0	53.9	55.2	63.5	63.7
Vehicle Noise:	71.1	69.4	66.1	61.5	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	96	206	444
CNEL:	48	102	221	475

Tuesday, August 02, 2016

Bottom Left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: S Rancho Av.
Road Segment: w/o La Cadena Dr.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,120 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	3.07	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	73.48	-14.17	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	79.92	-18.12	1.18	-1.20	-5.45	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:	64.8	62.9	61.1	55.1	63.7	64.3
Medium Trucks:	59.3	57.8	51.4	49.9	58.3	58.6
Heavy Trucks:	61.8	60.4	51.3	52.6	60.9	61.0
Vehicle Noise:	67.3	65.6	61.9	57.8	66.3	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	58	126	271
CNEL:	29	62	134	289

Tuesday, August 02, 2016

Bottom Right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Barton Rd.
Road Segment: w/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,920 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.39	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-15.84	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.80	0.34	-1.20	-5.43	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:	67.0	65.1	63.4	57.3	65.9	66.5
Medium Trucks:	61.0	59.5	53.1	51.6	60.1	60.3
Heavy Trucks:	62.3	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	69.0	67.3	64.0	59.5	68.0	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	171	368
CNEL:	39	85	183	394

Tuesday, August 02, 2016

177

Top-left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Barton Rd.
Road Segment: e/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,020 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.10	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-16.14	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.09	0.34	-1.20	-5.43	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	66.8	65.0	59.0	67.6	68.2
Medium Trucks:	62.5	60.9	54.6	53.0	61.5	61.7
Heavy Trucks:	63.3	61.9	52.8	54.1	62.4	62.6
Vehicle Noise:	70.5	68.8	65.6	60.9	69.5	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	100	215	462
CNEL:	50	107	230	496

Tuesday, August 02, 2016

Top-right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: W Main St.
Road Segment: e/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	790 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.46	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-19.70	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.66	1.17	-1.20	-5.50	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	62.1	60.3	54.3	62.9	63.5
Medium Trucks:	58.0	56.5	50.1	48.6	57.0	57.3
Heavy Trucks:	59.3	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	66.0	64.3	61.0	56.5	65.0	65.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	20	44	95	204
CNEL:	22	47	101	218

Tuesday, August 02, 2016

Bottom-left

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: W Main St.
Road Segment: w/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,150 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	1.21	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	70.80	-16.03	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-19.99	0.34	-1.20	-5.43	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:	59.1	57.2	55.4	49.3	58.0	58.6
Medium Trucks:	53.9	52.4	46.0	44.5	53.0	53.2
Heavy Trucks:	57.1	55.7	46.7	47.9	56.3	56.4
Vehicle Noise:	61.9	60.3	56.4	52.4	61.0	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	27	58	125
CNEL:	13	29	61	132

Tuesday, August 02, 2016

Bottom-right

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: W Main St.
Road Segment: e/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	720 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 *Grade Adjustment:* 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.87	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.10	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.06	0.34	-1.20	-5.43	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:	62.8	60.9	59.1	53.0	61.7	62.3
Medium Trucks:	56.7	55.2	48.9	47.3	55.8	56.0
Heavy Trucks:	58.1	56.6	47.6	48.9	57.2	57.3
Vehicle Noise:	64.8	63.0	59.8	55.2	63.8	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	89	192
CNEL:	21	44	95	205

Tuesday, August 02, 2016

Table 1 (top-left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Placentia Ln.
Road Segment: e/o S Riverside Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 11,400 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 1,140 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 25 mph	
Near/Far Lane Distance: 50 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 48.0 feet	
Centerline Dist. to Observer: 48.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	1.17	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	70.80	-16.07	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-20.02	1.18	-1.20	-5.45	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:	59.9	58.0	56.2	50.1	58.8	59.4
Medium Trucks:	54.7	53.2	46.8	45.3	53.8	54.0
Heavy Trucks:	57.9	56.5	47.5	48.7	57.1	57.2
Vehicle Noise:	62.7	61.1	57.2	53.2	61.8	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	29	63	135
CNEL:	14	31	67	144

Tuesday, August 02, 2016

Table 2 (top-right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: W Center St.
Road Segment: w/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 8,100 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 810 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 40 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 44.0 feet	
Centerline Dist. to Observer: 44.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.35	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-19.59	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.55	1.31	-1.20	-5.50	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:	64.2	62.3	60.6	54.5	63.1	63.7
Medium Trucks:	58.2	56.7	50.4	48.8	57.3	57.5
Heavy Trucks:	59.6	58.1	49.1	50.3	58.7	58.8
Vehicle Noise:	66.3	64.5	61.2	56.7	65.2	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	46	98	212
CNEL:	23	49	105	227

Tuesday, August 02, 2016

Table 3 (bottom-left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: W Center St.
Road Segment: w/o Stephens Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 10,200 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 1,020 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 40 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 50.0 feet	
Centerline Dist. to Observer: 50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.35	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-18.59	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.55	0.34	-1.20	-5.43	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:	64.3	62.4	60.6	54.6	63.2	63.8
Medium Trucks:	58.3	56.8	50.4	48.8	57.3	57.5
Heavy Trucks:	59.6	58.2	49.1	50.4	58.7	58.9
Vehicle Noise:	66.3	64.6	61.3	56.7	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	52	112	242
CNEL:	26	56	120	259

Tuesday, August 02, 2016

Table 4 (bottom-right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 Without Project
Road Name: Columbia Av.
Road Segment: e/o Orange St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 26,500 vehicles	Autos: 15
Peak Hour Percentage: 10%	Medium Trucks (2 Axles): 15
Peak Hour Volume: 2,650 vehicles	Heavy Trucks (3+ Axles): 15
Vehicle Speed: 45 mph	
Near/Far Lane Distance: 36 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height: **0.0 feet**	
Barrier Type (0-Wall, 1-Berm): 0.0	
Centerline Dist. to Barrier: 50.0 feet	
Centerline Dist. to Observer: 50.0 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 Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.28	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-14.96	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-18.91	0.34	-1.20	-5.43	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:	69.9	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	63.6	62.1	55.8	54.2	62.7	62.9
Heavy Trucks:	64.5	63.1	54.0	55.3	63.6	63.7
Vehicle Noise:	71.7	70.0	66.8	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	554
CNEL:	59	128	276	594

Tuesday, August 02, 2016

179

Top Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: S Riverside Av.
Road Segment: n/o Placentia Ln.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.67	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-12.57	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-16.53	1.18	-1.20	-5.45	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:	74.8	72.9	71.2	65.1	73.7	74.3
Medium Trucks:	68.4	66.9	60.5	59.0	67.5	67.7
Heavy Trucks:	68.8	67.4	58.4	59.6	68.0	68.1
Vehicle Noise:	76.5	74.8	71.7	66.9	75.5	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	240	517	1,115
CNEL:	120	258	556	1,197

Tuesday, August 02, 2016

Top Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: Main St.
Road Segment: s/o Placentia Ln.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,460 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.08	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.11	0.34	-1.20	-5.43	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:	73.4	71.5	69.7	63.7	72.3	72.9
Medium Trucks:	67.0	65.5	59.1	57.6	66.0	66.3
Heavy Trucks:	67.4	66.0	56.9	58.2	66.6	66.7
Vehicle Noise:	75.1	73.3	70.3	65.5	74.1	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	433	934
CNEL:	100	216	466	1,003

Tuesday, August 02, 2016

Bottom Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: Main St.
Road Segment: n/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,930 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.54	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.70	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.66	0.34	-1.20	-5.43	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:	72.9	71.0	69.2	63.1	71.8	72.4
Medium Trucks:	66.4	64.9	58.6	57.0	65.5	65.7
Heavy Trucks:	66.9	65.4	56.4	57.6	66.0	66.1
Vehicle Noise:	74.6	72.8	69.8	65.0	73.5	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	185	398	858
CNEL:	92	199	428	922

Tuesday, August 02, 2016

Bottom Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: Main St.
Road Segment: s/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,280 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.21	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-14.03	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.99	0.34	-1.20	-5.43	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:	70.8	68.9	67.1	61.1	69.7	70.3
Medium Trucks:	64.6	63.0	56.7	55.1	63.6	63.8
Heavy Trucks:	65.4	64.0	54.9	56.2	64.5	64.7
Vehicle Noise:	72.6	70.9	67.7	63.1	71.6	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	138	296	639
CNEL:	69	148	318	685

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Top Left)

Scenario: Year 2040 With Project
Road Name: Orange St.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	440 vehicles
Vehicle Speed:	40 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.00	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	77.72	-22.24	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-26.20	2.69	-1.20	-5.69	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:	62.9	61.0	59.3	53.2	61.8	62.5
Medium Trucks:	57.0	55.5	49.1	47.5	56.0	56.2
Heavy Trucks:	58.3	56.9	47.8	49.1	57.4	57.6
Vehicle Noise:	65.0	63.2	60.0	55.4	63.9	64.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	60	130
CNEL:	14	30	65	140

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Top Right)

Scenario: Year 2040 With Project
Road Name: Orange St.
Road Segment: n/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	670 vehicles
Vehicle Speed:	35 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.60	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.84	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.79	2.69	-1.20	-5.69	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	61.2	59.5	53.4	62.0	62.6
Medium Trucks:	57.4	55.9	49.5	48.0	56.4	56.7
Heavy Trucks:	59.3	57.8	48.8	50.1	58.4	58.5
Vehicle Noise:	65.4	63.7	60.2	55.8	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	30	65	139
CNEL:	15	32	69	149

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Bottom Left)

Scenario: Year 2040 With Project
Road Name: Orange St.
Road Segment: s/o Columbia Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	830 vehicles
Vehicle Speed:	35 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:	33.0 feet
Centerline Dist. to Observer:	33.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	32.833
Medium Trucks:	32.562
Heavy Trucks:	32.589

