Cottonwood & Edgemont Warehouses

NOISE AND VIBRATION ANALYSIS

CITY OF MORENO VALLEY

PREPARED BY:

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

DECEMBER 23, 2022

TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

LIST OF ABBREVIATED TERMS

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

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Cottonwood & Edgemont Warehouses development ("Project"). The Project site is located south of Cottonwood Avenue between Old 215 Frontage Road and Edgemont Street in the City of Moreno Valley. The Project is proposed to consist of two 49,815 square foot warehouse buildings for a total of 99,630 square feet.

The results of this Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	8	*Less Than Significant*	-
Construction Noise	9	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

This page intentionally left blank

1 INTRODUCTION

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

1.1 SITE LOCATION

The proposed project is located south of Cottonwood Avenue between Old 215 Frontage Road and Edgemont Street in the City of Moreno Valley as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of two 49,815 square foot warehouse buildings for a total of 99,630 square feet as shown on Exhibit 1-B. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and tractor trailer parking. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site.

EXHIBIT 1-A: LOCATION MAP

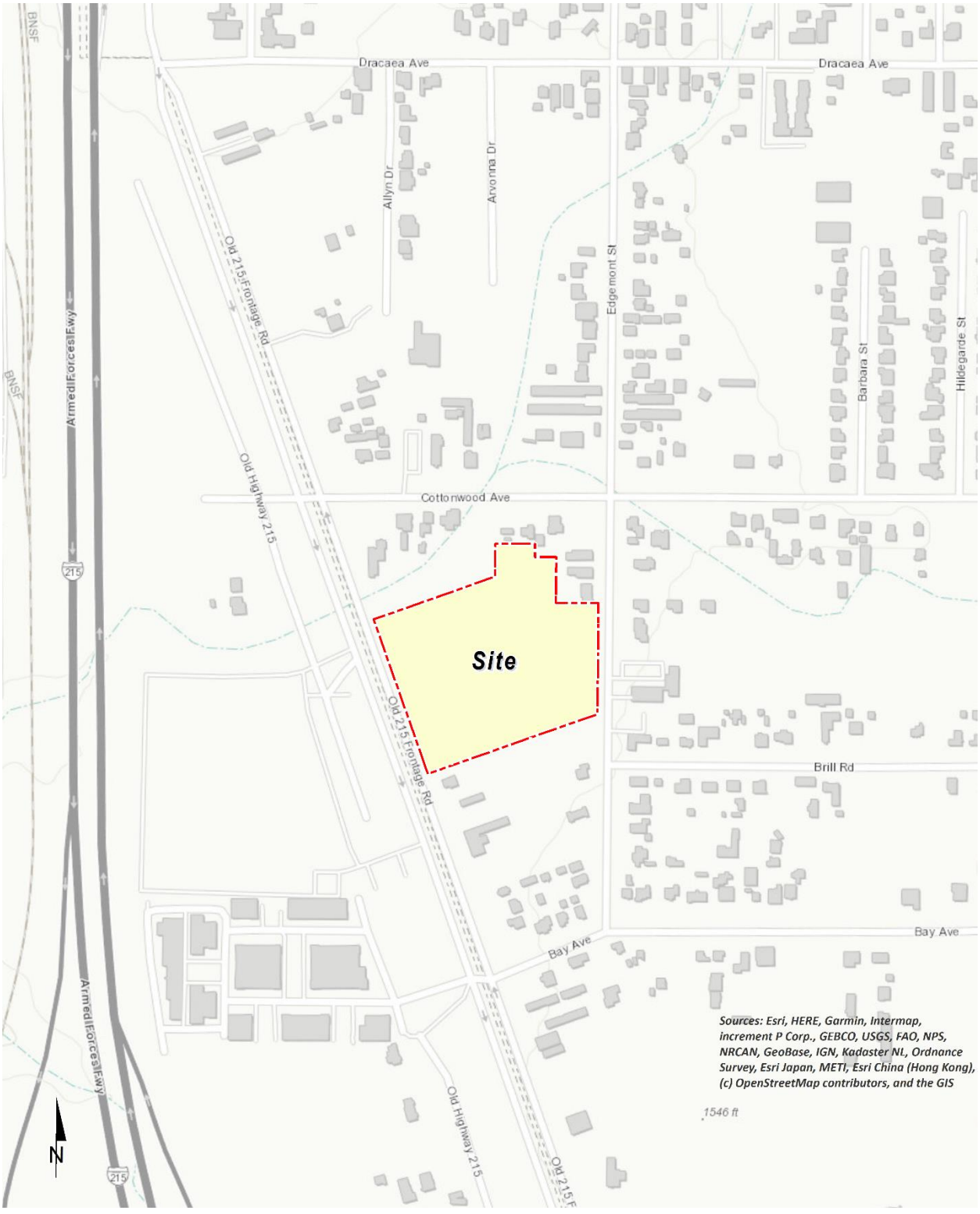
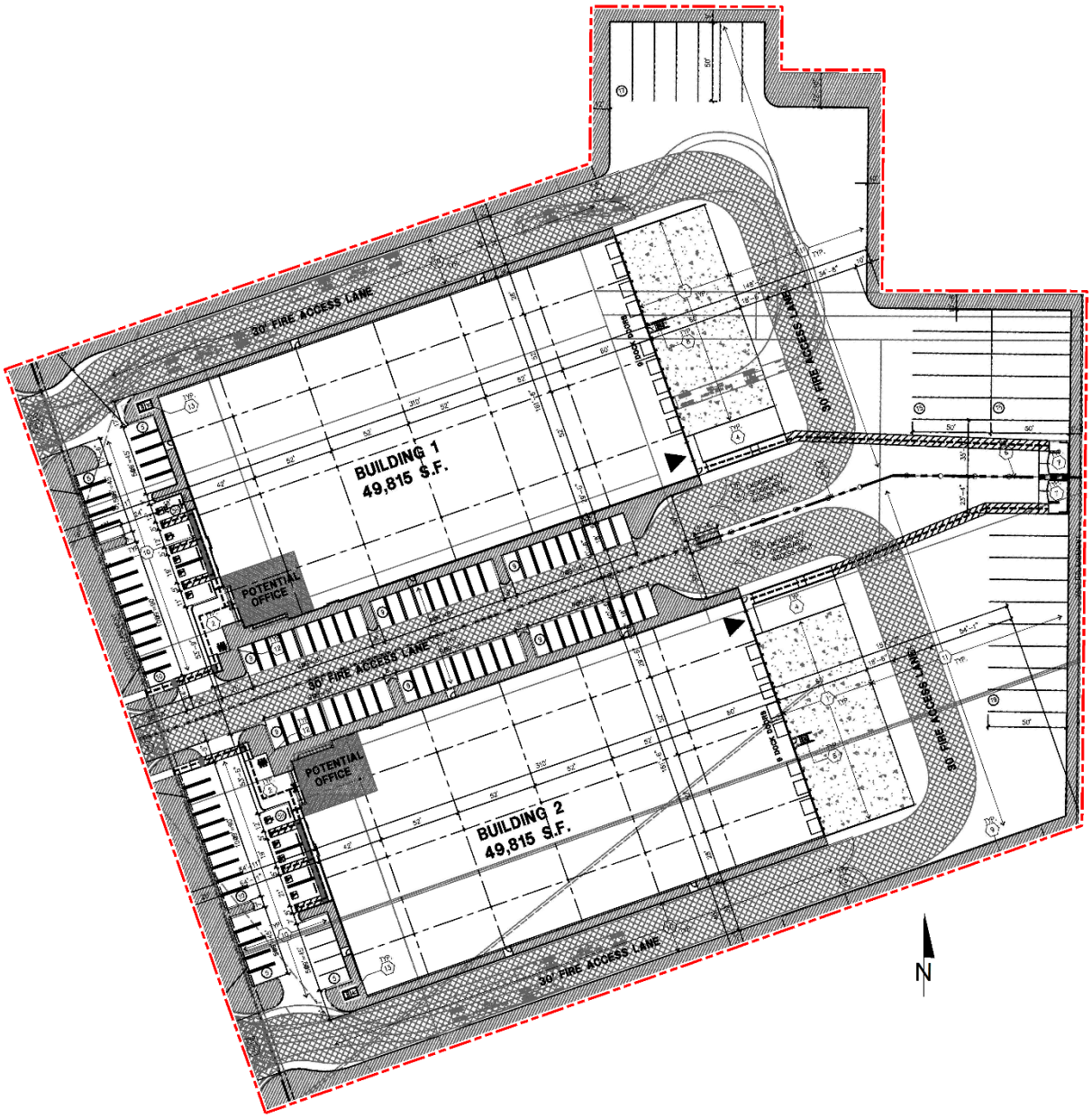


EXHIBIT 1-B: SITE PLAN



This page intentionally left blank

2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort. (3) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

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

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must block the line-of-sight path of sound from the noise source.

2.6 LAND USE COMPATIBILITY WITH NOISE

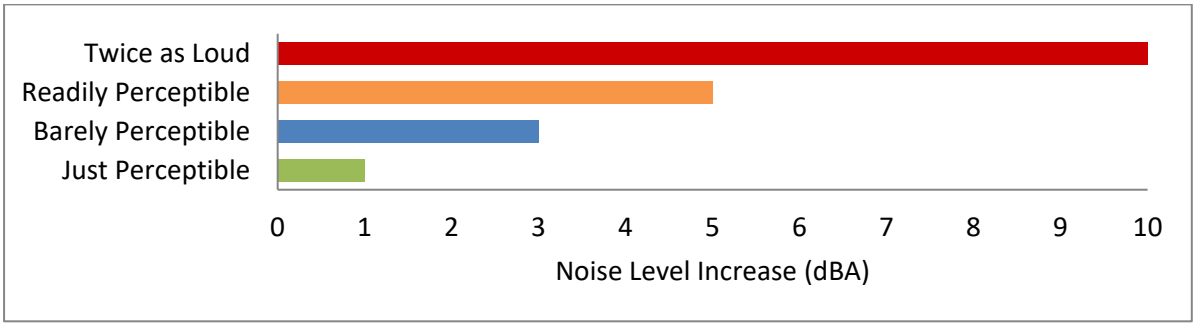
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development,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

Approximately sixteen 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 may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



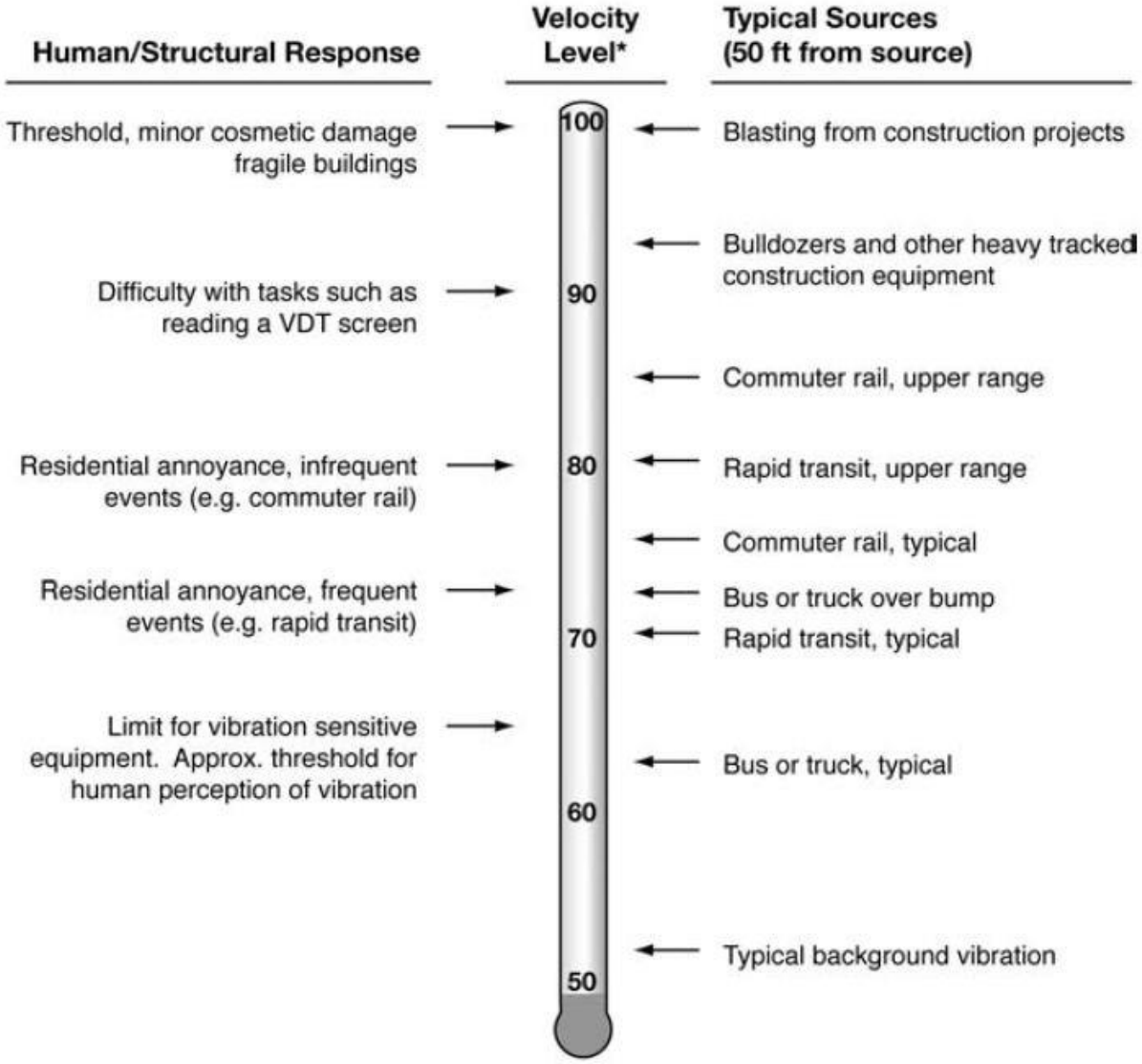
2.8 VIBRATION

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

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

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

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



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

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

3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (9) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (10) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 CITY OF MORENO VALLEY GENERAL PLAN NOISE ELEMENT

The City of Moreno Valley General Plan was adopted on June 15, 2021. (11) The following goals, policies, and actions in this chapter seek to proactively address sources of noise in Moreno Valley, protect against excessive noise, and support the social and economic vitality of the community.

Goal N-1:

Design for a pleasant, healthy sound environment conductive to living and working.

Policies

N.1-1. Protect occupants of existing and new buildings from exposure to excessive noise, particularly adjacent to freeways, major roadways, the railroad, and within areas of aircraft overflight.

N.1-2. Guide the location and design of transportation facilities, industrial uses, and other potential noise generators to minimize the effects of noise on adjacent land uses.

N.1-3. Apply the community noise compatibility standards (Table N-1) to all new development and major redevelopment projects outside the noise and safety compatibility zones established in the March Air Reserve Base/Inland Port Airport Land Use Compatibility (ALUC) Plan in order to protect against the adverse effects of noise exposure. Projects within the noise and safety compatibility zones are subject to the standards contained in the ALUC Plan.

N.1-4. Require a noise study and/or mitigation measures if applicable for all projects that would expose people to noise levels greater than the "normally acceptable" standard and for any other projects that are likely to generate noise in excess of these standards.

N.1-5. Noise impacts should be controlled at the noise source where feasible, as opposed to at receptor end with measures to buffer, dampen, or actively cancel noise sources. Site design, building orientation, building design, hours of operation, and other techniques, for new developments deemed to be noise generators shall be used to control noise sources.

N.1-6. Require noise buffering, dampening, or active cancellation, on rooftop or other outdoor mechanical equipment located near residences, parks, and other noise sensitive land uses.

N.1-7. Developers shall reduce the noise impacts on new development through appropriate means (e.g., double-paned or soundproof windows, setbacks, berming, and screening). Noise attenuation methods should avoid the use of visible sound walls where possible.

Actions

N.1-A. Continue to review proposed projects for conformance with the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, including consideration of the Compatibility Zone Factors shown in Table MA-1 and the Basic Compatibility Criteria shown in Table MA-2, as may be amended.

N.1-B. Require dedication of an aviation easement as a condition of development approval for projects within the noise and safety compatibility zones identified by the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, as may be amended. The intention of this action is to alert interested individuals, including property buyers and developers, to the proximity of aircraft operations and related noise and safety compatibility protections.

N.1-C. Study the feasibility of using alternative pavement materials such as rubberized asphalt pavements on roadways to reduce noise generation. Update City standards as appropriate.

Goal N-2:

Ensure that noise does not have a substantial, adverse effect on the quality of life in the community.

Policies

N.2-3. Limit the potential noise impacts of construction activities on surrounding land uses through noise regulations in the Municipal Code that address allowed days and hours of construction, types of work, construction equipment, and sound attenuation devices.

N.2-4. Collaborate with the March Joint Powers Authority, March Inland Port Airport Authority, Riverside County Airport Land Use Commission, and other responsible agencies to formulate and apply strategies to address noise and safety compatibility protection from airport operations.

Actions

N.2-A. Continue to maintain performance standards in the Municipal Code to ensure that noise generated by proposed projects is compatible with surrounding land uses.

While the General Plan provides background and noise fundamentals, and it relies on the transportation noise criteria that are derived from standards contained in the California Office of Planning and Research (OPR) *General Plan Guidelines*. (9) The OPR land use/noise compatibility standards are used by many California cities and counties and specify the maximum noise levels allowable for new developments impacted by transportation noise sources. The OPR Community Noise Compatibility Matrix, found in Table N-1 of the General Plan Noise Element, identifies the criteria for industrial land uses such as the Project, as shown on Exhibit 3-A. When the unmitigated exterior noise levels approach 75 dBA CNEL industrial land use is considered *normally acceptable*. With exterior noise levels ranging from 75 to 80 dBA CNEL, industrial land uses are considered *conditionally acceptable*, and with exterior noise levels greater than 80 dBA CNEL, they are considered *normally unacceptable*. For *normally unacceptable* land use, *new construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.* (11)

For the purposes of this analysis, industrial land use such as the Project does not contain outdoor living areas requiring exterior noise mitigation as outlined in the OPR *General Plan Guidelines*, and therefore, only the interior noise levels experienced by employees at the Project site are evaluated against the appropriate noise level standards. The purpose of the transportation noise criteria is to protect, create, and maintain an environment free from noise and vibration that may jeopardize the health or welfare of sensitive receptors, or degrade quality of life.

EXHIBIT 3-A: COMMUNITY NOISE COMPATIBILITY MATRIX

Table N-1: Community Noise Compatibility Matrix

Land Use Category	*Community Noise Exposure (CNEL)* 55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Homes	A		B	C	D	
Residential – Multiple Family	A		B	C	D	
Transient Lodging: Hotels and Motels	A		B	C		D
Schools, Libraries, Churches, Hospitals, Nursing Homes	A			C		D
Auditoriums, Concert Halls, Amphitheaters	B			C		
Sports Arena, Outdoor Spectator Sports	B				C	
Playground, Neighborhood Parks	A			B	C	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	A				C	D
Office Buildings, Businesses, Commercial and Professional	A			B	C	
Industrial, Manufacturing, Utilities, Agricultural	A				B	C

A — **Normally Acceptable:** Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

B — **Conditionally Acceptable:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement 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.

C — **Normally Unacceptable:** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

D — **Clearly Unacceptable:** New construction or development should generally not be undertaken.

Source: Governor's Office of Planning and Research 2017.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Cottonwood & Edgemont Warehouses Project, stationary-source (operational) noise such as the expected loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and tractor trailer parking are typically evaluated against standards established under a City's Municipal Code. The City of Moreno Valley Municipal Code, Chapter 11.80 *Noise Regulation*, provides performance standards and noise control guidelines for determining and mitigating non-transportation or stationary-source noise impacts from operations at private properties.

The City of Moreno Valley Municipal Code defines *Maximum Sound Levels (in dB(A)) for Source Land Uses* in Table 11.80.030-2 for *Residential* and *Commercial* land uses. As defined by the Municipal Code, Section 11.80.020 *Definitions*, *Commercial* land use *means all uses of land not otherwise classified as residential,* and *Residential* land use *means all uses of land primarily for dwelling units, as well as hospitals, schools, colleges and universities, and places of religious assembly.* (12) For the purpose of this analysis, the Cottonwood & Edgemont Warehouses Project is considered *Commercial* land use since it is not classified as residential. Based on this standard, the operational noise level limits for commercial land use, from Table 11.80.030-2, of 65 dBA L_{eq} during the daytime (8:00 a.m. to 10:00 p.m.) hours and 60 dBA L_{eq} during the nighttime (10:01 p.m. to 7:59 a.m.) hours shall apply to the operational noise source activities from the Project.