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.67	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-18.91	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-22.86	2.69	-1.20	-5.69	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:	64.1	62.2	60.4	54.4	63.0	63.6
Medium Trucks:	58.3	56.8	50.5	48.9	57.4	57.6
Heavy Trucks:	60.2	58.8	49.7	51.0	59.3	59.5
Vehicle Noise:	66.3	64.6	61.1	56.8	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	74	160
CNEL:	17	37	80	171

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Bottom Right)

Scenario: Year 2040 With Project
Road Name: La Cadena Dr.
Road Segment: n/o S Rancho Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,620 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.31	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-17.55	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.51	1.18	-1.20	-5.45	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:	69.8	67.9	66.2	60.1	68.7	69.3
Medium Trucks:	63.4	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.8	62.4	53.4	54.6	63.0	63.1
Vehicle Noise:	71.5	69.8	66.7	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	112	241	519
CNEL:	56	120	259	557

Tuesday, August 02, 2016

181

Table 1 (top-left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: La Cadena Dr.
Road Segment: s/o S Rancho Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,700 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.27	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-13.96	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.92	1.18	-1.20	-5.45	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:	73.4	71.5	69.8	63.7	72.3	72.9
Medium Trucks:	67.0	65.5	59.1	57.6	66.1	66.3
Heavy Trucks:	67.4	66.0	57.0	58.2	66.6	66.7
Vehicle Noise:	75.1	73.4	70.3	65.5	74.1	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	90	194	418	900
CNEL:	97	208	449	967

Tuesday, August 02, 2016

Table 2 (top-right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: La Cadena Dr.
Road Segment: s/o W Litton Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,660 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.84	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-15.40	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.35	1.18	-1.20	-5.45	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:	72.0	70.1	68.3	62.3	70.9	71.5
Medium Trucks:	65.6	64.1	57.7	56.2	64.6	64.9
Heavy Trucks:	66.0	64.6	55.5	56.8	65.1	65.3
Vehicle Noise:	73.7	71.9	68.9	64.1	72.7	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	156	335	722
CNEL:	78	167	360	776

Tuesday, August 02, 2016

Table 3 (bottom-left)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: La Cadena Dr.
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,640 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.20	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-14.04	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-17.99	1.18	-1.20	-5.45	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:	73.4	71.5	69.7	63.6	72.3	72.9
Medium Trucks:	66.9	65.4	59.1	57.5	66.0	66.2
Heavy Trucks:	67.4	65.9	56.9	58.2	66.5	66.6
Vehicle Noise:	75.1	73.3	70.3	65.5	74.0	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	192	413	890
CNEL:	96	206	444	956

Tuesday, August 02, 2016

Table 4 (bottom-right)

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: La Cadena Dr.
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,950 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.29	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-14.95	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-18.90	1.18	-1.20	-5.45	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:	72.4	70.5	68.8	62.7	71.3	71.9
Medium Trucks:	66.0	64.5	58.2	56.6	65.1	65.3
Heavy Trucks:	66.4	65.0	56.0	57.2	65.6	65.7
Vehicle Noise:	74.1	72.4	69.3	64.6	73.1	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	167	359	774
CNEL:	83	179	386	831

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: La Cadena Dr.
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,410 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.41	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-15.83	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.78	1.18	-1.20	-5.45	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.7	67.9	61.8	70.5	71.1
Medium Trucks:	65.2	63.6	57.3	55.7	64.2	64.4
Heavy Trucks:	65.6	64.1	55.1	56.4	64.7	64.8
Vehicle Noise:	73.3	71.5	68.5	63.7	72.2	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	146	314	676
CNEL:	73	156	337	726

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: La Cadena Dr.
Road Segment: s/o Pellissier Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,990 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.58	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-16.66	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-20.61	1.18	-1.20	-5.45	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:	70.7	68.8	67.1	61.0	69.6	70.2
Medium Trucks:	64.3	62.8	56.5	54.9	63.4	63.6
Heavy Trucks:	64.7	63.3	54.3	55.5	63.9	64.0
Vehicle Noise:	72.4	70.7	67.6	62.9	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	128	276	595
CNEL:	64	138	297	639

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: I-215 SB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	77,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	7,710 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.13	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.97	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.52	-2.16	-1.20	-5.20	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:	76.3	74.4	72.6	66.6	75.2	75.8
Medium Trucks:	71.5	70.0	63.7	62.1	70.6	70.8
Heavy Trucks:	76.3	74.9	65.8	67.1	75.4	75.6
Vehicle Noise:	80.0	78.3	73.9	70.5	79.0	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	343	739	1,591	3,429
CNEL:	362	779	1,679	3,616

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: I-215 SB Fwy
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	78,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	7,850 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.20	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.89	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.44	-2.16	-1.20	-5.20	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:	76.4	74.5	72.7	66.7	75.3	75.9
Medium Trucks:	71.6	70.1	63.7	62.2	70.7	70.9
Heavy Trucks:	76.4	75.0	65.9	67.2	75.5	75.7
Vehicle Noise:	80.1	78.4	74.0	70.6	79.1	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	347	748	1,611	3,470
CNEL:	366	788	1,699	3,660

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: I-215 SB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	78,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	7,850 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.20	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.89	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.44	-2.16	-1.20	-5.20	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:	76.4	74.5	72.7	66.7	75.3	75.9
Medium Trucks:	71.6	70.1	63.7	62.2	70.7	70.9
Heavy Trucks:	76.4	75.0	65.9	67.2	75.5	75.7
Vehicle Noise:	80.1	78.4	74.0	70.6	79.1	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	347	748	1,611	3,470
CNEL:	366	788	1,699	3,660

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: I-215 SB Fwy
Road Segment: s/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	69,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,920 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	4.66	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-10.44	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.99	-2.16	-1.20	-5.20	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:	75.8	73.9	72.2	66.1	74.7	75.3
Medium Trucks:	71.1	69.6	63.2	61.7	70.1	70.3
Heavy Trucks:	75.8	74.4	65.4	66.6	75.0	75.1
Vehicle Noise:	79.5	77.9	73.4	70.1	78.5	78.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	319	687	1,481	3,190
CNEL:	336	725	1,562	3,365

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: I-215 NB Fwy
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	86,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	8,620 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.61	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.49	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.04	-2.16	-1.20	-5.20	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:	76.8	74.9	73.1	67.1	75.7	76.3
Medium Trucks:	72.0	70.5	64.1	62.6	71.1	71.3
Heavy Trucks:	76.8	75.4	66.3	67.6	75.9	76.1
Vehicle Noise:	80.5	78.8	74.4	71.0	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	369	796	1,714	3,693
CNEL:	390	839	1,808	3,895

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: I-215 NB Fwy
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	85,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	8,590 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.59	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.50	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.05	-2.16	-1.20	-5.20	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:	76.8	74.9	73.1	67.0	75.7	76.3
Medium Trucks:	72.0	70.5	64.1	62.6	71.1	71.3
Heavy Trucks:	76.8	75.3	66.3	67.6	75.9	76.0
Vehicle Noise:	80.4	78.8	74.4	71.0	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	368	794	1,710	3,685
CNEL:	389	837	1,804	3,886

Tuesday, August 02, 2016

Top Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: I-215 NB Fwy
Road Segment: n/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	85,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	8,590 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.59	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.50	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.05	-2.16	-1.20	-5.20	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:	76.8	74.9	73.1	67.0	75.7	76.3
Medium Trucks:	72.0	70.5	64.1	62.6	71.1	71.3
Heavy Trucks:	76.8	75.3	66.3	67.6	75.9	76.0
Vehicle Noise:	80.4	78.8	74.4	71.0	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	368	794	1,710	3,685
CNEL:	389	837	1,804	3,886

Tuesday, August 02, 2016

Top Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: I-215 NB Fwy
Road Segment: s/o Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	80,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	8,050 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	104 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	86.0 feet
Centerline Dist. to Observer:	86.0 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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	68.680
Medium Trucks:	68.551
Heavy Trucks:	68.564

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	74.55	5.31	-2.17	-1.20	-4.75	0.000	0.000
Medium Trucks:	84.86	-9.78	-2.16	-1.20	-4.88	0.000	0.000
Heavy Trucks:	88.18	-8.33	-2.16	-1.20	-5.20	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:	76.5	74.6	72.8	66.8	75.4	76.0
Medium Trucks:	71.7	70.2	63.9	62.3	70.8	71.0
Heavy Trucks:	76.5	75.1	66.0	67.3	75.6	75.8
Vehicle Noise:	80.2	78.5	74.1	70.7	79.2	79.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	353	760	1,638	3,529
CNEL:	372	802	1,727	3,722

Tuesday, August 02, 2016

Bottom Left Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: Iowa Av.
Road Segment: n/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,410 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.87	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.37	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.33	-0.97	-1.20	-5.31	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	66.2	64.5	58.4	67.0	67.6
Medium Trucks:	61.9	60.4	54.0	52.5	61.0	61.2
Heavy Trucks:	62.8	61.3	52.3	53.5	61.9	62.0
Vehicle Noise:	70.0	68.2	65.1	60.4	69.0	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	117	253	545
CNEL:	58	126	271	585

Tuesday, August 02, 2016

Bottom Right Panel

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: Iowa Av.
Road Segment: s/o Center St.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,400 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.85	-0.99	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.39	-0.97	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.34	-0.97	-1.20	-5.31	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	66.2	64.5	58.4	67.0	67.6
Medium Trucks:	61.9	60.4	54.0	52.5	60.9	61.2
Heavy Trucks:	62.7	61.3	52.3	53.5	61.9	62.0
Vehicle Noise:	70.0	68.2	65.1	60.4	68.9	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	117	252	544
CNEL:	58	126	271	583

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Mt. Vernon Av. n/o Barton Rd.)