Further, Section 11.80.030 (C) *Prohibited Acts*, *Nonimpulsive Sound Decibel Limits*, states: *No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimpulsive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table 11.80.030-2 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on a privately owned property…* (12) Therefore, at a distance of 200 feet from the property line, the Project's operational noise levels shall not exceed the 65 dBA L_{eq} daytime and 60 dBA L_{eq} nighttime noise level standards for commercial land uses, as shown on Table 3-1.

The City of Moreno Valley Municipal Code also identifies continuous sound level limits in Table 11.80.030-1 based on the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health (NIOSH) noise exposure guidelines. 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 City of Moreno Valley noise level threshold starts at 90 dBA for more than eight hours per day, and for every increase, the exposure time is reduced. The City of Moreno Valley identifies noise level thresholds of 92 dBA for more than 6 hours per day, 95 dBA for more than 4 hour per day, 97 dBA for more than 3 hours per day, and up to 100 dBA for more than 2 hours per day. However, this noise study uses the more restrictive City of Moreno Valley commercial noise level limits identified on Table 11.80.030-2 for source land uses in the Municipal Code, shown on Table 3-1 of this report, to evaluate the potential operational noise levels due to the operation of the Project.

TABLE 3-1: OPERATIONAL NOISE STANDARDS AT 200 FEET FROM THE SOURCE

City	Source Land use	Noise Level Standards (dBA Leq)[1]	
		Daytime	Nighttime
Moreno Valley	Commercial	65	60

[1] City of Moreno Valley Municipal Code, Chapter 11.80 Noise Regulation, Table 11.80.030-2 Maximum Sound Levels (in dB(A)) for Source Land Uses when measured at 200 feet from the property line of the source land use (Appendix 3.1). L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given period. "Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.

3.5 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Cottonwood & Edgemont Warehouses site, noise from construction activities is typically evaluated against standards established under a City's Municipal Code. The Municipal Code noise standards for construction are described below for the City of Moreno Valley to determine the potential noise impacts at the nearest receiver locations. The construction-related noise standards are shown on Table 3-2. The Municipal Code noise standards for construction are described below for the City of Moreno Valley to determine the potential noise impacts at the nearest sensitive receiver locations. As a subset of its stationary-source noise regulations, the City Municipal Code establishes permitted hours of construction activity. More specifically, Municipal Code Section 11.80.030 (D)(7), *Construction and Demolition*, provides the following:

> *No person shall operate, or cause operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee.*

Therefore, based on the Section 11.80.030 (D)(7) construction regulations, a construction-related *noise disturbance* occurs if Project construction activity occurs outside of the permitted hours. However, for this analysis, the stationary-source noise level limits of 65 dBA L_{eq} during the daytime hours and 60 dBA L_{eq} during the nighttime hours are used as appropriate thresholds for the nearest sensitive land uses (e.g., residential homes) in the Project study area. In addition, grading operations shall be limited to the hours identified in Section 8.21.050 (O) of 7:00 a.m. to 6:00 p.m., Monday through Friday, and 8:00 a.m. to 4:00 p.m. on weekends and holidays or as approved by the City Engineer. The City of Moreno Valley construction noise standards are shown on Table 3-2 and included in Appendix 3.1. As previously discussed in Section 3.4, the construction noise level threshold used in this noise study represents a conservative approach, since it is more restrictive than the continuous sound level limits of Table 11.80.030-1 of the City of Moreno Valley Municipal Code.

TABLE 3-2: CONSTRUCTION NOISE STANDARDS FROM THE SOURCE LAND USE

City	Permitted Hours of Construction Activity	Construction Noise Level Standard (dBA L_{eq})[2]	
		Daytime	Nighttime
Moreno Valley[1]	General Activity: 7:00 a.m. to 8:00 p.m. on any day. Grading is limited to 7:00 a.m. to 6:00 p.m. Monday to Friday; 8:00 a.m. to 4:00 p.m. on weekends and holidays.	65	60[3]

[1] City of Moreno Valley Municipal Code, Section 11.80.030 (D)(7) as shown in Appendix 3.1.
[2] Acceptable threshold for determining the relative significance of short-term Project construction noise levels, based on the City of Moreno Valley stationary noise standards shown on Table 3-1.
[3] Any nighttime construction activity requires an exemption from the City of Moreno Valley Municipal Code as indicated in Section 11.80.030 (E)(8) for a special event permit (Section 11.80.040). The special event permit application shall be submitted to the City of Moreno Valley Planning Department for approval and meet the requirements of Municipal Code Section 11.80.040.
"Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.

3.6 VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (8) To analyze vibration impacts originating from the operation and construction of the Cottonwood & Edgemont Warehouses, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Moreno Valley does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (13 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

3.7 MARCH AIR RESERVE BASE/INLAND PORT AIRPORT LAND USE COMPATIBILITY

The March Air Reserve Base/Inland Port Airport (MARB/IPA) is located approximately 1.63 miles southeast of the Project site. The *Riverside County Airport Land Use Compatibility Plan Policy Document* (RC ALUCP) includes the policies for determining the land use compatibility of the Project. Policy 4.1.5 *Noise Exposure for Other Land Uses* of the RC ALUCP requires that land uses, demonstrate compatibility with the acceptable noise levels on Table 2B. The Table 2B *Supporting Compatibility Criteria: Noise* matrix is shown on Exhibit 3-B and indicates that the Project industrial land uses (warehousing, light industrial general manufacturing, utilities, extractive industry) experience *clearly acceptable* exterior noise levels below 65 dBA CNEL. *Normally acceptable* noise levels for industrial land uses range from 65 to 75 dBA CNEL (14).

The noise contour boundaries used to determine the potential aircraft-related noise impacts at the Project site are found on Exhibit MA-4 of the RC ALUCP and are presented on Exhibit 3-C of this report. Based on the RC ALUCP noise level contours for the MARB/IPA, the Project is located

between the 60 to 65 dBA CNEL noise level contour boundaries and is considered *normally acceptable*. Therefore, based on the RC ALUCP compatibility criteria, *conventional construction methods will eliminate noise intrusions upon indoor activities and thus is allowed under the RC ALUCP*. (14)

EXHIBIT 3-B: RC ALUCP SUPPORTING COMPATIBILITY CRITERIA: NOISE

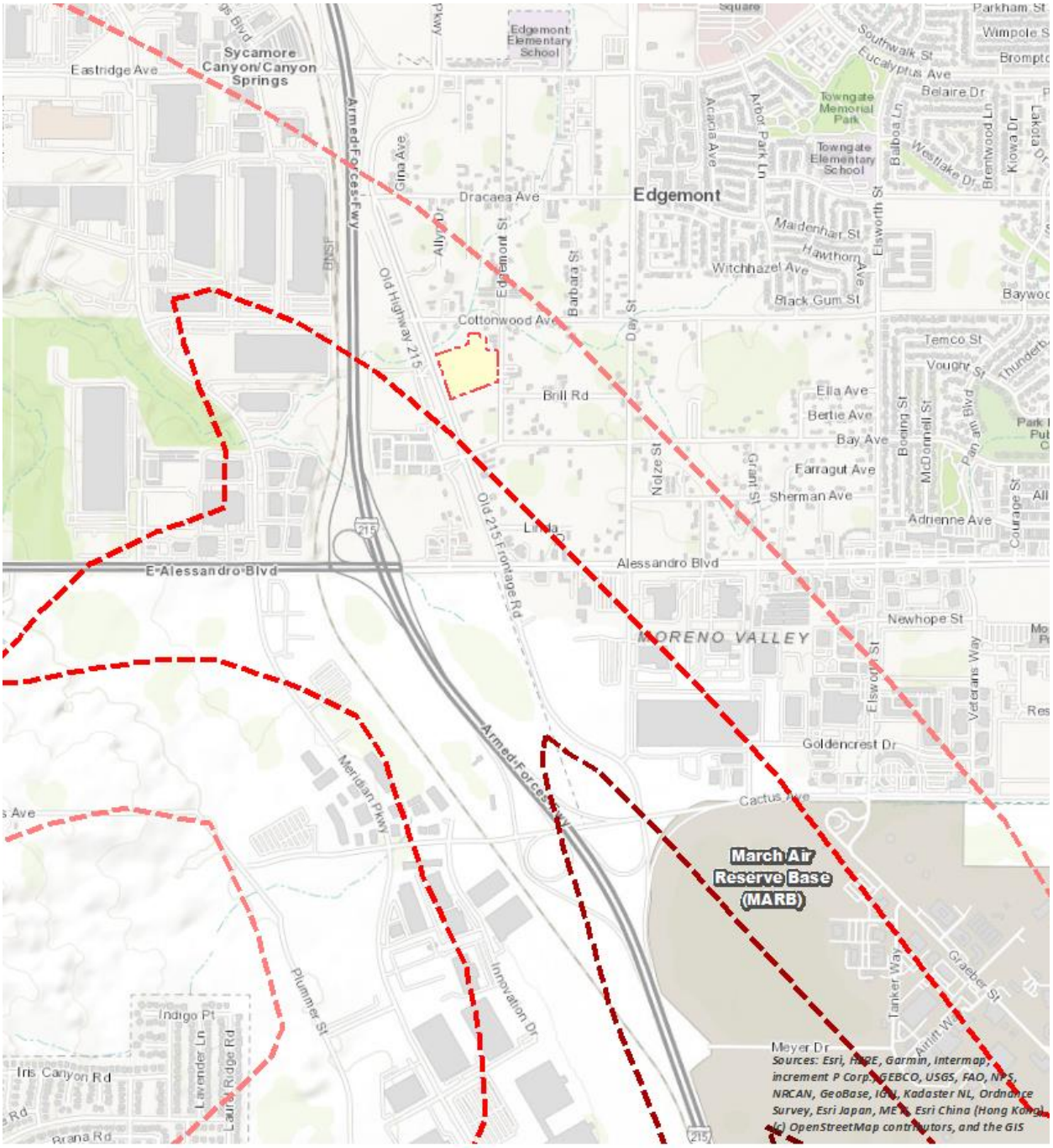
Land Use Category	CNEL (dB) 50–55	55–60	60–65	65–70	70–75
Residential *					
single-family, nursing homes, mobile homes	++	o	–	– –	– –
multi-family, apartments, condominiums	++	+	o	– –	– –
Public					
schools, libraries, hospitals	+	o	–	– –	– –
churches, auditoriums, concert halls	+	o	o	–	– –
transportation, parking, cemeteries	++	++	++	+	o
Commercial and Industrial					
offices, retail trade	++	+	o	o	–
service commercial, wholesale trade, warehousing, light industrial	++	++	+	o	o
general manufacturing, utilities, extractive industry	++	++	++	+	+
Agricultural and Recreational					
cropland	++	++	++	++	+
livestock breeding	++	+	o	o	–
parks, playgrounds, zoos	++	+	+	o	–
golf courses, riding stables, water recreation	++	++	+	o	o
outdoor spectator sports	++	+	+	o	–
amphitheaters	+	o	–	– –	– –

Land Use Acceptability		Interpretation/Comments
++	*Clearly Acceptable*	The activities associated with the specified land use can be carried out with essentially no interference from the noise exposure.
+	*Normally Acceptable*	Noise is a factor to be considered in that slight interference with outdoor activities may occur. Conventional construction methods will eliminate most noise intrusions upon indoor activities.
o	*Marginally Acceptable*	The indicated noise exposure will cause moderate interference with outdoor activities and with indoor activities when windows are open. The land use is acceptable on the conditions that outdoor activities are minimal and construction features which provide sufficient noise attenuation are used (e.g., installation of air conditioning so that windows can be kept closed). Under other circumstances, the land use should be discouraged.
–	*Normally Unacceptable*	Noise will create substantial interference with both outdoor and indoor activities. Noise intrusion upon indoor activities can be mitigated by requiring special noise insulation construction. Land uses which have conventionally constructed structures and/or involve outdoor activities which would be disrupted by noise should generally be avoided.
– –	*Clearly Unacceptable*	Unacceptable noise intrusion upon land use activities will occur. Adequate structural noise insulation is not practical under most circumstances. The indicated land use should be avoided unless strong overriding factors prevail and it should be prohibited if outdoor activities are involved.

* Subtract 5 dB for low-activity outlying airports (Chiriaco Summit and Desert Center)

Source: Riverside County Airport Land Use Compatibility Plan, Table 2B.

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



Source: Riverside County Airport Land Use Compatiblity Plan, Exhibit MA-4

This page intentionally left blank

4 SIGNIFICANCE CRITERIA

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

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

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

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

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 baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders a noise impact significant.* (13) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

4.1.1 NOISE-SENSITIVE RECEIVERS

The Federal Interagency Committee on Noise (FICON) (14) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders a noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (13) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels

range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (15 p. 2_48).

4.1.2 NON-NOISE-SENSITIVE RECEIVERS

Since the City of Moreno Valley General Plan Safety Element does not identify criteria to assess the impacts associated with off-site transportation-related noise impacts, the OPR land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix D: Noise Element Guidelines* is used to determine potential impacts at adjacent land uses. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise level for non-noise-sensitive land use, such as industrial use, is 70 dBA CNEL. Noise levels greater than 70 dBA CNEL are considered *conditionally acceptable* according to the *Land Use Compatibility Criteria*. (10)

To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the OPR land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix D: Noise Element Guidelines normally acceptable* 70 dBA CNEL exterior noise level criteria.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of Cottonwood & Edgemont Warehouses, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as “older residential structures” with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

The closest airport which would require additional noise analysis under CEQA Significance Criteria C is the March Air Reserve Base/Inland Port Airport (MARB/IPA) which is located approximately 1.63 miles southeast of the Project site. As previously indicated in Section 3.7, the noise contour boundaries of MARB/IPA are presented on Exhibit 3-C of this report and show that the Project is considered *normally acceptable* land use since it is located within the 60 to 65 dBA CNEL contour boundaries. Moreover, Table MA-2 of the MARB/IPA LUCP indicates that noise-sensitive outdoor nonresidential uses are prohibited in this area, and therefore, the Project impacts are considered *less than significant,* and no further noise analysis is provided under CEQA Significance Criteria C.

4.3 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site	Noise-Sensitive[1]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[2]	if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Noise-Sensitive	At 200' from the property line of the source[3]	65 dBA L_{eq}	60 dBA L_{eq}
		if ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	At 200' from the property line of the source[3]	65 dBA L_{eq}	60 dBA L_{eq}
		Vibration Level Threshold[4]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] OPR General Plan Guidelines, Figure 2 Land Use Compatibility Criteria.
[3] City of Moreno Valley Municipal Code, Chapter 11.80 Noise Regulation (Appendix 3.1).
[4] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
"Daytime" = 8:00 a.m. - 10:00 p.m.; "Nighttime" = 10:01 p.m. - 7:59 a.m.

This page intentionally left blank

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at six 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, December 21st, 2021. 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 equivalent daytime and nighttime hourly noise levels. 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. (18)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearest sensitive receiver locations allows for a comparison of the before and after Project noise levels

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

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (8:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 8:00 a.m.) noise levels at each noise level measurement location.

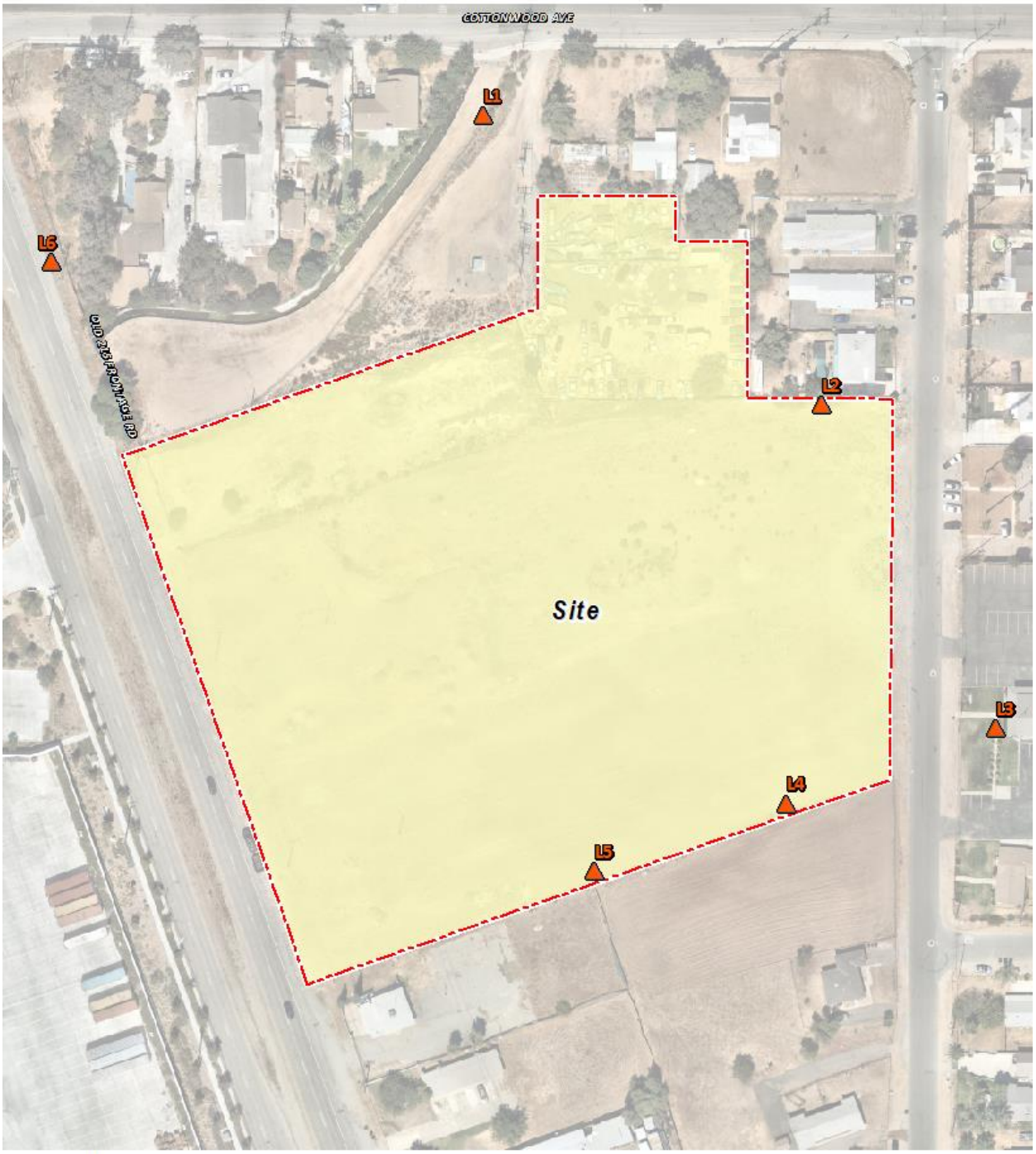
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located north of the Project site near single-family residence at 21717 Cottonwood Avenue.	63.8	61.0
L2	Located at the northeastern boundary of the Project site near single-family residence at 13571 Cottonwood Avenue.	56.8	53.7
L3	Located east of the Project site near Liberty Church at 13630 Edgemont Street.	57.0	56.2
L4	Located at the southern boundary of the Project site near single-family residence at 13651 Edgemont Street.	56.0	54.2
L5	Located at the southern boundary of the Project site near single-family residence at 13676 Old 215 Frontage Road.	55.9	53.4
L6	Located northwest of the Project site near single-family residence at 21613 Cottonwood Avenue.	70.1	63.9

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.