Scenario: Year 2040 With Project
Road Name: Mt. Vernon Av.
Road Segment: n/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,940 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.44	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-15.80	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.76	1.17	-1.20	-5.50	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:	67.9	66.0	64.2	58.2	66.8	67.4
Medium Trucks:	61.9	60.4	54.0	52.5	60.9	61.2
Heavy Trucks:	63.2	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	69.9	68.2	64.9	60.4	68.9	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	80	172	371
CNEL:	40	86	184	397

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Mt. Vernon Av. s/o Barton Rd.)

Scenario: Year 2040 With Project
Road Name: Mt. Vernon Av.
Road Segment: s/o Barton Rd.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,560 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.64	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-14.60	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.55	1.17	-1.20	-5.50	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	67.2	65.4	59.4	68.0	68.6
Medium Trucks:	63.1	61.6	55.2	53.7	62.1	62.4
Heavy Trucks:	64.4	63.0	54.0	55.2	63.6	63.7
Vehicle Noise:	71.1	69.4	66.1	61.6	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	96	207	446
CNEL:	48	103	222	478

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (S Rancho Av. w/o La Cadena Dr.)

Scenario: Year 2040 With Project
Road Name: S Rancho Av.
Road Segment: w/o La Cadena Dr.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,200 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	48.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.280
Medium Trucks:	41.065
Heavy Trucks:	41.086

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	3.23	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	73.48	-14.00	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	79.92	-17.96	1.18	-1.20	-5.45	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:	64.9	63.0	61.3	55.2	63.8	64.4
Medium Trucks:	59.5	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	61.9	60.5	51.5	52.7	61.1	61.2
Vehicle Noise:	67.4	65.8	62.1	57.9	66.4	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	28	60	129	278
CNEL:	30	64	137	296

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (Barton Rd. w/o Mt. Vernon Av.)

Scenario: Year 2040 With Project
Road Name: Barton Rd.
Road Segment: w/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,030 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.64	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-15.60	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.56	0.34	-1.20	-5.43	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:	67.3	65.4	63.6	57.5	66.2	66.8
Medium Trucks:	61.3	59.7	53.4	51.8	60.3	60.5
Heavy Trucks:	62.6	61.1	52.1	53.4	61.7	61.8
Vehicle Noise:	69.3	67.5	64.3	59.7	68.3	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	82	177	382
CNEL:	41	88	190	409

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: Barton Rd.
Road Segment: e/o Mt. Vernon Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,080 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.23	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-16.01	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.96	0.34	-1.20	-5.43	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	66.9	65.1	59.1	67.7	68.3
Medium Trucks:	62.6	61.1	54.7	53.2	61.6	61.9
Heavy Trucks:	63.4	62.0	53.0	54.2	62.6	62.7
Vehicle Noise:	70.6	68.9	65.7	61.1	69.6	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	102	219	471
CNEL:	51	109	235	506

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: W Main St.
Road Segment: e/o S Iowa Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	810 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	41.292
Medium Trucks:	41.077
Heavy Trucks:	41.098

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.35	1.14	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-19.59	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.55	1.17	-1.20	-5.50	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:	64.1	62.2	60.4	54.4	63.0	63.6
Medium Trucks:	58.1	56.6	50.2	48.7	57.1	57.4
Heavy Trucks:	59.4	58.0	49.0	50.2	58.6	58.7
Vehicle Noise:	66.1	64.4	61.1	56.6	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	45	96	207
CNEL:	22	48	103	222

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: W Main St.
Road Segment: w/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,170 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	1.28	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	70.80	-15.95	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-19.91	0.34	-1.20	-5.43	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:	59.1	57.2	55.5	49.4	58.0	58.6
Medium Trucks:	54.0	52.5	46.1	44.6	53.0	53.3
Heavy Trucks:	57.2	55.8	46.7	48.0	56.3	56.5
Vehicle Noise:	62.0	60.3	56.4	52.5	61.0	61.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	27	59	126
CNEL:	13	29	62	134

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project
Road Name: W Main St.
Road Segment: e/o Michigan Av.
Project Name: Roquet Ranchq
Job Number: 9436

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	740 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.75	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.99	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.94	0.34	-1.20	-5.43	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:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	56.9	55.4	49.0	47.5	55.9	56.1
Heavy Trucks:	58.2	56.8	47.7	49.0	57.3	57.5
Vehicle Noise:	64.9	63.2	59.9	55.3	63.9	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	20	42	91	195
CNEL:	21	45	97	209

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project *Project Name:* Roquet Ranchq
Road Name: Placentia Ln. *Job Number:* 9436
Road Segment: e/o S Riverside Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	13,000 vehicles	*Autos:*	15
Peak Hour Percentage:	10%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	1,300 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	25 mph		
Near/Far Lane Distance:	50 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

		Noise Source Elevations (in feet)	
Barrier Height:	**0.0 feet**	*Autos:*	0.000
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297
Centerline Dist. to Barrier:	48.0 feet	*Heavy Trucks:*	8.006 *Grade Adjustment:* 0.0
Centerline Dist. to Observer:	48.0 feet		
Barrier Distance to Observer:	0.0 feet	Lane Equivalent Distance (in feet)	
Observer Height (Above Pad):	5.0 feet	*Autos:*	41.280
Pad Elevation:	0.0 feet	*Medium Trucks:*	41.065
Road Elevation:	0.0 feet	*Heavy Trucks:*	41.086
Road Grade:	0.0%		
Left View:	-90.0 degrees		
Right View:	90.0 degrees		

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	1.74	1.15	-1.20	-4.64	0.000	0.000
Medium Trucks:	70.80	-15.50	1.18	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-19.45	1.18	-1.20	-5.45	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:	60.4	58.5	56.8	50.7	59.3	59.9
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	58.5	57.1	48.0	49.3	57.6	57.8
Vehicle Noise:	63.3	61.6	57.7	53.8	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	69	148
CNEL:	16	34	73	157

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project *Project Name:* Roquet Ranchq
Road Name: W Center St. *Job Number:* 9436
Road Segment: w/o Orange St.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	9,700 vehicles	*Autos:*	15
Peak Hour Percentage:	10%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	970 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	40 mph		
Near/Far Lane Distance:	36 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

		Noise Source Elevations (in feet)	
Barrier Height:	**0.0 feet**	*Autos:*	0.000
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297
Centerline Dist. to Barrier:	44.0 feet	*Heavy Trucks:*	8.006 *Grade Adjustment:* 0.0
Centerline Dist. to Observer:	44.0 feet		
Barrier Distance to Observer:	0.0 feet	Lane Equivalent Distance (in feet)	
Observer Height (Above Pad):	5.0 feet	*Autos:*	40.460
Pad Elevation:	0.0 feet	*Medium Trucks:*	40.241
Road Elevation:	0.0 feet	*Heavy Trucks:*	40.262
Road Grade:	0.0%		
Left View:	-90.0 degrees		
Right View:	90.0 degrees		

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.57	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-18.81	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.77	1.31	-1.20	-5.50	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:	65.0	63.1	61.4	55.3	63.9	64.5
Medium Trucks:	59.0	57.5	51.1	49.6	58.1	58.3
Heavy Trucks:	60.3	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	67.0	65.3	62.0	57.5	66.0	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	51	111	239
CNEL:	26	55	119	255

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project *Project Name:* Roquet Ranchq
Road Name: W Center St. *Job Number:* 9436
Road Segment: w/o Stephens Av.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	10,500 vehicles	*Autos:*	15
Peak Hour Percentage:	10%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	1,050 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	40 mph		
Near/Far Lane Distance:	36 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

		Noise Source Elevations (in feet)	
Barrier Height:	**0.0 feet**	*Autos:*	0.000
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297
Centerline Dist. to Barrier:	50.0 feet	*Heavy Trucks:*	8.006 *Grade Adjustment:* 0.0
Centerline Dist. to Observer:	50.0 feet		
Barrier Distance to Observer:	0.0 feet	Lane Equivalent Distance (in feet)	
Observer Height (Above Pad):	5.0 feet	*Autos:*	46.915
Pad Elevation:	0.0 feet	*Medium Trucks:*	46.726
Road Elevation:	0.0 feet	*Heavy Trucks:*	46.744
Road Grade:	0.0%		
Left View:	-90.0 degrees		
Right View:	90.0 degrees		

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.23	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-18.47	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.42	0.34	-1.20	-5.43	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:	64.4	62.5	60.7	54.7	63.3	63.9
Medium Trucks:	58.4	56.9	50.5	49.0	57.4	57.7
Heavy Trucks:	59.7	58.3	49.3	50.5	58.9	59.0
Vehicle Noise:	66.4	64.7	61.4	56.9	65.4	65.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	53	114	246
CNEL:	26	57	122	264

Tuesday, August 02, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2040 With Project *Project Name:* Roquet Ranchq
Road Name: Columbia Av. *Job Number:* 9436
Road Segment: e/o Orange St.