Table 5-1 provides the equivalent 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 of the daytime and nighttime hours.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



This page intentionally left blank

6 TRAFFIC NOISE METHODS AND PROCEDURES

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

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (13) 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. (14) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (15)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site dBA CNEL transportation noise impacts. Table 6-1 identifies the 11 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Moreno Valley General Plan Circulation Element, and the posted vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on the *Cottonwood & Edgemont Warehouses Traffic Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios (16):

- Existing (E) (2022)
- Existing + Project (E+P) (2022)
- Opening Year Cumulative (2025) Without Project Conditions (OYC) (2025)
- Opening Year Cumulative (2025) With Project Conditions (OYC+P) (2025)

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

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification[1]	Receiving Land Use[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	Arterial	Sensitive	55'	50
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	Arterial	Sensitive	55'	50
3	Old 215 Frontage Rd.	s/o Bay Av.	Arterial	Sensitive	55'	50
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	Arterial	Sensitive	55'	50
5	Eucalyptus Av.	w/o I-215 Ramps	Major	Non-Sensitive	67'	35
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	Major	Non-Sensitive	67'	35
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	Major	Sensitive	67'	35
8	Alessandro Bl.	w/o I-215 Ramps SB	Major	Non-Sensitive	67'	55
9	Alessandro Bl.	w/o I-215 NB Ramps	Major	Non-Sensitive	67'	55
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	Major	Non-Sensitive	67'	55
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	Major	Sensitive	67'	45

[1] Cottonwood & Edgemont Warehouses Traffic Analysis, Urban Crossroads, Inc.
[2] Based on a review of existing aerial imagery.
[3] Distance to receiving land use is based upon the right-of-way distances.

To quantify the off-site noise levels, the Project-related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix. Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Traffic Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-5 and 6-6 show the vehicle mixes used for the with Project traffic scenarios.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]			
			Existing (2022)		OYC (2025)	
			Without Project	With Project	Without Project	With Project
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	10,697	10,951	12,101	12,355
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	11,175	11,429	12,584	12,838
3	Old 215 Frontage Rd.	s/o Bay Av.	10,577	10,903	11,841	12,166
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	3,455	3,501	3,684	3,731
5	Eucalyptus Av.	w/o I-215 Ramps	15,680	15,726	18,396	18,442
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	29,925	30,076	41,969	42,119
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	17,067	17,136	22,386	22,455
8	Alessandro Bl.	w/o I-215 Ramps SB	43,691	43,714	46,452	46,475
9	Alessandro Bl.	w/o I-215 NB Ramps	38,150	38,219	41,142	41,210
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	31,741	31,856	34,430	34,545
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	28,503	28,549	30,592	30,638

[1] Cottonwood & Edgemont Warehouses Traffic Analysis, Urban Crossroads, Inc.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	85.00%	6.44%	8.56%	100.00%
Medium Trucks	85.06%	3.73%	11.20%	100.00%
Heavy Trucks	72.57%	1.14%	26.29%	100.00%

[1] Based on the November 16, 2022, 24-hour directional vehicle classification count collected on Old 215 Frontage south of Cottonwood (Cottonwood & Edgemont Traffic Analysis, Urban Crossroads, Inc.)
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: WITHOUT PROJECT VEHICLE MIX

Classification	Total % Traffic Flow[1]			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	96.33%	2.13%	1.54%	100.00%

[1] Based on the November 16, 2022, 24-hour directional vehicle classification count collected on Old 215 Frontage south of Cottonwood (Cottonwood & Edgemont Traffic Analysis, Urban Crossroads, Inc.)

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

TABLE 6-5: EXISTING 2022 WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	96.25%	2.12%	1.64%	100.00%
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	96.25%	2.12%	1.63%	100.00%
3	Old 215 Frontage Rd.	s/o Bay Av.	96.30%	2.10%	1.60%	100.00%
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	96.28%	2.12%	1.60%	100.00%
5	Eucalyptus Av.	w/o I-215 Ramps	96.32%	2.12%	1.55%	100.00%
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	96.31%	2.12%	1.57%	100.00%
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	96.32%	2.12%	1.56%	100.00%
8	Alessandro Bl.	w/o I-215 Ramps SB	96.33%	2.12%	1.55%	100.00%
9	Alessandro Bl.	w/o I-215 NB Ramps	96.33%	2.12%	1.55%	100.00%
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	96.32%	2.12%	1.56%	100.00%
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	96.33%	2.12%	1.55%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: OYC (2025) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	96.26%	2.12%	1.63%	100.00%
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	96.26%	2.12%	1.62%	100.00%
3	Old 215 Frontage Rd.	s/o Bay Av.	96.30%	2.10%	1.60%	100.00%
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	96.29%	2.12%	1.59%	100.00%
5	Eucalyptus Av.	w/o I-215 Ramps	96.32%	2.12%	1.55%	100.00%
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	96.32%	2.12%	1.56%	100.00%
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	96.32%	2.12%	1.56%	100.00%
8	Alessandro Bl.	w/o I-215 Ramps SB	96.33%	2.12%	1.55%	100.00%
9	Alessandro Bl.	w/o I-215 NB Ramps	96.33%	2.12%	1.55%	100.00%
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	96.32%	2.12%	1.56%	100.00%
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	96.33%	2.12%	1.55%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with the development of the proposed Project, noise contours were developed based on the *Cottonwood & Edgemont Warehouses Traffic Analysis* prepared by Urban Crossroads, Inc. (16) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 through 7-4 present a summary of the exterior dBA CNEL traffic noise levels for each traffic condition. Appendix 7.1 includes a summary of the dBA CNEL traffic noise level contour worksheets for each of the traffic conditions.

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	Sensitive	70.8	56	122	262
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	Sensitive	71.0	RW	111	240
3	Old 215 Frontage Rd.	s/o Bay Av.	Sensitive	70.8	RW	75	161
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	Sensitive	65.9	75	162	350
5	Eucalyptus Av.	w/o I-215 Ramps	Non-Sensitive	68.5	75	161	347
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	Non-Sensitive	71.3	170	367	790
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	Sensitive	68.9	166	358	770
8	Alessandro Bl.	w/o I-215 Ramps SB	Non-Sensitive	77.1	166	358	771
9	Alessandro Bl.	w/o I-215 NB Ramps	Non-Sensitive	76.5	314	677	1459
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	Non-Sensitive	75.7	269	579	1248
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	Sensitive	73.4	262	564	1215

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

TABLE 7-2: EXISTING WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	Sensitive	71.0	65	139	300
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	Sensitive	71.2	66	143	308
3	Old 215 Frontage Rd.	s/o Bay Av.	Sensitive	71.0	64	138	297
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	Sensitive	66.0	RW	65	139
5	Eucalyptus Av.	w/o I-215 Ramps	Non-Sensitive	68.5	RW	115	248
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	Non-Sensitive	71.4	82	178	383
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	Sensitive	68.9	RW	122	263
8	Alessandro Bl.	w/o I-215 Ramps SB	Non-Sensitive	77.1	200	432	930
9	Alessandro Bl.	w/o I-215 NB Ramps	Non-Sensitive	76.6	183	395	851
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	Non-Sensitive	75.8	163	350	754
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	Sensitive	73.4	113	243	523

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

TABLE 7-3: OYC (2025) WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	Sensitive	71.4	68	146	315
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	Sensitive	71.5	70	150	324
3	Old 215 Frontage Rd.	s/o Bay Av.	Sensitive	71.3	67	144	311
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	Sensitive	66.2	RW	66	143
5	Eucalyptus Av.	w/o I-215 Ramps	Non-Sensitive	69.2	RW	127	274
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	Non-Sensitive	72.8	102	221	476
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	Sensitive	70.0	67	145	313
8	Alessandro Bl.	w/o I-215 Ramps SB	Non-Sensitive	77.4	209	449	968
9	Alessandro Bl.	w/o I-215 NB Ramps	Non-Sensitive	76.9	192	414	893
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	Non-Sensitive	76.1	171	368	793
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	Sensitive	73.7	118	254	547

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

TABLE 7-4: OYC (2025) WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Perris Blvd.	s/o Harley Knox Blvd.	Non-Sensitive	75.8	157	338	728
2	Perris Blvd.	n/o Ramona Exp.	Non-Sensitive	75.9	158	341	735
3	Perris Blvd.	s/o Ramona Exp.	Sensitive	75.7	154	332	716
4	Perris Blvd.	s/o Rider St.	Sensitive	75.7	153	329	709
5	Redlands Av.	s/o Harley Knox Blvd.	Non-Sensitive	74.8	98	210	453
6	Redlands Av.	s/o Markham St.	Non-Sensitive	75.0	101	219	471
7	Redlands Av.	n/o Ramona Exp.	Non-Sensitive	74.3	91	195	421
8	Harley Knox Blvd.	w/o Perris Blvd.	Non-Sensitive	74.8	133	286	617
9	Harley Knox Blvd.	e/o Perris Blvd.	Sensitive	73.9	116	250	538
10	Perry St.	w/o Redlands Av.	Non-Sensitive	68.1	RW	60	128
11	Ramona Exp.	w/o Indian Av.	Non-Sensitive	80.9	494	1064	2292
12	Ramona Exp.	w/o Perris Blvd.	Non-Sensitive	64.6	RW	RW	186
13	Ramona Exp.	e/o Redlands Av.	Sensitive	81.2	511	1101	2372
14	Ramona Exp.	e/o Evans Rd.	Sensitive	80.7	473	1019	2196

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

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the *Cottonwood & Edgemont Warehouses Traffic Analysis*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 65.9 to 77.1 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 66.0 to 77.1 dBA CNEL. Table 7-5 shows that the Project off-site traffic noise level impacts will range from 0.0 to 0.2 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

7.3 OYC (2025) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Opening Year Cumulative (2025) without Project conditions CNEL noise levels. The Opening Year Cumulative (2025) without Project exterior noise levels are expected to range from 66.2 to 77.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Opening Year Cumulative (2025) with

Project conditions will range from 66.3 to 77.4 dBA CNEL. Table 7-6 shows that the Project off-site traffic noise level increases will range from 0.0 to 0.2 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

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

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	Sensitive	70.8	71.0	0.2	1.5	No
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	Sensitive	71.0	71.2	0.2	1.5	No
3	Old 215 Frontage Rd.	s/o Bay Av.	Sensitive	70.8	71.0	0.2	1.5	No
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	Sensitive	65.9	66.0	0.1	1.5	No
5	Eucalyptus Av.	w/o I-215 Ramps	Non-Sensitive	68.5	68.5	0.0	n/a	No
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	Non-Sensitive	71.3	71.4	0.1	3.0	No
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	Sensitive	68.9	68.9	0.0	1.5	No
8	Alessandro Bl.	w/o I-215 Ramps SB	Non-Sensitive	77.1	77.1	0.0	3.0	No
9	Alessandro Bl.	w/o I-215 NB Ramps	Non-Sensitive	76.5	76.6	0.1	3.0	No
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	Non-Sensitive	75.7	75.8	0.1	3.0	No
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	Sensitive	73.4	73.4	0.0	1.5	No

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use. The City of Perris does not consider noise increases to non-noise-sensitive uses to be significant.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-6: OYC (2025) WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Old 215 Frontage Rd.	n/o Cottonwood Av.	Sensitive	71.4	71.6	0.2	1.5	No
2	Old 215 Frontage Rd.	s/o Cottonwood Av.	Sensitive	71.5	71.7	0.2	1.5	No
3	Old 215 Frontage Rd.	s/o Bay Av.	Sensitive	71.3	71.5	0.2	1.5	No
4	Old 215 Frontage Rd.	s/o Alessandro Bl.	Sensitive	66.2	66.3	0.1	1.5	No
5	Eucalyptus Av.	w/o I-215 Ramps	Non-Sensitive	69.2	69.2	0.0	n/a	No
6	Eucalyptus Av.	w/o Old 215 Frontage Rd.	Non-Sensitive	72.8	72.8	0.0	3.0	No
7	Eucalyptus Av.	e/o Old 215 Frontage Rd.	Sensitive	70.0	70.1	0.1	1.5	No
8	Alessandro Bl.	w/o I-215 Ramps SB	Non-Sensitive	77.4	77.4	0.0	3.0	No
9	Alessandro Bl.	w/o I-215 NB Ramps	Non-Sensitive	76.9	76.9	0.0	3.0	No
10	Alessandro Bl.	w/o Old 215 Frontage Rd.	Non-Sensitive	76.1	76.1	0.0	3.0	No
11	Alessandro Bl.	e/o Old 215 Frontage Rd.	Sensitive	73.7	73.7	0.0	1.5	No

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use. The City of Perris does not consider noise increases to non-noise-sensitive uses to be significant.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

This page intentionally left blank

8 SENSITIVE RECEIVER LOCATIONS

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

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

R1: Location R1 represents existing noise sensitive residence at 21717 Cottonwood Avenue, approximately 17 feet north of the Project site. R1 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 13571 Cottonwood Avenue, approximately 19 feet east of the Project site. R2 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive Liberty Church at 12079 Nita Drive, approximately 107 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the building façade. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

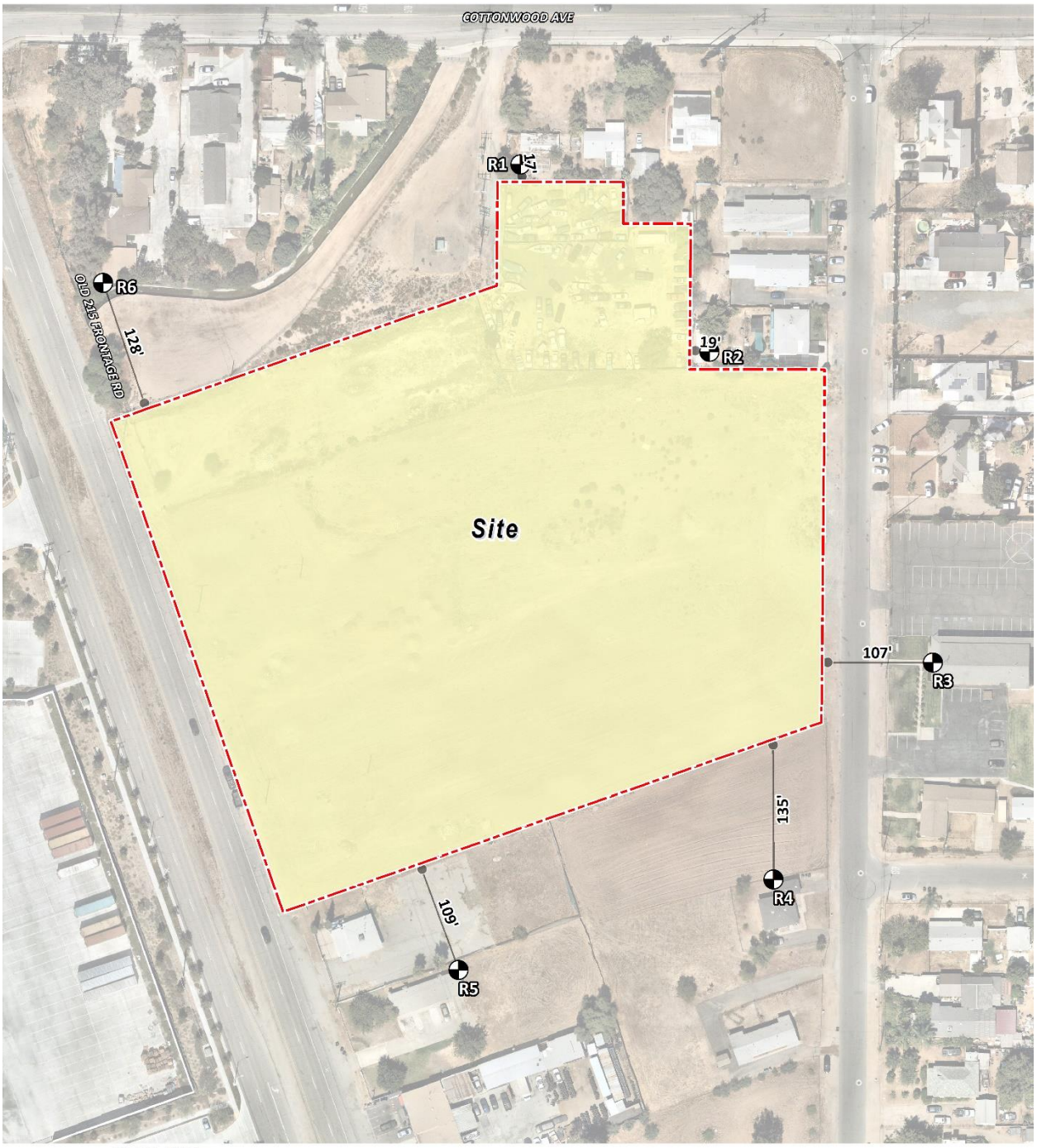
R4: Location R4 represents the existing noise sensitive residence at 13651 Edgemont Street, approximately 135 feet south of the Project site. R4 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the nearest existing noise sensitive residence south of the Project site at 13690 Old 215 Frontage Road, approximately 109 feet south of the Project site. R5

is placed at the building façade facing the Project site. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents the existing noise sensitive residence at 21613 Cottonwood Avenue, approximately 128 feet northwest of the Project site. R6 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

EXHIBIT 8-A: SENSITIVE RECEIVER LOCATIONS



This page intentionally left blank

9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 8, resulting from the operation of the proposed Cottonwood & Edgemont Warehouses Project. Exhibit 9-A identifies the noise source locations used to assess the operational noise levels. The operational noise analysis includes the planned 14-foot-high screen wall surrounding the loading dock areas for the warehouse buildings. The screen wall locations shown on Exhibit 9-A are designed for screening, privacy, noise control, and security.

9.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the typical daytime and nighttime activities at the Project site. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and tractor trailer parking.

9.2 REFERENCE NOISE LEVELS

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

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected 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. (18)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

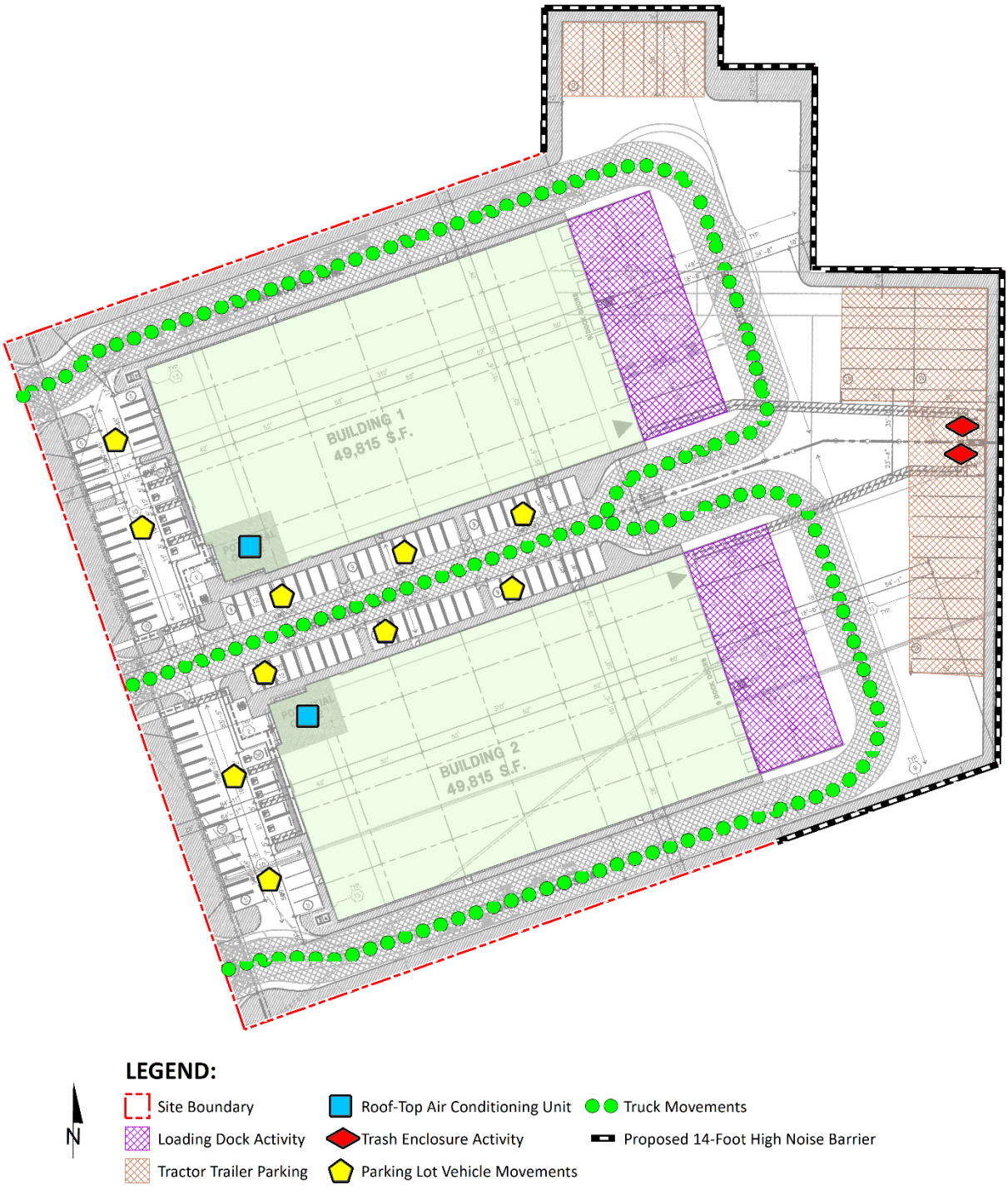


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./ Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	65.7	111.5
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Trash Enclosure Activity	5'	10	10	57.3	89.0
Parking Lot Vehicle Movements	5'	60	60	56.1	87.8
Truck Movements	8'	60	60	58.0	93.2
Tractor Trailer Parking	8'	60	60	59.6	111.5

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source.