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

		Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt):	26,900 vehicles	*Autos:*	15
Peak Hour Percentage:	10%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,690 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	36 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

		Noise Source Elevations (in feet)	
Barrier Height:	**0.0 feet**	*Autos:*	0.000
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297
Centerline Dist. to Barrier:	50.0 feet	*Heavy Trucks:*	8.006 *Grade Adjustment:* 0.0
Centerline Dist. to Observer:	50.0 feet		
Barrier Distance to Observer:	0.0 feet	Lane Equivalent Distance (in feet)	
Observer Height (Above Pad):	5.0 feet	*Autos:*	46.915
Pad Elevation:	0.0 feet	*Medium Trucks:*	46.726
Road Elevation:	0.0 feet	*Heavy Trucks:*	46.744
Road Grade:	0.0%		
Left View:	-90.0 degrees		
Right View:	90.0 degrees		

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.35	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-14.89	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-18.85	0.34	-1.20	-5.43	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:	69.9	68.0	66.3	60.2	68.8	69.4
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	64.5	63.1	54.1	55.3	63.7	63.8
Vehicle Noise:	71.8	70.0	66.9	62.2	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	121	260	560
CNEL:	60	129	279	600

Tuesday, August 02, 2016

188

APPENDIX 8.1:

ON-SITE TRAFFIC NOISE CALCULATIONS

This page intentionally left blank

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
Road Name: I-215 Fwy.
Lot No: PA 9

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	149,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	14,970 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	172 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**8.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	397.0 feet
Centerline Dist. to Observer:	407.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	908.0 feet
Road Elevation:	919.0 feet
Barrier Elevation:	908.0 feet
Road Grade:	0.0%

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	919.000
Medium Trucks:	921.297
Heavy Trucks:	927.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	398.025
Medium Trucks:	398.050
Heavy Trucks:	398.170

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	76.79	7.69	-13.62	-1.20	*0.40*	-8.000	-11.000
Medium Trucks:	82.53	-7.41	-13.62	-1.20	*0.38*	-7.900	-10.900
Heavy Trucks:	85.83	-5.96	-13.62	-1.20	*0.34*	-7.700	-10.700

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.8	66.0	59.9	68.6	69.2
Medium Trucks:	60.3	58.8	52.4	50.9	59.4	59.6
Heavy Trucks:	65.0	63.6	54.6	55.8	64.2	64.3
Vehicle Noise:	71.3	69.6	66.5	61.7	70.3	70.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	59.8	58.0	51.9	60.6	61.2
Medium Trucks:	52.4	50.9	44.5	43.0	51.5	51.7
Heavy Trucks:	57.3	55.9	46.9	48.1	56.5	56.6
Vehicle Noise:	63.4	61.6	58.5	53.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	456	983	2,117	4,561

Scenario: Backyard With Wall	*Project Name:* Roquet Ranch
Road Name: La Cadena Dr.	*Job Number:* 9436
Lot No: PA 9	*Analyst:* A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,990 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**8.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	58.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	908.0 feet
Road Elevation:	906.0 feet
Barrier Elevation:	908.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	906.000	
Medium Trucks:	908.297	
Heavy Trucks:	914.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	52.618
Medium Trucks:	52.134
Heavy Trucks:	51.464

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	0.58	-0.44	-1.20	*1.03*	-10.360	-13.360
Medium Trucks:	78.79	-16.66	-0.38	-1.20	*0.85*	-9.850	-12.850
Heavy Trucks:	83.02	-20.61	-0.29	-1.20	*0.46*	-8.300	-11.300

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.4	60.3	69.0	69.6
Medium Trucks:	60.6	59.1	52.7	51.1	59.6	59.8
Heavy Trucks:	60.9	59.5	50.5	51.7	60.1	60.2
Vehicle Noise:	71.0	69.2	66.7	61.3	69.9	70.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	57.8	56.0	50.0	58.6	59.2
Medium Trucks:	50.7	49.2	42.8	41.3	49.8	50.0
Heavy Trucks:	52.6	51.2	42.2	43.4	51.8	51.9
Vehicle Noise:	60.9	59.1	56.4	51.3	59.9	60.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	62	134	288	621

Scenario: Backyard With Wall	*Project Name:* Roquet Ranch
Road Name: Pellissier Rd. w/o La Cadena Dr.	*Job Number:* 9436
Lot No: PA 9	*Analyst:* A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	33 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006

Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.629
Medium Trucks:	57.394
Heavy Trucks:	57.292

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-1.03	-1.20	*0.20*	-6.800	-9.800
Medium Trucks:	76.31	-18.30	-1.00	-1.20	*0.12*	-6.160	-9.160
Heavy Trucks:	81.16	-22.26	-0.99	-1.20	*0.01*	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.2	60.4	54.3	63.0	63.6
Medium Trucks:	55.8	54.3	47.9	46.4	54.9	55.1
Heavy Trucks:	56.7	55.3	46.3	47.5	55.9	56.0
Vehicle Noise:	65.3	63.5	60.8	55.7	64.3	64.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.3	55.4	53.6	47.5	56.2	56.8
Medium Trucks:	49.6	48.1	41.8	40.2	48.7	48.9
Heavy Trucks:	51.6	50.2	41.2	42.4	50.8	50.9
Vehicle Noise:	58.9	57.1	54.1	49.3	57.8	58.3

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	27	58	125	269

Scenario: Backyard With Wall
Road Name: Pellissier Rd. w/o La Cadena Dr.
Lot No: PA 3 & 8

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	33 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	57.629
Medium Trucks:	57.394
Heavy Trucks:	57.292

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-1.03	-1.20	0.20	-6.800	-9.800
Medium Trucks:	76.31	-18.30	-1.00	-1.20	0.12	-6.160	-9.160
Heavy Trucks:	81.16	-22.26	-0.99	-1.20	0.01	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.2	60.4	54.3	63.0	63.6
Medium Trucks:	55.8	54.3	47.9	46.4	54.9	55.1
Heavy Trucks:	56.7	55.3	46.3	47.5	55.9	56.0
Vehicle Noise:	65.3	63.5	60.8	55.7	64.3	64.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.3	55.4	53.6	47.5	56.2	56.8
Medium Trucks:	49.6	48.1	41.8	40.2	48.7	48.9
Heavy Trucks:	51.6	50.2	41.2	42.4	50.8	50.9
Vehicle Noise:	58.9	57.1	54.1	49.3	57.8	58.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	27	58	125	269

Scenario: Backyard With Wall
Road Name: Pellissier Rd. w/o La Cadena Dr.
Lot No: PA 2 & 6

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	33 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	88.559
Medium Trucks:	88.417
Heavy Trucks:	88.356

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-3.83	-1.20	0.13	-6.240	-9.240
Medium Trucks:	76.31	-18.30	-3.82	-1.20	0.09	-5.900	-8.900
Heavy Trucks:	81.16	-22.26	-3.81	-1.20	0.02	-5.200	-8.200

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.3	59.4	57.6	51.5	60.2	60.8
Medium Trucks:	53.0	51.5	45.1	43.6	52.0	52.3
Heavy Trucks:	53.9	52.5	43.4	44.7	53.0	53.2
Vehicle Noise:	62.5	60.7	58.0	52.9	61.5	62.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.0	53.1	51.4	45.3	53.9	54.5
Medium Trucks:	47.1	45.6	39.2	37.7	46.1	46.4
Heavy Trucks:	48.7	47.3	38.2	39.5	47.8	48.0
Vehicle Noise:	56.5	54.7	51.8	46.9	55.4	55.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	26	56	122	262

Scenario: Backyard With Wall	*Project Name:* Roquet Ranch
Road Name: Roquet Ranch Rd.	*Job Number:* 9436
Lot No: PA 7	*Analyst:* A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	270	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	32.0	feet
Centerline Dist. to Observer:	42.0	feet
Barrier Distance to Observer:	10.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	42.050
Medium Trucks:	41.700
Heavy Trucks:	41.546

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	1.02	-1.20	*0.30*	-7.500	-10.500
Medium Trucks:	76.31	-24.36	1.08	-1.20	*0.17*	-6.560	-9.560
Heavy Trucks:	81.16	-28.32	1.10	-1.20	*0.01*	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.1	58.2	56.4	50.3	59.0	59.6
Medium Trucks:	51.8	50.3	44.0	42.4	50.9	51.1
Heavy Trucks:	52.7	51.3	42.3	43.5	51.9	52.0
Vehicle Noise:	61.3	59.5	56.8	51.7	60.3	60.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.6	50.7	48.9	42.8	51.5	52.1
Medium Trucks:	45.3	43.8	37.4	35.9	44.3	44.5
Heavy Trucks:	47.6	46.2	37.2	38.4	46.8	46.9
Vehicle Noise:	54.3	52.6	49.5	44.8	53.3	53.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	10	22	47	102

Scenario: Backyard With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 12

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	42.050
Medium Trucks:	41.700
Heavy Trucks:	41.546

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	1.02	-1.20	0.30	-7.500	-10.500
Medium Trucks:	76.31	-24.36	1.08	-1.20	0.17	-6.560	-9.560
Heavy Trucks:	81.16	-28.32	1.10	-1.20	0.01	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.1	58.2	56.4	50.3	59.0	59.6
Medium Trucks:	51.8	50.3	44.0	42.4	50.9	51.1
Heavy Trucks:	52.7	51.3	42.3	43.5	51.9	52.0
Vehicle Noise:	61.3	59.5	56.8	51.7	60.3	60.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.6	50.7	48.9	42.8	51.5	52.1
Medium Trucks:	45.3	43.8	37.4	35.9	44.3	44.5
Heavy Trucks:	47.6	46.2	37.2	38.4	46.8	46.9
Vehicle Noise:	54.3	52.6	49.5	44.8	53.3	53.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	10	22	47	102

Scenario: Backyard With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 5

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	56.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	65.917
Medium Trucks:	65.782
Heavy Trucks:	65.795

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-1.90	-1.20	-0.97	0.000	0.000
Medium Trucks:	76.31	-24.36	-1.89	-1.20	-1.15	0.000	0.000
Heavy Trucks:	81.16	-28.32	-1.89	-1.20	-1.65	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:	57.1	55.2	53.5	47.4	56.0	56.6
Medium Trucks:	48.9	47.4	41.0	39.4	47.9	48.1
Heavy Trucks:	49.7	48.3	39.3	40.5	48.9	49.0
Vehicle Noise:	58.4	56.6	53.9	48.8	57.3	57.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	55.2	53.5	47.4	56.0	56.6
Medium Trucks:	48.9	47.4	41.0	39.4	47.9	48.1
Heavy Trucks:	49.7	48.3	39.3	40.5	48.9	49.0
Vehicle Noise:	58.4	56.6	53.9	48.8	57.3	57.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	10	22	47	102

Scenario: Backyard With Wall	*Project Name:* Roquet Ranch
Road Name: Roquet Ranch Rd.	*Job Number:* 9436
Lot No: PA 4	*Analyst:* A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	42.050
Medium Trucks:	41.700
Heavy Trucks:	41.546

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	1.02	-1.20	*0.30*	-7.500	-10.500
Medium Trucks:	76.31	-24.36	1.08	-1.20	*0.17*	-6.560	-9.560
Heavy Trucks:	81.16	-28.32	1.10	-1.20	*0.01*	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.1	58.2	56.4	50.3	59.0	59.6
Medium Trucks:	51.8	50.3	44.0	42.4	50.9	51.1
Heavy Trucks:	52.7	51.3	42.3	43.5	51.9	52.0
Vehicle Noise:	61.3	59.5	56.8	51.7	60.3	60.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.6	50.7	48.9	42.8	51.5	52.1
Medium Trucks:	45.3	43.8	37.4	35.9	44.3	44.5
Heavy Trucks:	47.6	46.2	37.2	38.4	46.8	46.9
Vehicle Noise:	54.3	52.6	49.5	44.8	53.3	53.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	10	22	47	102

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: I-215 Fwy.
Lot No: PA 9

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	149,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	14,970 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	172 feet

Site Data

Barrier Height:	**8.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	397.0 feet
Centerline Dist. to Observer:	417.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	908.0 feet
Road Elevation:	919.0 feet
Barrier Elevation:	908.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	919.000
Medium Trucks:	921.297
Heavy Trucks:	927.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	407.809
Medium Trucks:	407.833
Heavy Trucks:	407.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	76.79	7.69	-13.78	-1.20	0.19	-6.720	-9.720
Medium Trucks:	82.53	-7.41	-13.78	-1.20	0.17	-6.560	-9.560
Heavy Trucks:	85.83	-5.96	-13.78	-1.20	0.14	-6.320	-9.320

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	60.1	58.6	52.3	50.7	59.2	59.4
Heavy Trucks:	64.9	63.5	54.4	55.7	64.0	64.2
Vehicle Noise:	71.1	69.4	66.3	61.6	70.1	70.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.8	60.9	59.1	53.1	61.7	62.3
Medium Trucks:	53.6	52.1	45.7	44.2	52.6	52.9
Heavy Trucks:	58.6	57.1	48.1	49.4	57.7	57.8
Vehicle Noise:	64.5	62.8	59.6	55.0	63.5	64.0

Scenario: First Floor With Wall
Road Name: La Cadena Dr.
Lot No: PA 9

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	19,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,990	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	50	feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**8.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	48.0	feet
Centerline Dist. to Observer:	68.0	feet
Barrier Distance to Observer:	20.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	908.0	feet
Road Elevation:	906.0	feet
Barrier Elevation:	908.0	feet
Road Grade:	0.0%	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	906.000	
Medium Trucks:	908.297	
Heavy Trucks:	914.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	62.402
Medium Trucks:	61.917
Heavy Trucks:	61.248

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	0.58	-1.55	-1.20	0.88	-9.940	-12.940
Medium Trucks:	78.79	-16.66	-1.50	-1.20	0.66	-9.180	-12.180
Heavy Trucks:	83.02	-20.61	-1.43	-1.20	0.25	-7.150	-10.150

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.0	67.1	65.3	59.2	67.9	68.5
Medium Trucks:	59.4	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	59.8	58.4	49.3	50.6	58.9	59.1
Vehicle Noise:	69.9	68.0	65.6	60.2	68.8	69.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.0	57.1	55.3	49.3	57.9	58.5
Medium Trucks:	50.3	48.8	42.4	40.8	49.3	49.5
Heavy Trucks:	52.6	51.2	42.2	43.4	51.8	51.9
Vehicle Noise:	60.4	58.6	55.8	50.8	59.3	59.8

Scenario: First Floor With Wall
Road Name: Pellissier Rd. w/o La Cadena Dr.
Lot No: PA 9

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	33 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	70.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	67.604
Medium Trucks:	67.369
Heavy Trucks:	67.267

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-2.07	-1.20	0.20	-6.800	-9.800
Medium Trucks:	76.31	-18.30	-2.05	-1.20	0.11	-6.080	-9.080
Heavy Trucks:	81.16	-22.26	-2.04	-1.20	0.00	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.1	59.4	53.3	61.9	62.5
Medium Trucks:	54.8	53.3	46.9	45.3	53.8	54.0
Heavy Trucks:	55.7	54.2	45.2	46.5	54.8	54.9
Vehicle Noise:	64.3	62.5	59.8	54.7	63.2	63.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.2	54.3	52.6	46.5	55.1	55.7
Medium Trucks:	48.7	47.2	40.8	39.3	47.7	48.0
Heavy Trucks:	50.8	49.3	40.3	41.6	49.9	50.0
Vehicle Noise:	57.9	56.1	53.1	48.3	56.8	57.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Pellissier Rd. w/o La Cadena Dr.
Lot No: PA 3 & 8

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	33 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	70.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	67.604
Medium Trucks:	67.369
Heavy Trucks:	67.267

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-2.07	-1.20	0.20	-6.800	-9.800
Medium Trucks:	76.31	-18.30	-2.05	-1.20	0.11	-6.080	-9.080
Heavy Trucks:	81.16	-22.26	-2.04	-1.20	0.00	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.1	59.4	53.3	61.9	62.5
Medium Trucks:	54.8	53.3	46.9	45.3	53.8	54.0
Heavy Trucks:	55.7	54.2	45.2	46.5	54.8	54.9
Vehicle Noise:	64.3	62.5	59.8	54.7	63.2	63.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.2	54.3	52.6	46.5	55.1	55.7
Medium Trucks:	48.7	47.2	40.8	39.3	47.7	48.0
Heavy Trucks:	50.8	49.3	40.3	41.6	49.9	50.0
Vehicle Noise:	57.9	56.1	53.1	48.3	56.8	57.3

Scenario: First Floor With Wall	*Project Name:* Roquet Ranch
Road Name: Pellissier Rd. w/o La Cadena Dr.	*Job Number:* 9436
Lot No: PA 2 & 6	*Analyst:* A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Site Conditions (Hard = 10, Soft = 15)

Average Daily Traffic (Adt): 10,900 vehicles	*Autos:* 15
Peak Hour Percentage: 10%	*Medium Trucks (2 Axles):* 15
Peak Hour Volume: 1,090 vehicles	*Heavy Trucks (3+ Axles):* 15
Vehicle Speed: 40 mph	
Near/Far Lane Distance: 33 feet	

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	98.535
Medium Trucks:	98.392
Heavy Trucks:	98.331

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-4.52	-1.20	0.12	-6.160	-9.160
Medium Trucks:	76.31	-18.30	-4.51	-1.20	0.07	-5.700	-8.700
Heavy Trucks:	81.16	-22.26	-4.51	-1.20	0.00	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	58.7	56.9	50.9	59.5	60.1
Medium Trucks:	52.3	50.8	44.4	42.9	51.3	51.6
Heavy Trucks:	53.2	51.8	42.7	44.0	52.3	52.5
Vehicle Noise:	61.8	60.0	57.3	52.2	60.8	61.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.4	52.5	50.7	44.7	53.3	53.9
Medium Trucks:	46.6	45.1	38.7	37.2	45.6	45.9
Heavy Trucks:	48.3	46.9	37.8	39.1	47.4	47.6
Vehicle Noise:	55.9	54.1	51.2	46.3	54.9	55.3

Scenario: First Floor With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 7

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	52.025
Medium Trucks:	51.675
Heavy Trucks:	51.740

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-0.36	-1.20	0.34	-7.700	-10.700
Medium Trucks:	76.31	-24.36	-0.32	-1.20	0.16	-6.480	-9.480
Heavy Trucks:	81.16	-28.32	-0.33	-1.20	0.00	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:	58.7	56.8	55.0	49.0	57.6	58.2
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.3	49.9	40.9	42.1	50.5	50.6
Vehicle Noise:	59.9	58.1	55.4	50.3	58.9	59.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.0	49.1	47.3	41.3	49.9	50.5
Medium Trucks:	44.0	42.4	36.1	34.5	43.0	43.2
Heavy Trucks:	51.3	49.9	40.9	42.1	50.5	50.6
Vehicle Noise:	54.6	52.9	48.5	45.1	53.6	53.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 12

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	52.025
Medium Trucks:	51.675
Heavy Trucks:	51.740

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-0.36	-1.20	0.34	-7.700	-10.700
Medium Trucks:	76.31	-24.36	-0.32	-1.20	0.16	-6.480	-9.480
Heavy Trucks:	81.16	-28.32	-0.33	-1.20	0.00	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:	58.7	56.8	55.0	49.0	57.6	58.2
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.3	49.9	40.9	42.1	50.5	50.6
Vehicle Noise:	59.9	58.1	55.4	50.3	58.9	59.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.0	49.1	47.3	41.3	49.9	50.5
Medium Trucks:	44.0	42.4	36.1	34.5	43.0	43.2
Heavy Trucks:	51.3	49.9	40.9	42.1	50.5	50.6
Vehicle Noise:	54.6	52.9	48.5	45.1	53.6	53.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 5