9.2.2 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical outdoor operational noise activities associated with the Project. This includes truck idling, reefer activity (refrigerator truck/cold storage), deliveries, backup alarms, trailer docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background operation activities. Since the noise levels generated by cold storage loading dock activity can be slightly higher due to the use of refrigerated trucks or reefers, this analysis conservatively assumes that all loading dock activity is associated with cold storage facilities, even though only 10 percent cold storage is anticipated.

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

9.2.3 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating

conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

9.2.4 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, and trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project Site. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for the Project's proposed building. Typical trash enclosure activities are estimated to occur for 10 minutes per hour.

9.2.5 PARKING LOT VEHICLE MOVEMENTS

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

9.2.6 TRUCK MOVEMENTS

The truck movements reference noise level measurement was collected over a period of 1 hour and 28 minutes and represents multiple heavy trucks entering and exiting the outdoor loading dock area producing a reference noise level of 59.8 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for trucks entering and existing the Project driveways and maneuvering in and out of the outdoor loading dock activity area.

Consistent with the *Cottonwood & Edgemont Warehouses Trip Generation Assessment* prepared by Urban Crossroads, Inc., the Project is expected to generate a total of approximately 34 two-way truck trips per day (19). Using the estimated number of truck trips in combination with time-of-day vehicle splits, the number of truck movements were calculated. As shown on Table 9-2, this information is then used to calculate the truck movements operational noise source activity based on the number of events by time of day.

TABLE 9-2: TRUCK MOVEMENTS BY LOCATION

Truck Movements Location	Total Project Truck Trips[1]	Trip Dist.	Truck Trips by Location[2]	Time of Day Vehicle Splits[3]			Truck Movements[4]		
				Day	Evening	Night	Day	Evening	Night
All Driveways	34	100%	34	86.50%	2.70%	10.80%	29	1	4

[1] Total Project truck trips according to Table 2 of the Cottonwood & Edgemont Warehouse Trip Generation Assessment.
[2] Calculated trip trucks per location represents the product of the total project truck trips and the trip distribution.
[3] Typical Southern California vehicle mix. Values rounded to the nearest one-hundredth.
[4] Calculated time of day truck movements by location.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.2.6 TRACTOR TRAILER PARKING

The tractor trailer parking activity noise levels are consistent with the noise source activities at the loading dock. This includes truck idling, reefer activity (refrigerator truck/cold storage), deliveries, backup alarms, trailer docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background operation activities.

9.3 CADNAA NOISE PREDICTION MODEL

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

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 9.1 includes the detailed noise model inputs including the planned 14-foot-high screen wall used to estimate the Project operational noise levels presented in this section.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and tractor trailer parking, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations and at 200 feet from the property line of the source. Table 9-3 shows the Project operational noise levels during the daytime hours of 8:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 47.5 to 56.5 dBA L_{eq}.

TABLE 9-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)						
	R1	R2	R3	R4	R5	R6	at 200'
Loading Dock Activity	49.9	55.3	54.4	55.4	46.9	43.9	51.3
Roof-Top Air Conditioning Units	18.0	17.7	25.0	26.1	26.4	29.4	25.7
Trash Enclosure Activity	14.7	25.5	22.7	23.1	16.2	6.7	18.9
Parking Lot Vehicle Movements	20.3	24.4	18.6	21.3	38.3	39.2	30.9
Truck Movements	30.2	34.4	33.3	39.3	43.3	41.1	39.3
Tractor Trailer Parking	52.8	50.1	45.9	45.3	39.3	39.7	44.1
Total (All Noise Sources)	**54.6**	**56.5**	**55.0**	**55.9**	**49.4**	**47.5**	**52.3**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

Table 9-4 shows the Project operational noise levels during the nighttime hours of 10:01 p.m. to 7:59 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 46.3 to 56.5 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 9-1 and Appendix 9.1.

TABLE 9-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)						
	R1	R2	R3	R4	R5	R6	at 200'
Loading Dock Activity	49.9	55.3	54.4	55.4	46.9	43.9	51.3
Roof-Top Air Conditioning Units	15.6	15.3	22.6	23.7	24.0	27.0	23.2
Trash Enclosure Activity	13.7	24.5	21.7	22.1	15.2	5.7	17.9
Parking Lot Vehicle Movements	19.3	23.4	17.6	20.3	37.3	38.2	30.0
Truck Movements	21.6	25.8	24.7	30.7	34.7	32.5	30.7
Tractor Trailer Parking	52.8	50.1	45.9	45.3	39.3	39.7	44.1
Total (All Noise Sources)	**54.6**	**56.5**	**55.0**	**55.8**	**48.2**	**46.3**	**52.1**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Moreno Valley exterior noise level standards at the nearest noise-sensitive receiver locations. Table 9-5 shows the operational noise levels associated with Cottonwood & Edgemont Warehouses Project will satisfy the City of Moreno Valley 65 dBA L_{eq} daytime and 60 dBA L_{eq} nighttime exterior noise level standards at all the nearest receiver locations and at 200 feet from the property line of the source. Therefore, the operational noise impacts are considered *less than significant* at the nearest noise-sensitive receiver locations.

TABLE 9-5: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	54.6	54.6	65	60	No	No
R2	56.5	56.5	65	60	No	No
R3	55.0	55.0	65	60	No	No
R4	55.9	55.8	65	60	No	No
R5	49.4	48.2	65	60	No	No
R6	47.5	46.3	65	60	No	No
at 200'	52.3	52.1	65	60	No	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-3 and 9-4.
[3] Exterior noise level standards, as shown on Table 4-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 8:00 a.m. - 10:00 p.m.; "Nighttime" = 10:01 p.m. - 7:59 a.m.

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

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

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. As indicated on Table 9-6, the Project will generate a daytime noise level increase ranging from 0.0 to 3.0 dBA L_{eq} operational noise level increase at the nearest

receiver locations. Table 9-7 shows that the Project will generate a nighttime operational noise level increase ranging from 0.1 to 4.6 dBA L_{eq} at the nearest receiver locations.

The Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented in Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

9.7 OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas and at the Project site. According to the February 2022, Trip Generation Assessment for the *Cottonwood & Edgemont Warehouses Traffic prepared by Urban Crossroads, Inc*., the proposed Project is anticipated to generate fewer than 100 peak hour trips (19). The Trip Generation Assessment determined that as per the City's Guidelines, no additional operations analysis is necessary.

TABLE 9-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	54.6	L1	63.8	64.3	0.5	5.0	No
R2	56.5	L2	56.8	59.7	2.9	5.0	No
R3	55.0	L3	57.0	59.1	2.1	5.0	No
R4	55.9	L4	56.0	59.0	3.0	5.0	No
R5	49.4	L5	55.9	56.8	0.9	5.0	No
R6	47.5	L6	70.1	70.1	0.0	1.5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 9-3.
[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 increase criteria as shown on Table 4-1.

TABLE 9-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	54.6	L1	61.0	61.9	0.9	5.0	No
R2	56.5	L2	53.7	58.3	4.6	5.0	No
R3	55.0	L3	56.2	58.6	2.4	5.0	No
R4	55.8	L4	54.2	58.1	3.9	5.0	No
R5	48.2	L5	53.4	54.5	1.1	5.0	No
R6	46.3	L6	63.9	64.0	0.1	5.0	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 9-4.
[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 increase criteria as shown on Table 4-1.

10 CONSTRUCTION IMPACTS

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

To prevent high levels of construction noise from impacting noise-sensitive land uses, City of Moreno Valley Municipal Code Section 11.80.030 (D)(7) limits general construction activities within 200 feet of residential uses to weekdays, between 7:00 a.m. and 8:00 p.m. In addition, grading operations shall be limited to the hours identified in Section 8.21.050 (O) of 7:00 a.m. to 6:00 p.m., Monday through Friday, and 8:00 a.m. to 4:00 p.m. on weekends and holidays or as approved by the City Engineer.

10.1 CONSTRUCTION NOISE LEVELS

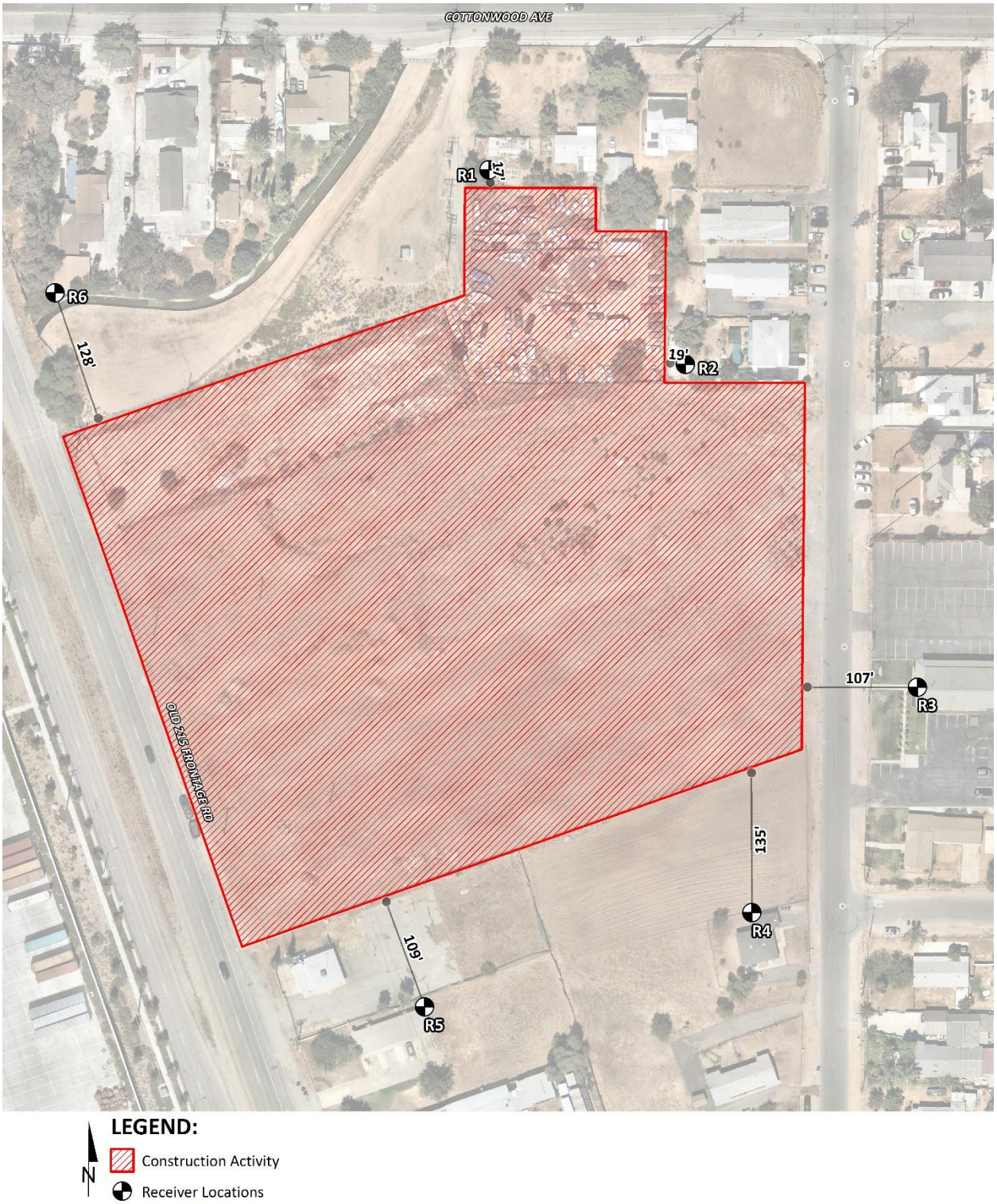
The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

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

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (20) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS



10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 10-1 presents the combined noise levels for the loudest construction equipment, assuming they operate at the same time. As shown on Table 10-2, the construction noise levels are expected to range from 55.0 to 69.9 dBA L_{eq} at the nearby receiver locations and 61.0 dBA L_{eq} at 200 feet from the property line of the source. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-1: TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Combined Noise Level (dBA L_{eq})[2]	Combined Sound Power Level (PWL)[3]
Site Preparation	Crawler Tractors	78	80	112
	Hauling Trucks	72		
	Rubber Tired Dozers	75		
Grading	Graders	81	83	115
	Excavators	77		
	Compactors	76		
Building Construction	Cranes	73	81	113
	Tractors	80		
	Welders	70		
Paving	Pavers	74	83	115
	Paving Equipment	82		
	Rollers	73		
Architectural Coating	Cranes	73	77	109
	Air Compressors	74		
	Generator Sets	70		

[1] FHWA Roadway Construction Noise Model (RCNM).
[2] Represents the combined noise level for all equipment assuming they operate at the same time consistent with FTA Transit Noise and Vibration Impact Assessment guidance.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calibrated using the CadnaA noise model at the reference distance to the noise source.

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	64.0	67.0	65.0	67.0	61.0	67.0
R2	66.9	69.9	67.9	69.9	63.9	69.9
R3	59.4	62.4	60.4	62.4	56.4	62.4
R4	59.2	62.2	60.2	62.2	56.2	62.2
R5	59.9	62.9	60.9	62.9	56.9	62.9
R6	58.4	61.4	59.4	61.4	55.4	61.4
at 200'	58.0	61.0	59.0	61.0	55.0	61.0

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 8.1.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the construction noise levels of 61.0 dBA L_{eq} will satisfy the City of Moreno Valley daytime 65 dBA L_{eq} significance threshold at 200 feet during Project construction activities. Therefore, the unmitigated noise impact due to Project construction activities is considered *less than significant*.

10.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

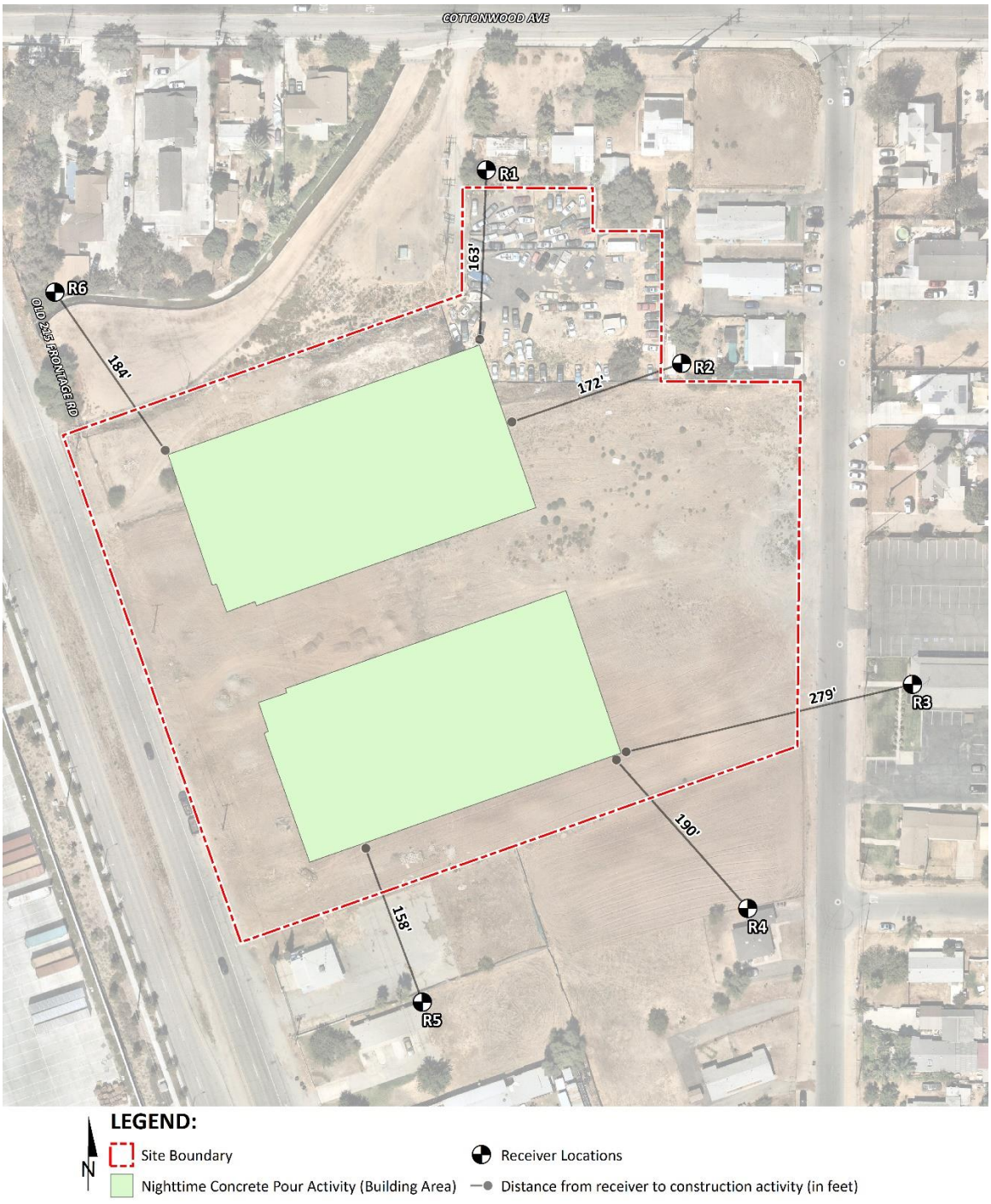
It is our understanding that nighttime concrete pouring activities will occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad area as shown on Exhibit 10-B. Since the nighttime concrete pours will take place outside the permitted City of Moreno Valley Municipal Code, Section 11.80.030 (D)(7) hours of *7:00 a.m. and 8:00 p.m.* the Project Applicant will be required to obtain authorization for nighttime work from the City of Moreno Valley. Any nighttime construction noise activities shall satisfy the residential noise limit categories outlined in Table 3-2.

10.5.1 NIGHTTIME CONCRETE POUR REFERENCE NOISE LEVEL MEASUREMENTS

To estimate the noise levels due to nighttime concrete pour activities, sample reference noise level measurements were taken during a nighttime concrete pour at a construction site. Urban Crossroads, Inc. collected short-term nighttime concrete pour reference noise level measurements during the noise-sensitive nighttime hours between 1:00 a.m. to 2:00 a.m. at 27334 San Bernardino Avenue in the City of Redlands. The reference noise levels describe the expected concrete pour noise sources that may include concrete mixer truck movements and pouring activities, concrete paving equipment, rear mounted concrete mixer truck backup alarms, engine idling, air brakes, generators, and workers communicating/whistling.

To describe the nighttime concrete pour noise levels associated with the construction of the Cottonwood & Edgemont Warehouses, this analysis relies on reference sound power level of 100.3 dBA L_w. While the Project noise levels will depend on the actual duration of activities and specific equipment fleet in use at the time of construction, the reference sound power level of 100.3 dBA L_w is used to describe the expected Project nighttime concrete pour noise activities.

EXHIBIT 10-B: NIGHTTIME CONCRETE POUR NOISE SOURCE AND RECEIVER LOCATIONS



10.5.2 NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

As shown on Table 10-3, the noise levels associated with the nighttime concrete pour activities are estimated to range from 35.6 to 51.1 dBA L_{eq} and will satisfy the City of Moreno Valley 60 dBA L_{eq} nighttime stationary-source exterior hourly average L_{eq} residential noise level threshold at all the receiver locations and at 200 feet from the property line of the source. Based on the results of this analysis, all nearest noise receiver locations will experience *less than significant* impacts due to the Project related nighttime concrete pour activities. Appendix 10.2 includes the CadnaA nighttime concrete pour noise model inputs.