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	270	vehicles
Vehicle Speed:	40	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:	56.0	feet
Centerline Dist. to Observer:	76.0	feet
Barrier Distance to Observer:	20.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-2.82	-1.20	-0.44	0.000	0.000
Medium Trucks:	76.31	-24.36	-2.81	-1.20	-0.60	0.000	0.000
Heavy Trucks:	81.16	-28.32	-2.82	-1.20	-1.10	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:	56.2	54.3	52.5	46.5	55.1	55.7
Medium Trucks:	47.9	46.4	40.1	38.5	47.0	47.2
Heavy Trucks:	48.8	47.4	38.4	39.6	48.0	48.1
Vehicle Noise:	57.5	55.7	52.9	47.8	56.4	56.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.2	54.3	52.5	46.5	55.1	55.7
Medium Trucks:	47.9	46.4	40.1	38.5	47.0	47.2
Heavy Trucks:	48.8	47.4	38.4	39.6	48.0	48.1
Vehicle Noise:	57.5	55.7	52.9	47.8	56.4	56.9

Scenario: First Floor With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 4

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	270	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**6.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	32.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	20.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000	
Medium Trucks:	2.297	
Heavy Trucks:	8.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	52.025
Medium Trucks:	51.675
Heavy Trucks:	51.740

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-0.36	-1.20	0.34	-7.700	-10.700
Medium Trucks:	76.31	-24.36	-0.32	-1.20	0.16	-6.480	-9.480
Heavy Trucks:	81.16	-28.32	-0.33	-1.20	0.00	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:	58.7	56.8	55.0	49.0	57.6	58.2
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.3	49.9	40.9	42.1	50.5	50.6
Vehicle Noise:	59.9	58.1	55.4	50.3	58.9	59.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.0	49.1	47.3	41.3	49.9	50.5
Medium Trucks:	44.0	42.4	36.1	34.5	43.0	43.2
Heavy Trucks:	51.3	49.9	40.9	42.1	50.5	50.6
Vehicle Noise:	54.6	52.9	48.5	45.1	53.6	53.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: I-215 Fwy.
Lot No: PA 9

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	149,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	14,970 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	172 feet

Site Data

Barrier Height:	**8.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	397.0 feet
Centerline Dist. to Observer:	417.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	908.0 feet
Road Elevation:	919.0 feet
Barrier Elevation:	908.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	93.10%
Medium Trucks:	84.8%	4.9%	10.3%	2.88%
Heavy Trucks:	86.5%	2.7%	10.8%	4.02%

Noise Source Elevations (in feet)

Autos:	919.000	
Medium Trucks:	921.297	
Heavy Trucks:	927.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	408.465
Medium Trucks:	408.490
Heavy Trucks:	408.610

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	76.79	7.69	-13.79	-1.20	0.86	-9.880	-12.880
Medium Trucks:	82.53	-7.41	-13.79	-1.20	0.90	-10.000	-13.000
Heavy Trucks:	85.83	-5.96	-13.79	-1.20	0.98	-10.240	-13.240

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	60.1	58.6	52.3	50.7	59.2	59.4
Heavy Trucks:	64.9	63.5	54.4	55.7	64.0	64.1
Vehicle Noise:	71.1	69.4	66.3	61.6	70.1	70.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.6	57.7	55.9	49.9	58.5	59.1
Medium Trucks:	50.1	48.6	42.3	40.7	49.2	49.4
Heavy Trucks:	54.6	53.2	44.2	45.4	53.8	53.9
Vehicle Noise:	61.2	59.4	56.4	51.6	60.1	60.6

Scenario: Second Floor With Wall		*Project Name:* Roquet Ranch	
Road Name: La Cadena Dr.		*Job Number:* 9436	
Lot No: PA 9		*Analyst:* A. Wolfe	

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	19,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,990 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**8.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	48.0 feet
Centerline Dist. to Observer:	68.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	908.0 feet
Road Elevation:	906.0 feet
Barrier Elevation:	908.0 feet
Road Grade:	0.0%

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	906.000	
Medium Trucks:	908.297	
Heavy Trucks:	914.006	Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	65.230
Medium Trucks:	64.705
Heavy Trucks:	63.741

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	0.58	-1.84	-1.20	*-0.05*	0.000	0.000
Medium Trucks:	78.79	-16.66	-1.78	-1.20	*-0.13*	0.000	0.000
Heavy Trucks:	83.02	-20.61	-1.69	-1.20	*-0.44*	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	66.8	65.0	58.9	67.6	68.2
Medium Trucks:	59.2	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	59.5	58.1	49.1	50.3	58.7	58.8
Vehicle Noise:	69.6	67.8	65.3	59.9	68.5	69.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	66.8	65.0	58.9	67.6	68.2
Medium Trucks:	59.2	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	59.5	58.1	49.1	50.3	58.7	58.8
Vehicle Noise:	69.6	67.8	65.3	59.9	68.5	69.0

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Pellissier Rd. w/o La Cadena Dr.
Lot No: PA 9

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	33 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	70.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	69.453
Medium Trucks:	69.027
Heavy Trucks:	68.291

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-2.24	-1.20	*-0.50*	0.000	0.000
Medium Trucks:	76.31	-18.30	-2.20	-1.20	*-0.69*	0.000	0.000
Heavy Trucks:	81.16	-22.26	-2.13	-1.20	*-1.30*	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:	62.9	61.0	59.2	53.1	61.8	62.4
Medium Trucks:	54.6	53.1	46.7	45.2	53.7	53.9
Heavy Trucks:	55.6	54.1	45.1	46.4	54.7	54.8
Vehicle Noise:	64.1	62.3	59.6	54.5	63.1	63.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	61.0	59.2	53.1	61.8	62.4
Medium Trucks:	54.6	53.1	46.7	45.2	53.7	53.9
Heavy Trucks:	55.6	54.1	45.1	46.4	54.7	54.8
Vehicle Noise:	64.1	62.3	59.6	54.5	63.1	63.6

Scenario: Second Floor With Wall		*Project Name:* Roquet Ranch	
Road Name: Pellissier Rd. w/o La Cadena Dr.		*Job Number:* 9436	
Lot No: PA 3 & 8		*Analyst:* A. Wolfe	

SITE SPECIFIC INPUT DATA | NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	33 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	70.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	69.453
Medium Trucks:	69.027
Heavy Trucks:	68.291

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-2.24	-1.20	*-0.50*	0.000	0.000
Medium Trucks:	76.31	-18.30	-2.20	-1.20	*-0.69*	0.000	0.000
Heavy Trucks:	81.16	-22.26	-2.13	-1.20	*-1.30*	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:	62.9	61.0	59.2	53.1	61.8	62.4
Medium Trucks:	54.6	53.1	46.7	45.2	53.7	53.9
Heavy Trucks:	55.6	54.1	45.1	46.4	54.7	54.8
Vehicle Noise:	64.1	62.3	59.6	54.5	63.1	63.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	61.0	59.2	53.1	61.8	62.4
Medium Trucks:	54.6	53.1	46.7	45.2	53.7	53.9
Heavy Trucks:	55.6	54.1	45.1	46.4	54.7	54.8
Vehicle Noise:	64.1	62.3	59.6	54.5	63.1	63.6

Scenario: Second Floor With Wall
Road Name: Pellissier Rd. w/o La Cadena Dr.
Lot No: PA 2 & 6

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	10,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,090 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	33 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	99.618
Medium Trucks:	99.321
Heavy Trucks:	98.811

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-1.07	-4.59	-1.20	-0.77	0.000	0.000
Medium Trucks:	76.31	-18.30	-4.57	-1.20	-0.92	0.000	0.000
Heavy Trucks:	81.16	-22.26	-4.54	-1.20	-1.36	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:	60.5	58.6	56.8	50.8	59.4	60.0
Medium Trucks:	52.2	50.7	44.4	42.8	51.3	51.5
Heavy Trucks:	53.2	51.7	42.7	44.0	52.3	52.4
Vehicle Noise:	61.8	60.0	57.2	52.1	60.7	61.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.5	58.6	56.8	50.8	59.4	60.0
Medium Trucks:	52.2	50.7	44.4	42.8	51.3	51.5
Heavy Trucks:	53.2	51.7	42.7	44.0	52.3	52.4
Vehicle Noise:	61.8	60.0	57.2	52.1	60.7	61.2

Scenario: Second Floor With Wall	*Project Name:* Roquet Ranch
Road Name: Roquet Ranch Rd.	*Job Number:* 9436
Lot No: PA 7	*Analyst:* A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	53.516
Medium Trucks:	52.962
Heavy Trucks:	51.999

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-0.55	-1.20	-0.24	0.000	0.000
Medium Trucks:	76.31	-24.36	-0.48	-1.20	-0.44	0.000	0.000
Heavy Trucks:	81.16	-28.32	-0.36	-1.20	-1.23	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:	58.5	56.6	54.8	48.8	57.4	58.0
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.5
Heavy Trucks:	51.3	49.9	40.8	42.1	50.4	50.6
Vehicle Noise:	59.8	58.0	55.2	50.2	58.7	59.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.5	56.6	54.8	48.8	57.4	58.0
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.5
Heavy Trucks:	51.3	49.9	40.8	42.1	50.4	50.6
Vehicle Noise:	59.8	58.0	55.2	50.2	58.7	59.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 12

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	53.516
Medium Trucks:	52.962
Heavy Trucks:	51.999

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-0.55	-1.20	-0.24	0.000	0.000
Medium Trucks:	76.31	-24.36	-0.48	-1.20	-0.44	0.000	0.000
Heavy Trucks:	81.16	-28.32	-0.36	-1.20	-1.23	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:	58.5	56.6	54.8	48.8	57.4	58.0
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.5
Heavy Trucks:	51.3	49.9	40.8	42.1	50.4	50.6
Vehicle Noise:	59.8	58.0	55.2	50.2	58.7	59.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.5	56.6	54.8	48.8	57.4	58.0
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.5
Heavy Trucks:	51.3	49.9	40.8	42.1	50.4	50.6
Vehicle Noise:	59.8	58.0	55.2	50.2	58.7	59.2

Scenario: Second Floor With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 5