TABLE 10-3: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Use	Construction Noise Levels (dBA L_{eq})		
		Paving Construction[2]	Nighttime Threshold[3]	Threshold Exceeded?[4]
R1	Residence	36.6	60	No
R2	Residence	39.3	60	No
R3	Church	41.0	60	No
R4	Residence	47.4	60	No
R5	Residence	51.1	60	No
R6	Residence	46.3	60	No
at 200'	-	47.2	60	No

[1] Noise receiver locations are shown on Exhibit 10-B.
[2] Paving construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations.
[3] Exterior noise level standards as shown on Table 3-2.
[4] Do the estimated Project construction noise levels exceed the nighttime construction noise level threshold?

10.6 TYPICAL CONSTRUCTION VIBRATION IMPACTS

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

TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 10-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 17 to 200 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.004 to 0.159 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at all the noise sensitive receiver locations and at 200 feet from the property line of the source. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site. Moreover, the vibration levels reported at the sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 10-5: CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
R1	17'	0.005	0.062	0.136	0.159	0.159	0.3	No
R2	19'	0.005	0.053	0.115	0.134	0.134	0.3	No
R3	107'	0.000	0.004	0.009	0.010	0.010	0.3	No
R4	135'	0.000	0.003	0.006	0.007	0.007	0.3	No
R5	109'	0.000	0.004	0.008	0.010	0.010	0.3	No
R6	128'	0.000	0.003	0.007	0.008	0.008	0.3	No
at 200'	200'	0.000	0.002	0.003	0.004	0.004	0.3	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Distance from receiver location to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 10-4).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

This page intentionally left blank

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
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. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
9. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
10. **State of California.** *2016 California Green Building Standards Code.* January 2017.
11. **City of Moreno Valley.** *General Plan Noise Element.* June 2021.
12. —. *Municipal Code, Chapter 11.80 Noise Regulation.*
13. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
14. **County of Riverside.** *Airport Land Use Compatibility Plan.* October 2004.
15. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
16. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
17. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
18. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
19. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
20. **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.
21. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

22. **Urban Crossroads, Inc.** *OLC3 Traffic Analysis.* October 2022.

23. **Urban Crossroads, Inc.** *Cottonwood & Edgemont Warehouse Trip Generation Assessment.* February 2022.

24. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Cottonwood & Edgemont Warehouses Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

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

EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

This page intentionally left blank

APPENDIX 3.1:

CITY OF MORENO VALLEY MUNICIPAL CODE

This page intentionally left blank

Chapter 11.80 NOISE REGULATION

11.80.010 Legislative findings.

It is found and declared that:

A. Excessive sound within the limits of the city is a condition which has existed for some time, and the amount and intensity of such sound is increasing.

B. Such excessive sound is a detriment to the public health, safety, and welfare and quality of life of the residents of the city.

C. The necessity in the public interest for the provisions and prohibitions hereinafter contained and enacted is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of and for the purpose of securing and promoting the public health, safety, welfare and quality of life of the city and its inhabitants. (Ord. 740 § 1.2, 2007)

11.80.020 Definitions.

For purposes of this chapter, certain words and phrases used herein are defined as follows:

“A-weighted sound level” means the sound pressure level in decibels as measured with a sound level meter using the A-weighting network. The unit of measurement is the dB(A).

“Commercial” means all uses of land not otherwise classified as residential, as defined in this section.

“Construction” means any site preparation, and/or any assembly, erection, repair, or alteration, excluding demolition, of any structure, or improvements to real property.

“Continuous airborne sound” means sound that is measured by the slow-response setting of a meter manufactured to the specifications of ANSI Section 1.4-1983 (R2006) “Specification for Sound Level Meters,” or its successor.

“Daytime” means eight a.m. to ten p.m. the same day.

“Decibel” (dB) means a unit for measuring the amplitude of sound, equal to twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound measured to the reference pressure, which is twenty (20) microPascals (twenty (20) microNewtons per square meter.)

“Demolition” means any dismantling, intentional destruction or removal of structures or other improvements to real property.

“Disturb” means to interrupt, interfere with, or hinder the enjoyment of peace or quiet or the normal listening activities or the sleep, rest or mental concentration of the hearer.

“Emergency” means any occurrence or set of circumstances involving actual or imminent physical trauma or significant property damage which necessitates immediate action. Economic loss alone shall not constitute an emergency. It shall be the burden of an alleged violator to prove an “emergency.”

“Emergency work” means any work made necessary to restore property to a safe condition following an emergency, or to protect persons or property threatened by an imminent emergency, to the extent such work is, in fact, necessary to protect persons or property from exposure to imminent danger or damage.

“Frequency” means the number of complete oscillation cycles per unit of time.

“Impulsive sound” means sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts, and discharge of firearms.

“Nighttime” means 10:01 p.m. to 7:59 a.m. the following day.

“Noise disturbance” means any sound which:

1. Disturbs a reasonable person of normal sensitivities;

2. Exceeds the sound level limits set forth in this chapter; or

3. Is plainly audible as defined in this section. Where no specific distance is set forth for the determination of audibility, references to noise disturbance shall be deemed to mean plainly audible at a distance of two hundred (200) feet from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property.

"Person" means any person, person's firm, association, copartnership, joint venture, corporation, or any entity public or private in nature.

"Plainly audible" means that the sound or noise produced or reproduced by any particular source, can be clearly distinguished from ambient noise by a person using his/her normal hearing faculties.

"Public right-of-way" means any street, avenue, boulevard, sidewalk, bike path or alley, or similar place normally accessible to the public which is owned or controlled by a governmental entity.

"Public space" means any park, recreational or community facility, or lot which contains at least one building that is open to the general public during its hours of operation.

"Residential" means all uses of land primarily for dwelling units, as well as hospitals, schools, colleges and universities, and places of religious assembly.

"Sound" means an oscillation in pressure, particle displacement, particle velocity or other physical parameter, in a medium with internal forces that causes compression and rarefaction of that medium capable of producing an auditory impression. The description of sound may include any characteristic of such sound, including duration, intensity and frequency.

"Sound level" means the weighted sound pressure level as measured in dB(A) by a sound level meter and as specified in American National Standards Institute (ANSI) specifications for sound-level meters (ANSI Section 1.4-1971 (R1976)). If the frequency weighting employed is not indicated, the A-weighting shall apply.

"Sound level meter" means an instrument, demonstrably capable of accurately measuring sound levels as defined above.

All technical definitions not defined above shall be in accordance with applicable publications and standards of the American National Standards Institute (ANSI). (Ord. 740 § 1.2, 2007)

11.80.030 Prohibited acts.

A. General Prohibition. It is unlawful and a violation of this chapter to maintain, make, cause, or allow the making of any sound that causes a noise disturbance, as defined in Section 11.80.020.

B. Sound causing permanent hearing loss.

1. Sound level limits. Based on statistics from the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health, Table 1 and Table 1-A specify sound level limits which, if exceeded, will have a high probability of producing permanent hearing loss in anyone in the area where the sound levels are being exceeded. No sound shall be permitted within the city which exceeds the parameters set forth in Tables 11.80.030-1 and 11.80.030-1-A of this chapter:

Table 11.80.030-1

MAXIMUM CONTINUOUS SOUND LEVELS*

Duration per Day Continuous Hours	**Sound level [db(A)]**
8	90
6	92
4	95
3	97

2	100
1.5	102
1	105
0.5	110
0.25	115

* When the daily sound exposure is composed of two or more periods of sound exposure at different levels, the combined effect of all such periods shall constitute a violation of this section if the sum of the percent of allowed period of sound exposure at each level exceeds 100 percent

Table 11.80.030-1A

MAXIMUM IMPULSIVE SOUND LEVELS

Number of Repetitions per 24-Hour Period	Sound level [dB(A)]
1	145
10	135
100	125

2. Exemptions. No violation shall exist if the only persons exposed to sound levels in excess of those listed in Tables 11.80.030-1 and 11.80.030-1A are exposed as a result of:

a. Trespass;

b. Invitation upon private property by the person causing or permitting the sound; or

c. Employment by the person or a contractor of the person causing or permitting the sound.

C. Nonimpulsive Sound Decibel Limits. No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimplusive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table 11.80.030-2 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property. Any source of sound in violation of this subsection shall be deemed prima facie to be a noise disturbance.

Table 11.80.030-2

MAXIMUM SOUND LEVELS (IN dB(A)) FOR SOURCE LAND USES

Residential		Commercial	
Daytime	**Nighttime**	**Daytime**	**Nighttime**
60	55	65	60

D. Specific Prohibitions. In addition to the general prohibitions set out in subsection A of this section, and unless otherwise exempted by this chapter, the following specific acts, or the causing or permitting thereof, are regulated as follows:

1. Motor Vehicles. No person shall operate or cause to be operated a public or private motor vehicle, or combination of vehicles towed by a motor vehicle, that creates a sound exceeding the sound level limits in Table 11.80.030-2 when the vehicle(s) are not otherwise subject to noise regulations provided for by the California Vehicle Code.

2. Radios, Televisions, Electronic Audio Equipment, Musical Instruments or Similar Devices from a Stationary Source. No person shall operate, play or permit the operation or playing of any radio, tape player, television, electronic audio equipment, musical instrument, sound amplifier or other mechanical or electronic sound making device that produces, reproduces or amplifies sound in such a manner as to create a noise disturbance. However, this subsection shall not apply to any use or activity exempted in subsection E of this section and any use or activity for which a special permit has been issued pursuant to Section 11.80.040.

3. Radios, Electronic Audio Equipment, or Similar Devices from a Mobile Source Such as a Motor Vehicle. Sound amplification or reproduction equipment on or in a motor vehicle is subject to regulation in accordance with the California Vehicle Code when upon the public right-of-way. When upon public space or publicly owned property other than the public right-of-way or upon private property open to the public, sound amplification or reproduction equipment shall not be operated in such a manner that it is plainly audible at a distance of fifty (50) feet in any direction from the vehicle.

4. Portable, Hand-Held Music or Sound Amplification or Reproduction Equipment. Such equipment shall not be operated on a public right-of-way, public space or other publicly owned property in such a manner as to be plainly audible at a distance of fifty (50) feet in any direction from the operator.

5. Loudspeakers and Public Address Systems.

a. Except as permitted by Section 11.80.040, no person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any commercial purpose:

1. Which produces, reproduces or amplifies sound in such a manner as to create a noise disturbance; or

2. During nighttime hours on a public right-of-way, public space or other publicly owned property.

b. No person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any noncommercial purpose, during nighttime hours in such a manner as to create a noise disturbance.

6. Animals. No person shall own, possess or harbor an animal or bird that howls, barks, meows, squawks, or makes other sounds that:

a. Create a noise disturbance;

b. Are of frequent or continued duration for ten (10) or more consecutive minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound; or

c. Are intermittent for a period of thirty (30) or more minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound.

7. Construction and Demolition. No person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee. This section shall not apply to the use of power tools as provided in subsection (D)(9) of this section.

8. Emergency Signaling Devices. No person shall intentionally sound or permit the sounding outdoors of any fire, burglar or civil defense alarm, siren or whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing as follows:

a. Testing of a stationary emergency signaling device shall not occur between seven p.m. and seven a.m. the following day;

b. Testing of a stationary emergency signaling device shall use only the minimum cycle test time, in no case to exceed sixty (60) seconds;

c. Testing of a complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall only occur only on weekdays between seven a.m. and seven p.m. and shall be exempt from the time limit specified in subsection (D)(8)(2) of this section.

9. Power Tools. No person shall operate or permit the operation of any mechanically, electrically or gasoline motor-driven tool during nighttime hours so as to cause a noise disturbance across a residential real property boundary.

10. Pumps, Air Conditioners, Air-Handling Equipment and Other Continuously Operating Equipment. Notwithstanding the general prohibitions of subsection a of this section, no person shall operate or permit the operation of any pump, air

conditioning, air-handling or other continuously operating motorized equipment in a state of disrepair or in a manner which otherwise creates a noise disturbance distinguishable from normal operating sounds.

E. Exemptions. The following uses and activities shall be exempt from the sound level regulations except the maximum sound levels provided in Tables 11.80.030-1 and 11.80.030-1A:

1. Sounds resulting from any authorized emergency vehicle when responding to an emergency call or acting in time of an emergency.

2. Sounds resulting from emergency work as defined in Section 11.80.020

3. Any aircraft operated in conformity with, or pursuant to, federal law, federal air regulations and air traffic control instruction used pursuant to and within the duly adopted federal air regulations; and any aircraft operating under technical difficulties in any kind of distress, under emergency orders of air traffic control, or being operated pursuant to and subsequent to the declaration of an emergency under federal air regulations.

4. All sounds coming from the normal operations of interstate motor and rail carriers, to the extent that local regulation of sound levels of such vehicles has been preempted by the Noise Control Act of 1972 (42 U.S.C. § 4901 et seq.) or other applicable federal laws or regulations

5. Sounds from the operation of motor vehicles, to the extent they are regulated by the California Vehicle Code.

6. Any constitutionally protected noncommercial speech or expression conducted within or upon a any public right-of-way, public space or other publicly owned property constituting an open or a designated public forum in compliance with any applicable reasonable time, place and manner restrictions on such speech or expression or otherwise pursuant to legal authority.

7. Sounds produced at otherwise lawful and permitted city-sponsored events, organized sporting events, school assemblies, school playground activities, by permitted fireworks, and by permitted parades on public right-of-way, public space or other publicly owned property.

8. An event for which a temporary use permit or special event permit has been issued under other provisions of this code, where the provisions of Section 11.80.040 are met, the permit granted expressly grants an exemption from specific standards contained in this chapter, and the permittee and all persons under the permittee's reasonable control actually comply with all conditions of such permit. Violation of any condition of such a permit related to sound or sound equipment shall be a violation of this chapter and punishable as such.

F. Nothing in this chapter shall be construed to limit, modify or repeal any other regulation elsewhere in this code relating to the regulation of noise sources, nor shall any such other regulation be read to permit the emission of noise in violation of any provision of this chapter. (Ord. 740 § 1.2, 2007)

11.80.040 Special provisions for temporary use and special event permits.

The exemption by permit set forth in Section 11.80.030(E)(8) shall be subject to the following requirements and conditions:

A. The permit application shall include the name, address and telephone number of the permit applicant; the date, hours and location for which the permit is requested; and the nature of the event or activity. It shall also specify the types of sounds and/or sound equipment to be permitted, the proposed duration of such sound, the specific standards from which the sound is to be exempted, and the reasons for each requested exemption.

B. The permit shall be issued provided the proposed activity meets the requirements of this section and the issuing official determines that the sound to be emitted at the event as proposed would not be detrimental to the public health, safety or welfare, that the event cannot reasonably achieve its legitimate aims and purposes without the exemption and that the sound levels proposed will not unreasonably damage the peace and quiet enjoyment of the lawful users of surrounding properties, nor constitute a public nuisance.

C. The official issuing the permit may prescribe any reasonable conditions or requirements he/she deems necessary to minimize noise disturbances upon the community or the surrounding neighborhood, and/or to protect the health, safety or welfare of the public, including participants in the permitted event, including use of mufflers, screens or other sound-attenuating devices.

D. Any permit granted must be in writing and shall contain all conditions upon which the permit shall be effective.

E. No more than six events requiring a sound limit exemption may be held at any particular location upon privately owned or controlled property per calendar year, provided further that the number of events shall not exceed the number permitted under the regulations for the type of permit issued. For purposes of this subsection, "location" means a legal parcel of real property or a complete shopping or commercial center or mall sharing common parking and access even if comprised of multiple legal parcels.

F. The exemption from sound limits under such permit shall not exceed maximum period of four hours in one twenty-four (24) hour day.

G. The permit will only be granted for hours between nine a.m. and ten p.m. on all days other than Friday and Saturday; and, on Friday and Saturday, between the hours of nine a.m. and one a.m. of the following day, except in the following circumstances:

1. A permit may be granted for hours between nine a.m. on New Year's Eve and one a.m. the following day (New Year's Day).

2. A permit may be granted for hours between nine a.m. and two a.m. the following day if there are no residences, hospitals, or nursing homes within a 0.5 mile radius of the property where the function is taking place.

H. Functions for which the permits are issued shall be limited to a continuous airborne sound level not to exceed seventy (70) dB(A), as measured two hundred (200) feet from the real property boundary of the source property if on private property, or from the source if on public right-of-way, public space or other publicly owned property. (Ord. 740 § 1.2, 2007)

11.80.050 Measurement or assessment of sound.

A. Measurement With Sound Meter.

1. The measurement of sound shall be made with a sound level meter meeting the standards prescribed by ANSI Section 1.4-1983 (R2006). The instruments shall be maintained in calibration and good working order. A calibration check shall be made of the system at the time of any sound level measurement. Measurements recorded shall be taken so as to provide a proper representation of the source of the sound. The microphone during measurement shall be positioned so as not to create any unnatural enhancement or diminution of the measured sound. A windscreen for the microphone shall be used at all times. However, a violation of this chapter may occur without the occasion of the measurements being made as otherwise provided.

2. The slow meter response of the sound level meter shall be used in order to best determine the average amplitude.

3. The measurement shall be made at any point on the property into which the sound is being transmitted and shall be made at least three feet away from any ground, wall, floor, ceiling, roof and other plane surface.

4. In case of multiple occupancy of a property, the measurement may be made at any point inside the premises to which any complainant has right of legal private occupancy; provided that the measurement shall not be made within three feet of any ground, wall, floor, ceiling, roof or other plane surface.

5. All measurements of sound provided for in this chapter will be made by qualified officials of the city who are designated by the city manager or designee to operate the apparatus used to make the measurements.

B. Assessment Without Sound Level Meter. Any police officer, code enforcement officer, or other official designated by the city manager or designee who hears a noise or sound that is plainly audible, as defined in Section 11.80.020, in violation of this chapter, may enforce this chapter and shall assess the noise or sound according to the following standards:

1. The primary means of detection shall be by means of the official's normal hearing faculties, not artificially enhanced.

2. The official shall first attempt to have a direct line of sight and hearing to the vehicle or real property from which the sound or noise emanates so that the official can readily identify the offending source of the sound or noise and the distance involved. If the official is unable to have a direct line of sight and hearing to the vehicle or real property from which the sound or noise emanates, then the official shall confirm the source of the sound or noise by approaching the suspected vehicle or real property until the official is able to obtain a direct line of sight and hearing, and confirm the source of the sound or noise that was heard at the place of the original assessment of the sound or noise.

3. The official need not be required to identify song titles, artists, or lyrics in order to establish a violation. (Ord. 740 § 1.2, 2007)

11.80.060 Violation.

A. Violation of Sound Level Limits. Any person violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punishable by a fine not to exceed one thousand dollars ($1,000.00) and/or six months in the county jail, or both. Notwithstanding the foregoing, any violation of the provisions of this chapter may, in the discretion of the citing officer or the city attorney, be cited and/or prosecuted as an infraction or be subject to civil citation pursuant to Chapter 1.10.

B. Joint and Several Responsibility. In addition to the person causing the offending sound, the owner, tenant or lessee of property, or a manager, overseer or agent, or any other person lawfully entitled to possess the property from which the offending sound is emitted at the time the offending sound is emitted, shall be responsible for compliance with this chapter if the additionally responsible party knows or should have known of the offending noise disturbance. It shall not be a lawful defense to assert that some other person caused the sound. The lawful possessor or operator of the premises shall be responsible for operating or maintaining the premises in compliance with this chapter and may be cited regardless of whether or not the person actually causing the sound is also cited.

C. Violation May be Declared a Public Nuisance. The operation or maintenance of any device, equipment, instrument, vehicle or machinery in violation of any provisions of this chapter which endangers the public health, safety and quality of life of residents in the area is declared to be a public nuisance, and may be subject to abatement summarily or by a restraining order or injunction issued

by a court of competent jurisdiction. (Ord. 824 § 1.2, 2011; Ord. 740 § 1.2, 2007)

View the mobile version.

This page intentionally left blank

APPENDIX 5.1:

STUDY AREA PHOTOS

This page intentionally left blank

JN: 14555 Study Area Photos

L1_E
33, 55' 25.990000"117, 17' 4.890000"

L1_N
33, 55' 26.070000"117, 17' 4.800000"

L1_S
33, 55' 26.040000"117, 17' 4.860000"

L1_W
33, 55' 25.990000"117, 17' 4.890000"

L2_E
33, 55' 23.490000"117, 17' 1.260000"

L2_N
33, 55' 23.520000"117, 17' 1.260000"

JN: 14555 Study Area Photos

L2_S
33, 55' 23.500000"117, 17' 1.290000"

L2_W
33, 55' 23.500000"117, 17' 1.290000"

L3_E
33, 55' 20.690000"117, 16' 59.390000"

L3_N
33, 55' 20.710000"117, 16' 59.480000"

L3_S
33, 55' 20.690000"117, 16' 59.420000"

L3_W
33, 55' 20.690000"117, 16' 59.450000"

JN: 14555 Study Area Photos

L4_E
33, 55' 20.010000"117, 17' 1.590000"

L4_N
33, 55' 20.030000"117, 17' 1.670000"

L4_S
33, 55' 20.010000"117, 17' 1.620000"

L4_W
33, 55' 20.000000"117, 17' 1.590000"

L5_E
33, 55' 19.420000"117, 17' 3.620000"

L5_N
33, 55' 19.220000"117, 17' 3.710000"

JN: 14555 Study Area Photos

L5_S
33, 55' 19.310000"117, 17' 3.680000"

L5_W
33, 55' 19.400000"117, 17' 3.620000"

L6_E
33, 55' 24.670000"117, 17' 9.390000"

L6_N
33, 55' 24.710000"117, 17' 9.420000"

L6_S
33, 55' 24.660000"117, 17' 9.420000"

L6_W
33, 55' 24.630000"117, 17' 9.420000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

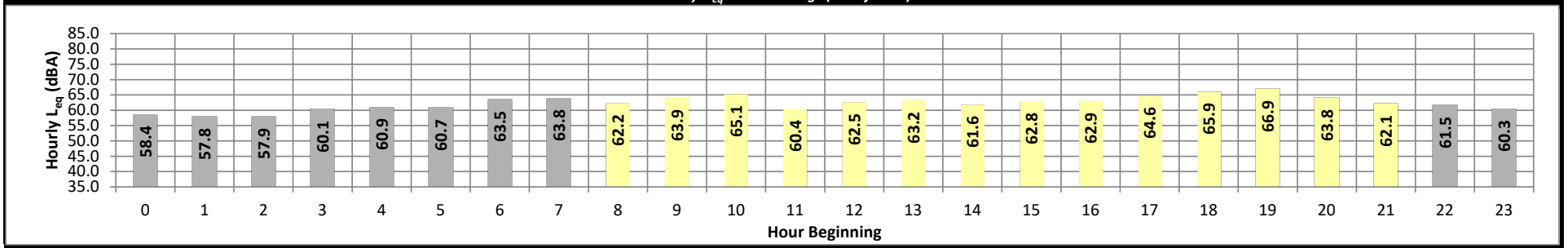
This page intentionally left blank

24-Hour Noise Level Measurement Summary

Date: Tuesday, December 21, 2021 *Location:* L1 - Located north of the Project site near single-family *Meter:* Piccolo II *JN:* 14555

Project: Cottonwood and Edgemont *Source:* residence at 21717 Cottonwood Avenue. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	58.4	65.6	55.4	65.2	64.7	62.6	60.9	58.3	57.3	56.0	55.7	55.4	58.4	10.0	68.4
	1	57.8	66.2	53.8	65.8	65.5	63.4	61.4	57.1	55.8	54.5	54.2	53.9	57.8	10.0	67.8
	2	57.9	63.9	54.8	63.6	63.0	61.3	60.1	58.2	57.1	55.6	55.3	54.9	57.9	10.0	67.9
	3	60.1	65.8	57.5	65.6	65.3	63.3	62.2	60.3	59.4	58.2	57.9	57.6	60.1	10.0	70.1
	4	60.9	67.5	58.4	67.1	66.6	64.6	63.1	60.8	60.0	59.0	58.7	58.5	60.9	10.0	70.9
	5	60.7	68.6	57.0	68.2	67.8	65.7	64.3	60.5	58.7	57.4	57.3	57.1	60.7	10.0	70.7
	6	63.5	71.0	59.9	70.6	70.2	68.1	66.2	63.3	62.0	60.6	60.3	60.0	63.5	10.0	73.5
	7	63.8	72.3	59.9	71.8	71.1	68.7	66.9	63.5	61.8	60.5	60.2	59.9	63.8	0.0	63.8
Day	8	62.2	71.5	53.6	71.2	70.9	69.5	68.1	61.4	56.2	54.2	53.9	53.7	62.2	0.0	62.2
	9	63.9	71.3	57.8	71.0	70.5	69.4	68.6	64.9	60.0	58.2	58.1	57.9	63.9	0.0	63.9
	10	65.1	74.6	51.2	74.3	73.7	72.0	70.8	65.7	56.8	52.3	51.7	51.3	65.1	0.0	65.1
	11	60.4	69.3	52.1	68.9	68.4	66.4	65.1	60.6	56.8	53.3	52.7	52.3	60.4	0.0	60.4
	12	62.5	73.9	53.8	73.5	72.9	70.1	66.8	60.0	57.2	54.7	54.4	53.9	62.5	0.0	62.5
	13	63.2	73.3	52.4	72.7	72.0	69.6	68.4	63.1	57.1	53.6	53.0	52.5	63.2	0.0	63.2
	14	61.6	71.8	52.6	71.3	70.7	68.3	66.4	61.0	57.1	53.7	53.2	52.8	61.6	0.0	61.6
	15	62.8	73.7	54.3	73.1	72.1	69.4	66.8	62.0	58.6	55.5	55.0	54.5	62.8	0.0	62.8
	16	62.9	72.1	56.3	71.6	70.9	68.9	67.3	62.6	59.8	57.3	56.9	56.5	62.9	0.0	62.9
	17	64.6	73.6	57.8	73.3	72.8	70.4	68.5	64.5	61.9	58.9	58.4	57.9	64.6	0.0	64.6
	18	65.9	78.8	60.2	77.0	74.6	71.0	68.7	64.5	62.8	60.9	60.6	60.3	65.9	0.0	65.9
	19	66.9	75.7	62.1	74.8	73.9	72.2	70.5	67.0	64.6	62.8	62.5	62.2	66.9	5.0	71.9
	20	63.8	71.0	60.8	70.5	70.0	68.0	66.5	63.6	62.6	61.4	61.2	60.9	63.8	5.0	68.8
	21	62.1	69.1	58.7	68.7	68.2	66.1	64.7	62.0	61.0	59.5	59.2	58.8	62.1	5.0	67.1
Night	22	61.5	69.0	58.3	68.6	68.1	65.7	63.8	61.4	60.3	59.0	58.7	58.4	61.5	10.0	71.5
	23	60.3	68.0	57.0	67.5	66.9	64.4	62.9	60.2	59.0	57.7	57.4	57.1	60.3	10.0	70.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	60.4	69.1	51.2	68.7	68.2	66.1	64.7	60.0	56.2	52.3	51.7	51.3
	Max	66.9	78.8	62.1	77.0	74.6	72.2	70.8	67.0	64.6	62.8	62.5	62.2
Energy Average		63.8	Average:		72.3	71.6	69.4	67.6	63.1	59.5	56.9	56.5	56.1
Night	Min	57.8	63.9	53.8	63.6	63.0	61.3	60.1	57.1	55.8	54.5	54.2	53.9
	Max	63.8	72.3	59.9	71.8	71.1	68.7	66.9	63.5	62.0	60.6	60.3	60.0
Energy Average		61.0	Average:		67.4	66.9	64.8	63.2	60.3	59.1	57.8	57.6	57.3

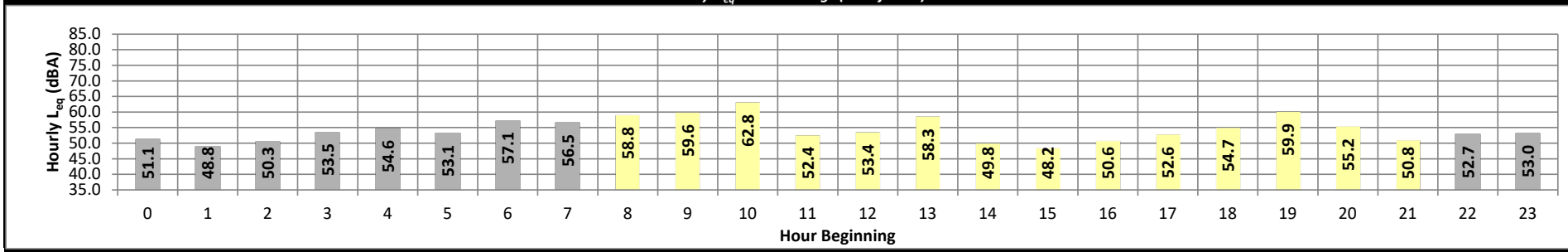
L_{eq} (dBA)		
24-Hour	*Daytime (8am-10pm)*	*Nighttime (10pm-8am)*
62.8	**63.8**	**61.0**

24-Hour Noise Level Measurement Summary

Date: Tuesday, December 21, 2021 *Location:* L2 - Located north of the Project site near single-family *Meter:* Piccolo II *JN:* 14555

Project: Cottonwood and Edgemont *Source:* residence at 13571 Cottonwood Avenue. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.1	58.7	47.3	58.5	58.2	56.5	55.3	50.4	49.3	48.0	47.7	47.4	51.1	10.0	61.1
	1	48.8	53.8	46.4	53.3	52.8	51.6	50.8	49.0	48.1	47.0	46.8	46.5	48.8	10.0	58.8
	2	50.3	54.9	47.7	54.6	54.2	52.9	52.1	50.8	49.8	48.4	48.1	47.8	50.3	10.0	60.3
	3	53.5	57.2	50.8	57.0	56.6	55.9	55.5	54.1	53.0	51.5	51.2	50.9	53.5	10.0	63.5
	4	54.6	57.9	52.3	57.7	57.3	56.7	56.3	55.1	54.3	53.0	52.7	52.4	54.6	10.0	64.6
	5	53.1	56.8	51.2	56.5	56.2	55.3	54.8	53.4	52.6	51.7	51.5	51.3	53.1	10.0	63.1
	6	57.1	64.3	54.4	63.7	63.2	61.8	60.1	56.7	55.9	54.9	54.7	54.5	57.1	10.0	67.1
	7	56.5	59.5	54.8	59.2	58.9	58.2	57.8	56.8	56.2	55.3	55.1	54.9	56.5	0.0	56.5
Day	8	58.8	67.2	49.2	67.0	66.7	66.1	65.4	56.6	50.9	49.8	49.6	49.3	58.8	0.0	58.8
	9	59.6	66.7	48.2	66.4	66.2	65.7	65.3	60.8	50.9	48.7	48.6	48.3	59.6	0.0	59.6
	10	62.8	70.7	46.8	70.5	70.3	69.8	69.1	64.4	52.5	47.5	47.2	46.9	62.8	0.0	62.8
	11	52.4	61.4	43.9	61.1	60.4	58.1	57.0	53.1	49.0	44.7	44.4	44.1	52.4	0.0	52.4
	12	53.4	65.5	42.1	64.5	63.7	61.9	58.9	48.1	45.5	43.1	42.6	42.2	53.4	0.0	53.4
	13	58.3	67.1	42.9	66.6	66.1	65.3	64.7	57.3	46.8	44.1	43.6	43.1	58.3	0.0	58.3
	14	49.8	60.6	41.5	59.8	59.1	57.1	54.9	48.4	45.6	42.7	42.2	41.7	49.8	0.0	49.8
	15	48.2	56.8	42.6	56.3	56.0	54.1	52.2	47.9	45.8	43.5	43.2	42.8	48.2	0.0	48.2
	16	50.6	59.2	44.8	58.8	58.2	56.3	54.8	50.7	47.9	45.6	45.2	44.9	50.6	0.0	50.6
	17	52.6	62.6	46.8	61.9	61.3	59.6	54.9	51.8	49.9	47.5	47.3	46.9	52.6	0.0	52.6
	18	54.7	61.6	49.2	61.2	60.8	59.6	58.7	56.1	52.1	50.0	49.7	49.3	54.7	0.0	54.7
	19	59.9	68.9	51.3	68.4	67.6	65.7	64.6	61.1	55.3	52.0	51.7	51.5	59.9	5.0	64.9
	20	55.2	66.8	50.4	66.2	64.6	59.6	57.1	53.8	52.5	51.0	50.8	50.5	55.2	5.0	60.2
	21	50.8	57.5	47.7	57.0	56.4	54.9	54.0	50.5	49.5	48.3	48.1	47.8	50.8	5.0	55.8
Night	22	52.7	56.8	50.2	56.5	56.2	55.5	54.8	53.1	52.1	50.9	50.7	50.4	52.7	10.0	62.7
	23	53.0	59.0	50.0	58.5	57.9	56.5	55.7	53.2	52.0	50.6	50.3	50.1	53.0	10.0	63.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.2	56.8	41.5	56.3	56.0	54.1	52.2	47.9	45.5	42.7	42.2	41.7
	Max	62.8	70.7	51.3	70.5	70.3	69.8	69.1	64.4	55.3	52.0	51.7	51.5
Energy Average		56.9	Average:		63.3	62.7	61.0	59.4	54.3	49.6	47.0	46.7	46.4
Night	Min	48.8	53.8	46.4	53.3	52.8	51.6	50.8	49.0	48.1	47.0	46.8	46.5
	Max	57.1	64.3	54.8	63.7	63.2	61.8	60.1	56.8	56.2	55.3	55.1	54.9
Energy Average		53.7	Average:		57.5	57.2	56.1	55.3	53.3	52.3	51.1	50.9	50.6

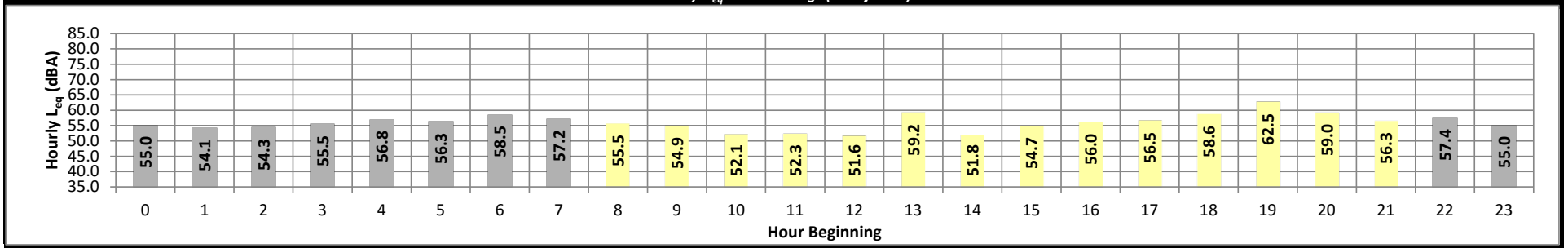
L_{eq} (dBA)		
24-Hour	Daytime (8am-10pm)	Nighttime (10pm-8am)
55.8	**56.8**	**53.7**

24-Hour Noise Level Measurement Summary

Date: Tuesday, December 21, 2021 *Location:* L3 - Located east of the Project site near Liberty Church at *Meter:* Piccolo II *JN:* 14555

Project: Cottonwood and Edgemont *Source:* 13630 Edgemont Street. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	55.0	59.8	52.8	59.5	59.2	57.6	56.8	55.2	54.4	53.3	53.1	52.9	55.0	10.0	65.0
	1	54.1	57.9	51.8	57.6	57.2	56.5	56.0	54.6	53.7	52.4	52.2	51.9	54.1	10.0	64.1
	2	54.3	57.2	52.4	57.0	56.8	56.2	55.7	54.8	54.1	53.0	52.8	52.5	54.3	10.0	64.3
	3	55.5	57.9	53.8	57.7	57.5	57.0	56.7	55.9	55.3	54.4	54.2	53.9	55.5	10.0	65.5
	4	56.8	59.2	55.3	59.0	58.8	58.4	58.0	57.2	56.7	55.8	55.6	55.4	56.8	10.0	66.8
	5	56.3	59.3	54.8	59.1	58.7	58.1	57.6	56.5	55.9	55.2	55.1	54.9	56.3	10.0	66.3
	6	58.5	64.0	56.4	63.7	63.1	61.5	60.8	58.5	57.7	56.9	56.7	56.5	58.5	10.0	68.5
	7	57.2	59.7	55.9	59.4	59.1	58.6	58.2	57.4	57.0	56.3	56.1	55.9	57.2	0.0	57.2
Day	8	55.5	68.7	51.2	68.4	68.1	67.3	66.5	59.5	53.0	51.7	51.5	51.3	55.5	0.0	55.5
	9	54.9	68.0	48.5	67.8	67.5	66.9	66.3	62.3	53.5	49.2	48.9	48.7	54.9	0.0	54.9
	10	52.1	71.4	46.7	71.2	71.1	70.7	70.2	65.2	54.2	48.1	47.3	46.8	52.1	0.0	52.1
	11	52.3	62.3	49.0	61.4	60.7	59.4	58.6	55.7	51.9	49.5	49.3	49.0	52.3	0.0	52.3
	12	51.6	62.4	48.8	62.0	61.4	60.6	58.5	52.1	50.9	49.5	49.2	48.9	51.6	0.0	51.6
	13	59.2	67.8	47.8	67.4	67.2	66.3	65.0	59.5	50.9	48.6	48.2	47.9	59.2	0.0	59.2
	14	51.8	59.9	47.1	59.4	58.7	56.9	55.7	51.8	49.7	47.8	47.5	47.2	51.8	0.0	51.8
	15	54.7	62.3	49.9	61.6	60.9	59.4	58.6	55.0	53.0	50.7	50.4	50.0	54.7	0.0	54.7
	16	56.0	61.5	52.6	60.9	60.5	59.6	59.0	56.6	55.0	53.3	53.0	52.7	56.0	0.0	56.0
	17	56.5	62.2	53.5	61.8	61.4	60.1	59.1	56.9	55.6	54.2	53.9	53.6	56.5	0.0	56.5
	18	58.6	63.2	56.0	62.8	62.4	61.4	60.9	59.4	57.8	56.6	56.4	56.1	58.6	0.0	58.6
	19	62.5	71.2	57.3	70.9	70.4	68.9	68.0	63.7	60.0	57.9	57.7	57.4	62.5	5.0	67.5
	20	59.0	62.8	57.0	62.5	62.3	61.6	61.0	59.3	58.6	57.5	57.3	57.1	59.0	5.0	64.0
	21	56.3	60.1	54.1	59.9	59.6	59.0	58.4	56.7	55.9	54.7	54.4	54.2	56.3	5.0	61.3
Night	22	57.4	61.7	54.9	61.4	61.0	60.2	59.7	58.0	56.7	55.5	55.2	55.0	57.4	10.0	67.4
	23	55.0	59.7	52.8	59.4	59.2	58.3	57.4	55.1	54.3	53.3	53.1	52.9	55.0	10.0	65.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.6	59.9	46.7	59.4	58.7	56.9	55.7	51.8	49.7	47.8	47.3	46.8
	Max	62.5	71.4	57.3	71.2	71.1	70.7	70.2	65.2	60.0	57.9	57.7	57.4
Energy Average		57.0	Average:		64.1	63.7	62.7	61.8	58.1	54.3	52.1	51.8	51.5
Night	Min	54.1	57.2	51.8	57.0	56.8	56.2	55.7	54.6	53.7	52.4	52.2	51.9
	Max	58.5	64.0	56.4	63.7	63.1	61.5	60.8	58.5	57.7	56.9	56.7	56.5
Energy Average		56.2	Average:		59.4	59.1	58.2	57.7	56.3	55.6	54.6	54.4	54.2