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 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:	56.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	77.045
Medium Trucks:	76.661
Heavy Trucks:	76.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-2.92	-1.20	-3.07	0.000	0.000
Medium Trucks:	76.31	-24.36	-2.89	-1.20	-3.49	0.000	0.000
Heavy Trucks:	81.16	-28.32	-2.83	-1.20	-4.64	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:	56.1	54.2	52.4	46.4	55.0	55.6
Medium Trucks:	47.9	46.4	40.0	38.4	46.9	47.1
Heavy Trucks:	48.8	47.4	38.4	39.6	48.0	48.1
Vehicle Noise:	57.4	55.6	52.8	47.8	56.3	56.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.1	54.2	52.4	46.4	55.0	55.6
Medium Trucks:	47.9	46.4	40.0	38.4	46.9	47.1
Heavy Trucks:	48.8	47.4	38.4	39.6	48.0	48.1
Vehicle Noise:	57.4	55.6	52.8	47.8	56.3	56.8

Scenario: Second Floor With Wall
Road Name: Roquet Ranch Rd.
Lot No: PA 4

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Conditions (Hard = 10, Soft = 15)

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

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000
Medium Trucks:	2.297
Heavy Trucks:	8.006 Grade Adjustment: 0.0

Lane Equivalent Distance (in feet)

Autos:	53.516
Medium Trucks:	52.962
Heavy Trucks:	51.999

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	-7.13	-0.55	-1.20	-0.24	0.000	0.000
Medium Trucks:	76.31	-24.36	-0.48	-1.20	-0.44	0.000	0.000
Heavy Trucks:	81.16	-28.32	-0.36	-1.20	-1.23	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:	58.5	56.6	54.8	48.8	57.4	58.0
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.5
Heavy Trucks:	51.3	49.9	40.8	42.1	50.4	50.6
Vehicle Noise:	59.8	58.0	55.2	50.2	58.7	59.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.5	56.6	54.8	48.8	57.4	58.0
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.5
Heavy Trucks:	51.3	49.9	40.8	42.1	50.4	50.6
Vehicle Noise:	59.8	58.0	55.2	50.2	58.7	59.2

Project: 09436 Roquet Ranch

Receiver Parameters

Receiver:	**PA 9**
Land Use Category:	**2. Residential**
Existing Noise (Measured or Generic Value):	**67 dBA**

Noise Source Parameters

Number of Noise Sources:	**1**

Noise Source Parameters

		Source 1
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	**Avg. Number of Locos/train**	2
	Speed (mph)	60
	Avg. Number of Events/hr	4.42
Nighttime hrs	**Avg. Number of Locos/train**	2
	Speed (mph)	40
	Avg. Number of Events/hr	4.42
Distance	**Distance from Source to Receiver (ft)**	1420
	Number of Intervening Rows of Buildings	1
Adjustments		

Project Results Summary

Existing Ldn:	67 dBA
Total Project Ldn:	47 dBA
Total Noise Exposure:	67 dBA
Increase:	0 dB
Impact?:	None

Distance to Impact Contours

Dist to Mod. Impact Contour (Source 1):	265 ft
Dist to Sev. Impact Contour (Source 1):	118 ft

Source 1 Results

Leq(day):	38.8 dBA
Leq(night):	40.5 dBA
Ldn:	46.7 dBA

Noise Impact Criteria
(FTA Manual, Fig 3-1)

Increase in Cumulative Noise Levels Allowed
(FTA Manual, Fig 3-2)

APPENDIX 10.1:

OPERATIONAL NOISE CALCULATIONS

This page intentionally left blank

STATIONARY SOURCE NOISE PREDICTION MODEL		12/7/2016

Observer Location: R1
Source: Park/School Athletic Field Activity
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	3,940.0 feet	**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	3,940.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance	
		15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	3,940.0	-57.9	-57.9	-57.9	-57.9	-57.9	-57.9
Shielding (Barrier Attenuation)	3,940.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		5.5	-57.9	-57.9	-57.9	-57.9	-57.9
60 Minute Hourly Adjustment		**5.5**	**-57.9**	**-57.9**	**-57.9**	**-57.9**	**-57.9**

STATIONARY SOURCE NOISE PREDICTION MODEL		12/7/2016

Observer Location: R2
Source: Park/School Athletic Field Activity
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	2,867.0 feet	**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	2,867.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance	
		15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,867.0	-55.2	-55.2	-55.2	-55.2	-55.2	-55.2
Shielding (Barrier Attenuation)	2,867.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		8.2	-55.2	-55.2	-55.2	-55.2	-55.2
60 Minute Hourly Adjustment		**8.2**	**-55.2**	**-55.2**	**-55.2**	**-55.2**	**-55.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/7/2016

Observer Location: **R3**
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,360.0 feet	
Noise Distance to Barrier:	1,360.0 feet	
Barrier Distance to Observer:	0.0 feet	
Observer Elevation:	0.0 feet	
Noise Source Elevation:	20.0 feet	
Barrier Elevation:	0.0 feet	

Barrier Height:	**0.0 feet**
Noise Source Height:	5.0 feet
Observer Height:	5.0 feet
Barrier Type (0-Wall, 1-Berm):	0
Drop Off Coefficient:	20.0

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,360.0	-48.7	-48.7	-48.7	-48.7	-48.7	-48.7
Shielding (Barrier Attenuation)	1,360.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.5	-48.7	-48.7	-48.7	-48.7	-48.7
39 Minute Hourly Adjustment		**26.6**	**-50.6**	**-50.6**	**-50.6**	**-50.6**	**-50.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/7/2016

Observer Location: **R3**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,352.0 feet	
Noise Distance to Barrier:	1,352.0 feet	
Barrier Distance to Observer:	0.0 feet	
Observer Elevation:	0.0 feet	
Noise Source Elevation:	0.0 feet	
Barrier Elevation:	0.0 feet	

Barrier Height:	**0.0 feet**
Noise Source Height:	5.0 feet
Observer Height:	5.0 feet
Barrier Type (0-Wall, 1-Berm):	0
Drop Off Coefficient:	15.0

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,352.0	-36.5	-36.5	-36.5	-36.5	-36.5	-36.5
Shielding (Barrier Attenuation)	1,352.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		23.6	-36.5	-36.5	-36.5	-36.5	-36.5
60 Minute Hourly Adjustment		**23.6**	**-36.5**	**-36.5**	**-36.5**	**-36.5**	**-36.5**

STATIONARY SOURCE NOISE PREDICTION MODEL						12/7/2016

Observer Location: R3
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,518.0 feet		*Barrier Height:*	**0.0 feet**
Noise Distance to Barrier:	1,518.0 feet		*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,518.0	-40.1	-40.1	-40.1	-40.1	-40.1	-40.1
Shielding (Barrier Attenuation)	1,518.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		21.9	-40.1	-40.1	-40.1	-40.1	-40.1
60 Minute Hourly Adjustment		**21.9**	**-40.1**	**-40.1**	**-40.1**	**-40.1**	**-40.1**

STATIONARY SOURCE NOISE PREDICTION MODEL						12/7/2016

Observer Location: R3
Source: Park/School Athletic Field Activity
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,128.0 feet		*Barrier Height:*	**0.0 feet**
Noise Distance to Barrier:	1,128.0 feet		*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,128.0	-47.1	-47.1	-47.1	-47.1	-47.1	-47.1
Shielding (Barrier Attenuation)	1,128.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		16.3	-47.1	-47.1	-47.1	-47.1	-47.1
60 Minute Hourly Adjustment		**16.3**	**-47.1**	**-47.1**	**-47.1**	**-47.1**	**-47.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/7/2016

Observer Location: R4
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	750.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	750.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	750.0	-43.5	-43.5	-43.5	-43.5	-43.5	-43.5
Shielding (Barrier Attenuation)	750.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		33.7	-43.5	-43.5	-43.5	-43.5	-43.5
39 Minute Hourly Adjustment		**31.8**	**-45.4**	**-45.4**	**-45.4**	**-45.4**	**-45.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/7/2016

Observer Location: R4
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	731.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	731.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	731.0	-32.5	-32.5	-32.5	-32.5	-32.5	-32.5
Shielding (Barrier Attenuation)	731.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.6	-32.5	-32.5	-32.5	-32.5	-32.5
60 Minute Hourly Adjustment		**27.6**	**-32.5**	**-32.5**	**-32.5**	**-32.5**	**-32.5**

STATIONARY SOURCE NOISE PREDICTION MODEL | 12/7/2016

Observer Location: R4
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	822.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	822.0 feet		Noise Source Height:	3.0 feet
Barrier Distance to Observer:	0.0 feet		Observer Height:	5.0 feet
Observer Elevation:	0.0 feet		Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet		Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	822.0	-34.8	-34.8	-34.8	-34.8	-34.8	-34.8
Shielding (Barrier Attenuation)	822.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.2	-34.8	-34.8	-34.8	-34.8	-34.8
60 Minute Hourly Adjustment		**27.2**	**-34.8**	**-34.8**	**-34.8**	**-34.8**	**-34.8**

STATIONARY SOURCE NOISE PREDICTION MODEL | 12/7/2016

Observer Location: R4
Source: Park/School Athletic Field Activity
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	442.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	442.0 feet		Noise Source Height:	4.0 feet
Barrier Distance to Observer:	0.0 feet		Observer Height:	5.0 feet
Observer Elevation:	0.0 feet		Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet		Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	442.0	-38.9	-38.9	-38.9	-38.9	-38.9	-38.9
Shielding (Barrier Attenuation)	442.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		24.5	-38.9	-38.9	-38.9	-38.9	-38.9
60 Minute Hourly Adjustment		**24.5**	**-38.9**	**-38.9**	**-38.9**	**-38.9**	**-38.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/7/2016

Observer Location: **R5**
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	92.0 feet		*Barrier Height:*	**0.0 feet**
Noise Distance to Barrier:	92.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	92.0	-25.3	-25.3	-25.3	-25.3	-25.3	-25.3
Shielding (Barrier Attenuation)	92.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		51.9	-25.3	-25.3	-25.3	-25.3	-25.3
39 Minute Hourly Adjustment		**50.0**	**-27.2**	**-27.2**	**-27.2**	**-27.2**	**-27.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/7/2016

Observer Location: **R5**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	71.0 feet		*Barrier Height:*	**0.0 feet**
Noise Distance to Barrier:	71.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	71.0	-17.3	-17.3	-17.3	-17.3	-17.3	-17.3
Shielding (Barrier Attenuation)	71.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		42.8	-17.3	-17.3	-17.3	-17.3	-17.3
60 Minute Hourly Adjustment		**42.8**	**-17.3**	**-17.3**	**-17.3**	**-17.3**	**-17.3**

STATIONARY SOURCE NOISE PREDICTION MODEL   12/7/2016

Observer Location: **R5**   *Project Name:* Roquet Ranch
Source: Drive-Through Speakerphone   *Job Number:* 9436
Condition: Operational   *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	178.0 feet	**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	178.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance	
		15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	178.0	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5
Shielding (Barrier Attenuation)	178.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		40.5	-21.5	-21.5	-21.5	-21.5	-21.5
60 Minute Hourly Adjustment		**40.5**	**-21.5**	**-21.5**	**-21.5**	**-21.5**	**-21.5**

STATIONARY SOURCE NOISE PREDICTION MODEL   12/7/2016

Observer Location: **R5**   *Project Name:* Roquet Ranch
Source: Park/School Athletic Field Activity   *Job Number:* 9436
Condition: Operational   *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	295.0 feet	**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	295.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance	
		15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	295.0	-35.4	-35.4	-35.4	-35.4	-35.4	-35.4
Shielding (Barrier Attenuation)	295.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.0	-35.4	-35.4	-35.4	-35.4	-35.4
60 Minute Hourly Adjustment		**28.0**	**-35.4**	**-35.4**	**-35.4**	**-35.4**	**-35.4**

STATIONARY SOURCE NOISE PREDICTION MODEL   12/7/2016

Observer Location: **R6**
    Source: Roof-Top Air Conditioning Units
    Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,190.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	1,190.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,190.0	-47.5	-47.5	-47.5	-47.5	-47.5	-47.5
Shielding (Barrier Attenuation)	1,190.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		29.7	-47.5	-47.5	-47.5	-47.5	-47.5
39 Minute Hourly Adjustment		**27.8**	**-49.4**	**-49.4**	**-49.4**	**-49.4**	**-49.4**

STATIONARY SOURCE NOISE PREDICTION MODEL   12/7/2016

Observer Location: **R6**
    Source: Parking Lot Vehicle Movements
    Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,172.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	1,172.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,172.0	-35.5	-35.5	-35.5	-35.5	-35.5	-35.5
Shielding (Barrier Attenuation)	1,172.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		24.6	-35.5	-35.5	-35.5	-35.5	-35.5
60 Minute Hourly Adjustment		**24.6**	**-35.5**	**-35.5**	**-35.5**	**-35.5**	**-35.5**

STATIONARY SOURCE NOISE PREDICTION MODEL — 12/7/2016

Observer Location: R6
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,214.0 feet	**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	1,214.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance	
		15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,214.0	-38.2	-38.2	-38.2	-38.2	-38.2	-38.2
Shielding (Barrier Attenuation)	1,214.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		23.8	-38.2	-38.2	-38.2	-38.2	-38.2
60 Minute Hourly Adjustment		**23.8**	**-38.2**	**-38.2**	**-38.2**	**-38.2**	**-38.2**

STATIONARY SOURCE NOISE PREDICTION MODEL — 12/7/2016

Observer Location: R6
Source: Park/School Athletic Field Activity
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	729.0 feet	**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	729.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance	
		15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	729.0	-43.3	-43.3	-43.3	-43.3	-43.3	-43.3
Shielding (Barrier Attenuation)	729.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		20.1	-43.3	-43.3	-43.3	-43.3	-43.3
60 Minute Hourly Adjustment		**20.1**	**-43.3**	**-43.3**	**-43.3**	**-43.3**	**-43.3**

STATIONARY SOURCE NOISE PREDICTION MODEL		12/7/2016

Observer Location: R7   *Project Name:* Roquet Ranch
Source: Park/School Athletic Field Activity   *Job Number:* 9436
Condition: Operational   *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,140.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	1,140.0 feet		*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,140.0	-47.2	-47.2	-47.2	-47.2	-47.2	-47.2
Shielding (Barrier Attenuation)	1,140.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		16.2	-47.2	-47.2	-47.2	-47.2	-47.2
60 Minute Hourly Adjustment		**16.2**	**-47.2**	**-47.2**	**-47.2**	**-47.2**	**-47.2**

STATIONARY SOURCE NOISE PREDICTION MODEL		12/7/2016

Observer Location: R8   *Project Name:* Roquet Ranch
Source: Park/School Athletic Field Activity   *Job Number:* 9436
Condition: Operational   *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	177.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	177.0 feet		*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	177.0	-31.0	-31.0	-31.0	-31.0	-31.0	-31.0
Shielding (Barrier Attenuation)	177.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		32.4	-31.0	-31.0	-31.0	-31.0	-31.0
60 Minute Hourly Adjustment		**32.4**	**-31.0**	**-31.0**	**-31.0**	**-31.0**	**-31.0**

STATIONARY SOURCE NOISE PREDICTION MODEL | 12/7/2016

Observer Location: **PA 2**
Source: Park/School Athletic Field Activity
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	154.0 feet		***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	154.0 feet		*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	154.0	-29.8	-29.8	-29.8	-29.8	-29.8	-29.8
Shielding (Barrier Attenuation)	154.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		33.6	-29.8	-29.8	-29.8	-29.8	-29.8
60 Minute Hourly Adjustment		**33.6**	**-29.8**	**-29.8**	**-29.8**	**-29.8**	**-29.8**

STATIONARY SOURCE NOISE PREDICTION MODEL | 12/7/2016

Observer Location: **PA 7**
Source: Park/School Athletic Field Activity
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	141.0 feet		***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	141.0 feet		*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	141.0	-29.0	-29.0	-29.0	-29.0	-29.0	-29.0
Shielding (Barrier Attenuation)	141.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.4	-29.0	-29.0	-29.0	-29.0	-29.0
60 Minute Hourly Adjustment		**34.4**	**-29.0**	**-29.0**	**-29.0**	**-29.0**	**-29.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

Observer Location: PA 9

Source: Roof-Top Air Conditioning Units

Condition: Operational

Project Name: Roquet Ranch

Job Number: 9436

Analyst: A. Wolfe

12/7/2016

NOISE MODEL INPUTS

Noise Distance to Observer	162.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	162.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	162.0	-30.2	-30.2	-30.2	-30.2	-30.2	-30.2
Shielding (Barrier Attenuation)	162.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		47.0	-30.2	-30.2	-30.2	-30.2	-30.2
39 Minute Hourly Adjustment		**45.1**	**-32.1**	**-32.1**	**-32.1**	**-32.1**	**-32.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

Observer Location: PA 9

Source: Parking Lot Vehicle Movements

Condition: Operational

Project Name: Roquet Ranch

Job Number: 9436

Analyst: A. Wolfe

12/7/2016

NOISE MODEL INPUTS

Noise Distance to Observer	103.0 feet		**Barrier Height:**	**0.0 feet**
Noise Distance to Barrier:	103.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance	
			15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	103.0	-19.7	-19.7	-19.7	-19.7	-19.7	-19.7
Shielding (Barrier Attenuation)	103.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		40.4	-19.7	-19.7	-19.7	-19.7	-19.7
60 Minute Hourly Adjustment		**40.4**	**-19.7**	**-19.7**	**-19.7**	**-19.7**	**-19.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/7/2016

Observer Location: **PA 9**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	116.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	116.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance	
		15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	116.0	-17.8	-17.8	-17.8	-17.8	-17.8	-17.8
Shielding (Barrier Attenuation)	116.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.2	-17.8	-17.8	-17.8	-17.8	-17.8
60 Minute Hourly Adjustment		**44.2**	**-17.8**	**-17.8**	**-17.8**	**-17.8**	**-17.8**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/7/2016

Observer Location: **R1**
Source: RV Idle/Air Brake Activity
Condition: Operational

Project Name: Roquet Ranch
Job Number: 9436
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	3,647.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	3,647.0 feet	*Noise Source Height:*	6.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance	
		15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	3,647.0	-51.2	-51.2	-51.2	-51.2	-51.2	-51.2
Shielding (Barrier Attenuation)	3,647.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		25.2	-51.2	-51.2	-51.2	-51.2	-51.2
60 Minute Hourly Adjustment		**25.2**	**-51.2**	**-51.2**	**-51.2**	**-51.2**	**-51.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/7/2016

Observer Location: **R2**

Source: RV Idle/Air Brake Activity

Condition: Operational

Project Name: Roquet Ranch

Job Number: 9436

Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	2,946.0	feet
Noise Distance to Barrier:	2,946.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Elevation:	0.0	feet
Noise Source Elevation:	0.0	feet
Barrier Elevation:	0.0	feet

Barrier Height:	**0.0**	**feet**
Noise Source Height:	6.0	feet
Observer Height:	5.0	feet
Barrier Type (0-Wall, 1-Berm):	0	
Drop Off Coefficient:	20.0	

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,946.0	-49.4	-49.4	-49.4	-49.4	-49.4	-49.4
Shielding (Barrier Attenuation)	2,946.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.0	-49.4	-49.4	-49.4	-49.4	-49.4
60 Minute Hourly Adjustment		**27.0**	**-49.4**	**-49.4**	**-49.4**	**-49.4**	**-49.4**