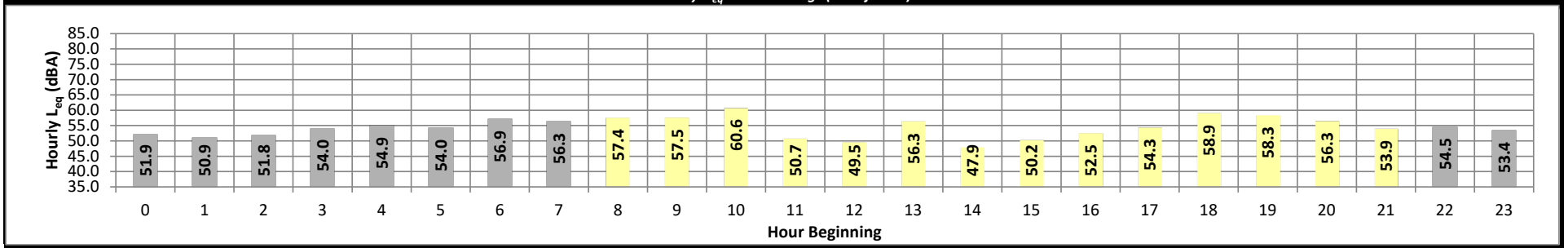
L_{eq} (dBA)		
24-Hour	Daytime (8am-10pm)	Nighttime (10pm-8am)
56.7	**57.0**	**56.2**

24-Hour Noise Level Measurement Summary

Date: Tuesday, December 21, 2021 *Location:* L4 - Located south of the Project site near single-family *Meter:* Piccolo II *JN:* 14555

Project: Cottonwood and Edgemont *Source:* residence at 13651 Edgemont Street. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.9	57.9	49.6	57.4	56.8	54.9	53.7	52.1	51.2	50.1	49.9	49.7	51.9	10.0	61.9
	1	50.9	54.8	48.8	54.4	54.0	53.0	52.6	51.3	50.5	49.4	49.2	48.9	50.9	10.0	60.9
	2	51.8	55.4	49.5	55.2	54.9	53.9	53.4	52.3	51.5	50.1	49.9	49.6	51.8	10.0	61.8
	3	54.0	57.4	51.8	56.9	56.4	55.8	55.5	54.5	53.7	52.5	52.2	51.9	54.0	10.0	64.0
	4	54.9	56.9	53.3	56.8	56.6	56.1	55.9	55.2	54.7	53.9	53.7	53.4	54.9	10.0	64.9
	5	54.0	56.5	52.5	56.3	56.1	55.6	55.3	54.4	53.7	53.0	52.8	52.6	54.0	10.0	64.0
	6	56.9	60.7	55.3	60.4	60.1	59.3	58.6	57.1	56.6	55.7	55.5	55.3	56.9	10.0	66.9
	7	56.3	58.2	54.9	58.0	57.8	57.4	57.2	56.6	56.2	55.4	55.3	55.0	56.3	0.0	56.3
Day	8	57.4	66.1	49.2	65.9	65.7	64.6	63.6	56.4	50.8	49.8	49.6	49.3	57.4	0.0	57.4
	9	57.5	64.8	45.4	64.6	64.3	63.8	63.3	58.3	50.0	46.1	45.8	45.5	57.5	0.0	57.5
	10	60.6	68.5	43.5	68.3	68.2	67.7	67.1	61.4	50.6	44.7	44.3	43.6	60.6	0.0	60.6
	11	50.7	59.5	43.2	58.9	57.9	56.3	55.3	51.6	46.8	43.9	43.6	43.3	50.7	0.0	50.7
	12	49.5	58.3	44.7	57.7	56.9	55.7	54.2	48.4	47.2	45.4	45.1	44.8	49.5	0.0	49.5
	13	56.3	63.6	43.9	63.5	63.4	63.1	62.8	56.4	48.2	44.9	44.5	44.1	56.3	0.0	56.3
	14	47.9	54.6	43.5	54.2	53.8	52.4	51.3	48.2	46.5	44.3	44.0	43.6	47.9	0.0	47.9
	15	50.2	55.5	46.3	55.1	54.8	53.9	53.3	51.0	49.1	47.1	46.8	46.4	50.2	0.0	50.2
	16	52.5	56.3	49.1	56.0	55.8	55.2	54.8	53.4	51.9	49.9	49.6	49.2	52.5	0.0	52.5
	17	54.3	58.7	50.7	58.4	58.1	57.3	56.9	55.0	53.7	51.5	51.2	50.8	54.3	0.0	54.3
	18	58.9	64.7	53.6	64.5	64.4	64.0	63.4	60.1	56.4	54.3	54.0	53.7	58.9	0.0	58.9
	19	58.3	63.6	54.9	63.3	63.0	62.2	61.3	58.8	57.2	55.6	55.3	55.0	58.3	5.0	63.3
	20	56.3	59.9	54.4	59.7	59.3	58.5	58.0	56.8	56.0	54.9	54.7	54.4	56.3	5.0	61.3
	21	53.9	59.1	51.4	58.7	58.1	57.0	56.2	54.0	53.2	52.0	51.7	51.5	53.9	5.0	58.9
Night	22	54.5	57.5	52.6	57.3	57.0	56.4	56.0	54.8	54.2	53.2	53.0	52.7	54.5	10.0	64.5
	23	53.4	57.9	51.2	57.5	56.9	55.9	55.4	53.6	52.8	51.7	51.5	51.3	53.4	10.0	63.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.9	54.6	43.2	54.2	53.8	52.4	51.3	48.2	46.5	43.9	43.6	43.3
	Max	60.6	68.5	54.9	68.3	68.2	67.7	67.1	61.4	57.2	55.6	55.3	55.0
Energy Average		56.0	Average:		60.6	60.3	59.4	58.7	55.0	51.2	48.9	48.6	48.2
Night	Min	50.9	54.8	48.8	54.4	54.0	53.0	52.6	51.3	50.5	49.4	49.2	48.9
	Max	56.9	60.7	55.3	60.4	60.1	59.3	58.6	57.1	56.6	55.7	55.5	55.3
Energy Average		54.2	Average:		57.0	56.7	55.8	55.4	54.2	53.5	52.5	52.3	52.0

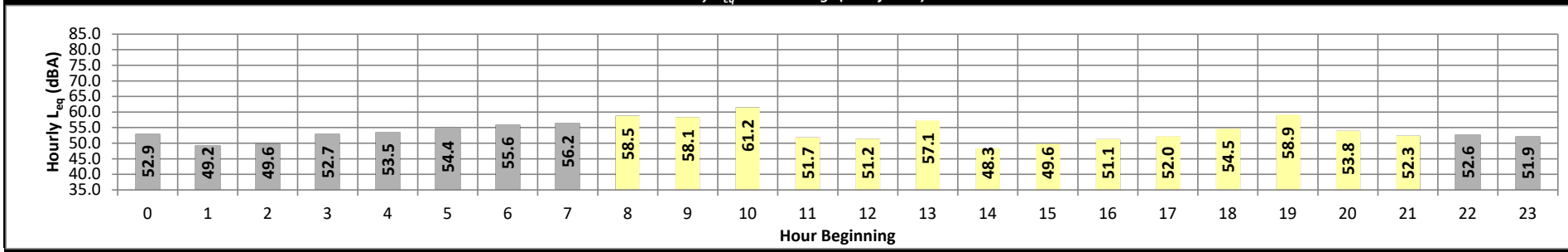
L_{eq} (dBA)		
24-Hour	Daytime (8am-10pm)	Nighttime (10pm-8am)
55.4	**56.0**	**54.2**

24-Hour Noise Level Measurement Summary

Date: Tuesday, December 21, 2021 *Location:* L5 - Located south of the Project site near single-family *Meter:* Piccolo II *JN:* 14555

Project: Cottonwood and Edgemont *Source:* residence at 13676 Old 215 Frontage Road. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	52.9	63.1	48.0	62.7	62.4	59.5	56.4	50.8	49.6	48.5	48.3	48.1	52.9	10.0	62.9
	1	49.2	53.3	47.3	52.9	52.5	51.5	50.8	49.4	48.7	47.8	47.6	47.4	49.2	10.0	59.2
	2	49.6	52.6	48.0	52.3	52.1	51.2	50.8	49.9	49.4	48.5	48.3	48.1	49.6	10.0	59.6
	3	52.7	57.7	50.0	57.1	56.7	55.5	54.9	53.1	52.1	50.5	50.3	50.1	52.7	10.0	62.7
	4	53.5	55.8	52.0	55.6	55.4	54.9	54.6	53.9	53.3	52.4	52.3	52.1	53.5	10.0	63.5
	5	54.4	58.1	52.6	57.8	57.5	56.8	56.3	54.8	53.9	53.0	52.8	52.6	54.4	10.0	64.4
	6	55.6	58.6	54.1	58.3	58.0	57.5	57.0	55.9	55.3	54.5	54.4	54.2	55.6	10.0	65.6
	7	56.2	59.5	54.6	59.1	58.7	58.0	57.5	56.5	55.9	55.1	54.9	54.7	56.2	0.0	56.2
Day	8	58.5	67.8	50.8	67.6	67.4	66.0	64.4	55.2	52.5	51.4	51.2	50.9	58.5	0.0	58.5
	9	58.1	65.5	46.3	65.4	65.2	64.7	64.2	59.3	50.0	47.0	46.8	46.5	58.1	0.0	58.1
	10	61.2	69.5	43.4	69.3	69.1	68.5	68.0	61.1	50.6	44.6	44.0	43.6	61.2	0.0	61.2
	11	51.7	60.6	42.5	60.3	59.5	57.8	56.2	52.8	48.2	43.8	43.1	42.7	51.7	0.0	51.7
	12	51.2	62.2	43.6	61.9	61.8	58.0	55.3	49.0	46.7	44.4	44.1	43.7	51.2	0.0	51.2
	13	57.1	66.2	43.5	66.0	65.7	64.8	63.6	54.7	46.9	44.4	44.0	43.7	57.1	0.0	57.1
	14	48.3	55.0	42.4	54.7	54.3	53.5	52.5	48.9	46.5	43.4	43.0	42.6	48.3	0.0	48.3
	15	49.6	56.3	44.6	56.0	55.5	54.6	53.6	49.9	48.0	45.6	45.2	44.7	49.6	0.0	49.6
	16	51.1	57.2	46.4	56.6	56.2	55.5	54.8	51.9	49.6	47.3	46.9	46.5	51.1	0.0	51.1
	17	52.0	58.0	47.8	57.7	57.2	56.2	55.4	52.5	50.8	48.6	48.3	48.0	52.0	0.0	52.0
	18	54.5	60.8	50.3	60.4	59.9	59.1	58.6	55.1	52.6	50.9	50.6	50.4	54.5	0.0	54.5
	19	58.9	65.7	51.9	65.6	65.4	64.7	63.9	59.9	55.4	52.5	52.3	52.0	58.9	5.0	63.9
	20	53.8	57.7	51.7	57.4	57.0	56.0	55.5	54.1	53.4	52.2	52.0	51.8	53.8	5.0	58.8
	21	52.3	58.3	49.7	57.8	57.1	55.8	55.0	52.2	51.4	50.3	50.0	49.8	52.3	5.0	57.3
Night	22	52.6	57.3	50.5	56.6	56.3	55.5	54.8	52.8	52.0	51.1	50.9	50.6	52.6	10.0	62.6
	23	51.9	56.7	49.3	56.4	56.0	55.3	54.5	52.2	51.0	49.8	49.6	49.4	51.9	10.0	61.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.3	55.0	42.4	54.7	54.3	53.5	52.5	48.9	46.5	43.4	43.0	42.6
	Max	61.2	69.5	51.9	69.3	69.1	68.5	68.0	61.1	55.4	52.5	52.3	52.0
Energy Average		55.8	Average:		61.2	60.8	59.7	58.6	54.0	50.2	47.6	47.3	46.9
Night	Min	49.2	52.6	47.3	52.3	52.1	51.2	50.8	49.4	48.7	47.8	47.6	47.4
	Max	56.2	63.1	54.6	62.7	62.4	59.5	57.5	56.5	55.9	55.1	54.9	54.7
Energy Average		53.4	Average:		56.9	56.6	55.6	54.8	52.9	52.1	51.1	50.9	50.7

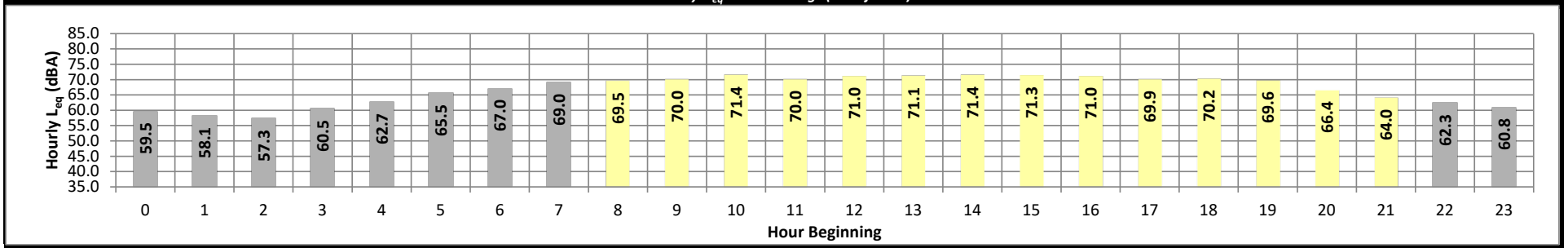
L_{eq} (dBA)		
24-Hour	Daytime (8am-10pm)	Nighttime (10pm-8am)
55.0	**55.9**	**53.4**

24-Hour Noise Level Measurement Summary

Date: Tuesday, December 21, 2021 | *Location:* L6 - Located west of the Project site near single-family | *Meter:* Piccolo II | *JN:* 14555

Project: Cottonwood and Edgemont | *Source:* residence at 21613 Cottonwood Avenue. | *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	59.5	69.1	54.9	68.6	67.8	64.7	63.1	58.8	57.1	55.6	55.3	55.0	59.5	10.0	69.5
	1	58.1	68.3	53.5	67.7	66.5	63.7	61.7	57.1	55.5	54.1	53.9	53.6	58.1	10.0	68.1
	2	57.3	63.6	54.6	63.2	62.6	60.7	59.4	57.3	56.4	55.3	55.0	54.7	57.3	10.0	67.3
	3	60.5	70.2	56.7	69.5	68.5	65.5	63.4	59.5	58.4	57.4	57.1	56.8	60.5	10.0	70.5
	4	62.7	72.3	58.5	71.8	71.0	68.2	66.0	61.6	60.3	59.1	58.9	58.6	62.7	10.0	72.7
	5	65.5	76.6	57.2	76.1	75.0	72.1	70.2	64.3	60.5	57.8	57.5	57.3	65.5	10.0	75.5
	6	67.0	76.9	59.3	76.3	75.1	73.3	72.0	66.9	63.0	59.9	59.6	59.4	67.0	10.0	77.0
	7	69.0	78.6	59.7	78.1	77.3	75.3	74.0	69.3	64.5	60.4	60.1	59.8	69.0	0.0	69.0
Day	8	69.5	79.0	56.4	78.6	78.1	76.4	75.0	69.5	63.9	57.4	56.8	56.5	69.5	0.0	69.5
	9	70.0	79.7	53.8	79.2	78.4	76.3	75.1	70.3	65.1	55.7	54.5	54.0	70.0	0.0	70.0
	10	71.4	79.5	56.8	79.1	78.6	77.3	76.5	72.6	67.8	59.9	58.5	57.1	71.4	0.0	71.4
	11	70.0	77.7	56.5	77.2	76.6	75.1	74.3	71.3	67.9	60.2	58.5	56.7	70.0	0.0	70.0
	12	71.0	79.0	57.5	78.6	77.8	76.2	75.3	72.3	68.8	60.8	59.2	57.7	71.0	0.0	71.0
	13	71.1	80.2	57.5	79.7	78.7	76.5	75.5	72.5	67.8	60.5	59.0	57.7	71.1	0.0	71.1
	14	71.4	81.3	57.4	80.7	79.5	76.8	75.5	72.4	68.4	60.2	58.8	57.6	71.4	0.0	71.4
	15	71.3	79.5	58.1	79.1	78.3	76.5	75.5	72.5	69.0	61.9	59.9	58.4	71.3	0.0	71.3
	16	71.0	79.5	58.8	79.1	78.2	76.3	75.4	72.4	68.2	61.2	60.0	59.0	71.0	0.0	71.0
	17	69.9	78.8	58.3	78.3	77.6	75.5	74.4	71.0	66.9	60.3	59.3	58.5	69.9	0.0	69.9
	18	70.2	81.3	59.8	80.7	79.6	76.4	74.7	69.6	65.6	60.8	60.3	59.9	70.2	0.0	70.2
	19	69.6	80.0	61.1	79.5	78.5	76.0	74.3	69.2	65.4	62.0	61.6	61.2	69.6	5.0	74.6
	20	66.4	76.3	60.0	75.8	74.9	72.5	70.9	65.9	62.8	60.6	60.4	60.1	66.4	5.0	71.4
	21	64.0	73.7	58.6	73.2	72.3	69.7	67.8	63.4	61.2	59.3	59.0	58.7	64.0	5.0	69.0
Night	22	62.3	71.3	57.8	70.9	70.1	67.9	66.3	61.6	59.7	58.4	58.1	57.9	62.3	10.0	72.3
	23	60.8	70.8	56.3	70.4	69.5	66.5	64.2	59.6	58.1	56.8	56.6	56.4	60.8	10.0	70.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	64.0	73.7	53.8	73.2	72.3	69.7	67.8	63.4	61.2	55.7	54.5	54.0
	Max	71.4	81.3	61.1	80.7	79.6	77.3	76.5	72.6	69.0	62.0	61.6	61.2
Energy Average		70.1	Average:		78.5	77.6	75.5	74.3	70.4	66.4	60.1	59.0	58.1
Night	Min	57.3	63.6	53.5	63.2	62.6	60.7	59.4	57.1	55.5	54.1	53.9	53.6
	Max	69.0	78.6	59.7	78.1	77.3	75.3	74.0	69.3	64.5	60.4	60.1	59.8
Energy Average		63.9	Average:		71.3	70.3	67.8	66.0	61.6	59.4	57.5	57.2	56.9

L_{eq} (dBA)		
24-Hour	*Daytime (8am-10pm)*	*Nighttime (10pm-8am)*
68.5	**70.1**	**63.9**

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

This page intentionally left blank

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

Scenario: E
Road Name: Old 215 Frontage Rd.
Road Segment: n/o Cottonwood Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,697 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	805 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.40	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.96	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-21.35	1.53	-1.20	*-5.38*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.1	66.8	61.7	58.1	67.0	67.3
Medium Trucks:	61.4	61.1	53.6	53.6	61.8	62.0
Heavy Trucks:	64.4	63.4	51.4	60.2	67.1	67.1
Vehicle Noise:	69.7	69.2	62.6	62.9	70.7	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	131	282	609
CNEL:	63	135	290	626

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

Scenario: E+P
Road Name: Old 215 Frontage Rd.
Road Segment: n/o Cottonwood Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,951 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	825 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.25%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.64%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.30	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.88	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-20.99	1.53	-1.20	*-5.38*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.2	66.9	61.8	58.2	67.1	67.4
Medium Trucks:	61.5	61.2	53.6	53.6	61.9	62.1
Heavy Trucks:	64.7	63.8	51.8	60.6	67.4	67.5
Vehicle Noise:	69.8	69.4	62.7	63.1	70.9	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	63	135	292	629
CNEL:	65	139	300	646

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

Scenario: OYC
Road Name: Old 215 Frontage Rd.
Road Segment: n/o Cottonwood Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,101 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	911 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.86	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.43	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-20.82	1.53	-1.20	*-5.38*	0.000	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	67.4	62.2	58.7	67.6	67.9
Medium Trucks:	61.9	61.6	54.1	54.1	62.4	62.5
Heavy Trucks:	64.9	63.9	51.9	60.8	67.6	67.6
Vehicle Noise:	70.2	69.7	63.2	63.4	71.2	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	142	307	661
CNEL:	68	146	315	679

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

Scenario: OYC+P
Road Name: Old 215 Frontage Rd.
Road Segment: n/o Cottonwood Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,355 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	930 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.26%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.77	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.35	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-20.50	1.53	-1.20	*-5.38*	0.000	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	67.5	62.3	58.7	67.6	68.0
Medium Trucks:	62.0	61.7	54.2	54.2	62.4	62.6
Heavy Trucks:	65.2	64.3	52.3	61.1	67.9	67.9
Vehicle Noise:	70.3	69.9	63.3	63.6	71.4	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	147	316	680
CNEL:	70	151	324	699

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

Scenario: E
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Cottonwood Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,175 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	841 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.21	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.77	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-21.16	1.53	-1.20	*-5.38*	0.000	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	67.0	61.8	58.3	67.2	67.5
Medium Trucks:	61.6	61.3	53.7	53.7	62.0	62.2
Heavy Trucks:	64.5	63.6	51.6	60.4	67.3	67.3
Vehicle Noise:	69.8	69.4	62.8	63.1	70.8	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	63	135	291	627
CNEL:	64	139	299	644

Wednesday, December 21, 2022

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

Scenario: E+P
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Cottonwood Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,429 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	861 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.25%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.11	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.69	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-20.82	1.53	-1.20	*-5.38*	0.000	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	67.1	61.9	58.4	67.3	67.6
Medium Trucks:	61.6	61.4	53.8	53.8	62.1	62.3
Heavy Trucks:	64.9	63.9	51.9	60.8	67.6	67.6
Vehicle Noise:	70.0	69.5	62.9	63.3	71.1	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	65	139	300	646
CNEL:	66	143	308	664

Wednesday, December 21, 2022

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

Scenario: OYC
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Cottonwood Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,584 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	948 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.69	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.26	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-20.65	1.53	-1.20	*-5.38*	0.000	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	67.5	62.4	58.8	67.7	68.1
Medium Trucks:	62.1	61.8	54.3	54.3	62.5	62.7
Heavy Trucks:	65.1	64.1	52.1	61.0	67.8	67.8
Vehicle Noise:	70.4	69.9	63.3	63.6	71.4	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	146	315	678
CNEL:	70	150	324	697

Wednesday, December 21, 2022

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

Scenario: OYC+P
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Cottonwood Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,838 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	967 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.26%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.62%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.61	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.18	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-20.34	1.53	-1.20	*-5.38*	0.000	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	67.6	62.4	58.9	67.8	68.1
Medium Trucks:	62.2	61.9	54.3	54.3	62.6	62.8
Heavy Trucks:	65.4	64.4	52.4	61.3	68.1	68.1
Vehicle Noise:	70.5	70.0	63.4	63.8	71.5	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	150	324	697
CNEL:	72	154	333	716

Wednesday, December 21, 2022

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

Scenario: E
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Bay Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,577 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	796 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.45	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-20.01	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-21.40	1.53	-1.20	*-5.38*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.1	66.8	61.6	58.1	67.0	67.3
Medium Trucks:	61.3	61.1	53.5	53.5	61.8	62.0
Heavy Trucks:	64.3	63.4	51.4	60.2	67.0	67.0
Vehicle Noise:	69.6	69.1	62.6	62.8	70.6	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	60	130	280	604
CNEL:	62	134	288	621

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

Scenario: E+P
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Bay Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,903 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	821 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.30%
Medium Trucks:	85.1%	3.7%	11.2%	2.10%
Heavy Trucks:	72.6%	1.1%	26.3%	1.60%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.32	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.94	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-21.10	1.53	-1.20	*-5.38*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.2	66.9	61.7	58.2	67.1	67.4
Medium Trucks:	61.4	61.1	53.6	53.6	61.9	62.0
Heavy Trucks:	64.6	63.7	51.7	60.5	67.3	67.3
Vehicle Noise:	69.8	69.3	62.7	63.0	70.8	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	134	289	623
CNEL:	64	138	297	640

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

Scenario: OYC
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Bay Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,841 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	892 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.96	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.52	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-20.91	1.53	-1.20	*-5.38*	0.000	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	67.3	62.1	58.6	67.5	67.8
Medium Trucks:	61.8	61.6	54.0	54.0	62.3	62.4
Heavy Trucks:	64.8	63.8	51.8	60.7	67.5	67.5
Vehicle Noise:	70.1	69.6	63.1	63.3	71.1	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	65	140	302	651
CNEL:	67	144	311	669

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

Scenario: OYC+P
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Bay Av.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,166 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	916 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.30%
Medium Trucks:	85.1%	3.7%	11.2%	2.10%
Heavy Trucks:	72.6%	1.1%	26.3%	1.60%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.84	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-19.46	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-20.64	1.53	-1.20	*-5.38*	0.000	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	67.4	62.2	58.7	67.6	67.9
Medium Trucks:	61.9	61.6	54.1	54.1	62.3	62.5
Heavy Trucks:	65.1	64.1	52.1	61.0	67.8	67.8
Vehicle Noise:	70.3	69.8	63.2	63.5	71.3	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	311	669
CNEL:	69	148	319	688

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

Scenario: E
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Alessandro Bl.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,455 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	260 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-8.31	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-24.87	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-26.26	1.53	-1.20	*-5.38*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	61.9	56.7	53.2	62.1	62.4
Medium Trucks:	56.5	56.2	48.7	48.7	56.9	57.1
Heavy Trucks:	59.5	58.5	46.5	55.3	62.2	62.2
Vehicle Noise:	64.7	64.3	57.7	58.0	65.8	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	62	133	286
CNEL:	29	63	137	295

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

Scenario: E+P
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Alessandro Bl.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,501 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	264 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.28%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.60%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-8.25	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-24.82	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-26.05	1.53	-1.20	*-5.38*	0.000	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	62.0	56.8	53.3	62.2	62.5
Medium Trucks:	56.5	56.3	48.7	48.7	57.0	57.1
Heavy Trucks:	59.7	58.7	46.7	55.5	62.4	62.4
Vehicle Noise:	64.8	64.4	57.8	58.1	65.9	66.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	135	292
CNEL:	30	65	139	300

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

Scenario: OYC
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Alessandro Bl.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,684 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	277 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-8.03	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-24.59	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-25.98	1.53	-1.20	*-5.38*	0.000	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	62.2	57.0	53.5	62.4	62.7
Medium Trucks:	56.7	56.5	48.9	48.9	57.2	57.4
Heavy Trucks:	59.7	58.8	46.8	55.6	62.4	62.5
Vehicle Noise:	65.0	64.6	58.0	58.2	66.0	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	64	139	299
CNEL:	31	66	143	307

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

Scenario: OYC+P
Road Name: Old 215 Frontage Rd.
Road Segment: s/o Alessandro Bl.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,731 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	281 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 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:	85.0%	6.4%	8.6%	96.29%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.59%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.102
Medium Trucks:	38.876
Heavy Trucks:	38.898

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-7.97	1.50	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-24.54	1.54	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-25.79	1.53	-1.20	*-5.38*	0.000	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	62.3	57.1	53.5	62.4	62.8
Medium Trucks:	56.8	56.5	49.0	49.0	57.2	57.4
Heavy Trucks:	59.9	59.0	47.0	55.8	62.6	62.7
Vehicle Noise:	65.1	64.7	58.1	58.4	66.1	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	66	141	304
CNEL:	31	67	145	313

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

Scenario: E
Road Name: Eucalpytus Av.
Road Segment: w/o I-215 Ramps
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,680 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	1,181 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-0.19	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-16.75	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-18.14	0.80	-1.20	*-5.29*	0.000	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	63.4	58.2	54.7	63.6	63.9
Medium Trucks:	58.6	58.3	50.8	50.8	59.1	59.2
Heavy Trucks:	63.0	62.1	50.1	58.9	65.7	65.8
Vehicle Noise:	67.0	66.5	59.5	60.8	68.3	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	112	241	519
CNEL:	53	115	247	532

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

Scenario: E+P
Road Name: Eucalpytus Av.
Road Segment: w/o I-215 Ramps
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,726 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	1,184 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.32%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	-0.17	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-16.74	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-18.09	0.80	-1.20	*-5.29*	0.000	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	63.4	58.2	54.7	63.6	63.9
Medium Trucks:	58.6	58.3	50.8	50.8	59.1	59.2
Heavy Trucks:	63.1	62.1	50.1	59.0	65.8	65.8
Vehicle Noise:	67.1	66.5	59.5	60.8	68.4	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	112	242	522
CNEL:	53	115	248	534

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

Scenario: OYC
Road Name: Eucalpytus Av.
Road Segment: w/o I-215 Ramps
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,396 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	1,385 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	0.51	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-16.06	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-17.45	0.80	-1.20	*-5.29*	0.000	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	64.1	58.9	55.4	64.3	64.6
Medium Trucks:	59.3	59.0	51.5	51.5	59.7	59.9
Heavy Trucks:	63.7	62.8	50.8	59.6	66.4	66.4
Vehicle Noise:	67.7	67.2	60.2	61.5	69.0	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	124	268	578
CNEL:	59	127	274	591

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

Scenario: OYC+P
Road Name: Eucalpytus Av.
Road Segment: w/o I-215 Ramps
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,442 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	1,389 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.32%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	0.52	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-16.05	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-17.41	0.80	-1.20	*-5.29*	0.000	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	64.1	58.9	55.4	64.3	64.6
Medium Trucks:	59.3	59.0	51.5	51.5	59.8	59.9
Heavy Trucks:	63.8	62.8	50.8	59.6	66.5	66.5
Vehicle Noise:	67.8	67.2	60.2	61.5	69.1	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	269	580
CNEL:	59	128	276	594

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

Scenario: E
Road Name: Eucalpytus Av.
Road Segment: w/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,925 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,253 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	2.62	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-13.94	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-15.33	0.80	-1.20	*-5.29*	0.000	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	66.2	61.0	57.5	66.4	66.7
Medium Trucks:	61.4	61.1	53.6	53.6	61.9	62.0
Heavy Trucks:	65.8	64.9	52.9	61.7	68.5	68.6
Vehicle Noise:	69.9	69.3	62.3	63.6	71.1	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	80	172	371	799
CNEL:	82	176	380	818

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

Scenario: E+P
Road Name: Eucalpytus Av.
Road Segment: w/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,076 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,265 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.31%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.57%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	2.64	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-13.92	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-15.25	0.80	-1.20	*-5.29*	0.000	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	66.2	61.1	57.5	66.4	66.8
Medium Trucks:	61.4	61.2	53.6	53.6	61.9	62.1
Heavy Trucks:	65.9	65.0	53.0	61.8	68.6	68.6
Vehicle Noise:	69.9	69.4	62.3	63.6	71.2	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	81	174	374	806
CNEL:	82	178	383	825

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

Scenario: OYC
Road Name: Eucalpytus Av.
Road Segment: w/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,969 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	3,160 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	4.09	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-12.48	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-13.87	0.80	-1.20	*-5.29*	0.000	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	67.7	62.5	59.0	67.9	68.2
Medium Trucks:	62.9	62.6	55.1	55.1	63.3	63.5
Heavy Trucks:	67.3	66.3	54.3	63.2	70.0	70.0
Vehicle Noise:	71.3	70.8	63.8	65.0	72.6	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	100	216	465	1,001
CNEL:	102	221	476	1,025

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

Scenario: OYC+P
Road Name: Eucalpytus Av.
Road Segment: w/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,119 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	3,172 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.32%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.56%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	4.10	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-12.46	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-13.80	0.80	-1.20	*-5.29*	0.000	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	67.7	62.5	59.0	67.9	68.2
Medium Trucks:	62.9	62.6	55.1	55.1	63.3	63.5
Heavy Trucks:	67.4	66.4	54.4	63.2	70.1	70.1
Vehicle Noise:	71.4	70.8	63.8	65.1	72.7	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	101	217	468	1,008
CNEL:	103	222	478	1,031

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

Scenario: E
Road Name: Eucalpytus Av.
Road Segment: e/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,067 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	1,285 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	0.18	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-16.38	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-17.77	0.80	-1.20	*-5.29*	0.000	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	63.8	58.6	55.1	64.0	64.3
Medium Trucks:	59.0	58.7	51.1	51.1	59.4	59.6
Heavy Trucks:	63.4	62.4	50.4	59.3	66.1	66.1
Vehicle Noise:	67.4	66.9	59.8	61.1	68.7	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	118	255	550
CNEL:	56	121	261	562

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

Scenario: E+P
Road Name: Eucalpytus Av.
Road Segment: e/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,136 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	1,290 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.32%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.56%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	0.20	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-16.37	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-17.71	0.80	-1.20	*-5.29*	0.000	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	63.8	58.6	55.1	64.0	64.3
Medium Trucks:	59.0	58.7	51.2	51.2	59.4	59.6
Heavy Trucks:	63.5	62.5	50.5	59.3	66.2	66.2
Vehicle Noise:	67.4	66.9	59.9	61.2	68.8	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	119	257	553
CNEL:	57	122	263	566

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

Scenario: OYC
Road Name: Eucalpytus Av.
Road Segment: e/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,386 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	1,686 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	1.36	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-15.20	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-16.59	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.2	65.0	59.8	56.2	65.1	65.5
Medium Trucks:	60.1	59.9	52.3	52.3	60.6	60.8
Heavy Trucks:	64.6	63.6	51.6	60.5	67.3	67.3
Vehicle Noise:	68.6	68.1	61.0	62.3	69.9	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	142	306	659
CNEL:	67	145	313	674

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

Scenario: OYC+P
Road Name: Eucalpytus Av.
Road Segment: e/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,455 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	1,691 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.32%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.56%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	64.30	1.37	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	75.75	-15.19	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	81.57	-16.55	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.2	65.0	59.8	56.3	65.2	65.5
Medium Trucks:	60.2	59.9	52.3	52.3	60.6	60.8
Heavy Trucks:	64.6	63.7	51.7	60.5	67.3	67.3
Vehicle Noise:	68.6	68.1	61.0	62.3	69.9	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	143	307	662
CNEL:	68	146	314	677

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

Scenario: E
Road Name: Alessandro Bl.
Road Segment: w/o I-215 Ramps SB
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,691 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	3,290 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	2.30	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.26	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.65	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.6	73.4	68.2	64.7	73.6	73.9
Medium Trucks:	67.7	67.5	59.9	59.9	68.2	68.4
Heavy Trucks:	70.3	69.4	57.4	66.2	73.0	73.1
Vehicle Noise:	76.0	75.6	69.1	69.1	76.9	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	194	419	903	1,944
CNEL:	200	431	929	2,002

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

Scenario: E+P
Road Name: Alessandro Bl.
Road Segment: w/o I-215 Ramps SB
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,714 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	3,292 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	2.30	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.26	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.65	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.7	73.4	68.2	64.7	73.6	73.9
Medium Trucks:	67.7	67.5	59.9	59.9	68.2	68.4
Heavy Trucks:	70.3	69.4	57.4	66.2	73.0	73.1
Vehicle Noise:	76.0	75.6	69.1	69.1	76.9	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	195	419	903	1,946
CNEL:	200	432	930	2,003

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

Scenario: OYC
Road Name: Alessandro Bl.
Road Segment: w/o I-215 Ramps SB
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,452 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	3,498 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	2.57	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.00	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.39	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.9	73.7	68.5	64.9	73.8	74.2
Medium Trucks:	68.0	67.7	60.2	60.2	68.5	68.6
Heavy Trucks:	70.6	69.7	57.6	66.5	73.3	73.3
Vehicle Noise:	76.3	75.8	69.4	69.4	77.2	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	203	436	940	2,025
CNEL:	209	449	968	2,085

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

Scenario: OYC+P
Road Name: Alessandro Bl.
Road Segment: w/o I-215 Ramps SB
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,475 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	3,500 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	2.57	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.00	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.38	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.9	73.7	68.5	64.9	73.8	74.2
Medium Trucks:	68.0	67.7	60.2	60.2	68.5	68.6
Heavy Trucks:	70.6	69.7	57.7	66.5	73.3	73.3
Vehicle Noise:	76.3	75.8	69.4	69.4	77.2	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	203	437	941	2,027
CNEL:	209	450	968	2,086

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

Scenario: E
Road Name: Alessandro Bl.
Road Segment: w/o I-215 NB Ramps
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,150 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,873 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.71	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.85	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.24	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.1	72.8	67.6	64.1	73.0	73.3
Medium Trucks:	67.1	66.9	59.3	59.3	67.6	67.8
Heavy Trucks:	69.7	68.8	56.8	65.6	72.5	72.5
Vehicle Noise:	75.4	75.0	68.5	68.5	76.4	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	178	383	824	1,776
CNEL:	183	394	849	1,829

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

Scenario: E+P
Road Name: Alessandro Bl.
Road Segment: w/o I-215 NB Ramps
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,219 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,878 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.72	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.85	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.21	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.1	72.8	67.6	64.1	73.0	73.3
Medium Trucks:	67.2	66.9	59.3	59.3	67.6	67.8
Heavy Trucks:	69.8	68.8	56.8	65.7	72.5	72.5
Vehicle Noise:	75.4	75.0	68.5	68.5	76.4	76.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	178	384	827	1,781
CNEL:	183	395	851	1,833

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

Scenario: OYC
Road Name: Alessandro Bl.
Road Segment: w/o I-215 NB Ramps
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,142 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	3,098 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	2.04	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.52	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.91	0.80	-1.20	*-5.29*	0.000	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	73.1	67.9	64.4	73.3	73.6
Medium Trucks:	67.5	67.2	59.7	59.7	67.9	68.1
Heavy Trucks:	70.1	69.1	57.1	66.0	72.8	72.8
Vehicle Noise:	75.8	75.3	68.8	68.8	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	187	402	867	1,868
CNEL:	192	414	893	1,923

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

Scenario: OYC+P
Road Name: Alessandro Bl.
Road Segment: w/o I-215 NB Ramps
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,210 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	3,103 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	2.05	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.52	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.89	0.80	-1.20	*-5.29*	0.000	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	73.1	67.9	64.4	73.3	73.6
Medium Trucks:	67.5	67.2	59.7	59.7	67.9	68.1
Heavy Trucks:	70.1	69.2	57.1	66.0	72.8	72.8
Vehicle Noise:	75.8	75.3	68.8	68.8	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	187	403	869	1,872
CNEL:	193	415	895	1,927

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

Scenario: E
Road Name: Alessandro Bl.
Road Segment: w/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,741 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,390 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.91	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-15.65	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.04	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	72.0	66.8	63.3	72.2	72.5
Medium Trucks:	66.4	66.1	58.5	58.5	66.8	67.0
Heavy Trucks:	69.0	68.0	56.0	64.8	71.7	71.7
Vehicle Noise:	74.6	74.2	67.7	67.7	75.6	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	157	339	729	1,571
CNEL:	162	348	751	1,618

Wednesday, December 21, 2022

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

Scenario: E+P
Road Name: Alessandro Bl.
Road Segment: w/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,856 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,399 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.32%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.56%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.93	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-15.64	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.98	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	72.0	66.8	63.3	72.2	72.5
Medium Trucks:	66.4	66.1	58.5	58.5	66.8	67.0
Heavy Trucks:	69.0	68.1	56.0	64.9	71.7	71.7
Vehicle Noise:	74.7	74.2	67.7	67.7	75.6	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	158	340	733	1,579
CNEL:	163	350	754	1,625

Wednesday, December 21, 2022

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

Scenario: OYC
Road Name: Alessandro Bl.
Road Segment: w/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,430 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,593 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.27	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-15.30	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.69	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.6	72.4	67.2	63.6	72.5	72.9
Medium Trucks:	66.7	66.4	58.9	58.9	67.2	67.3
Heavy Trucks:	69.3	68.4	56.3	65.2	72.0	72.0
Vehicle Noise:	75.0	74.5	68.1	68.1	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	166	357	770	1,659
CNEL:	171	368	793	1,708

Wednesday, December 21, 2022

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

Scenario: OYC+P
Road Name: Alessandro Bl.
Road Segment: w/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,545 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,601 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.32%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.56%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.28	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-15.29	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.64	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.6	72.4	67.2	63.6	72.5	72.9
Medium Trucks:	66.7	66.5	58.9	58.9	67.2	67.3
Heavy Trucks:	69.4	68.4	56.4	65.2	72.1	72.1
Vehicle Noise:	75.0	74.6	68.1	68.1	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	167	359	773	1,666
CNEL:	172	370	796	1,715

Wednesday, December 21, 2022

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

Scenario: E
Road Name: Alessandro Bl.
Road Segment: e/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,503 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,146 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.32	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	79.45	-15.25	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.64	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	69.1	63.9	60.4	69.3	69.6
Medium Trucks:	63.8	63.5	56.0	56.0	64.3	64.4
Heavy Trucks:	67.2	66.3	54.3	63.1	69.9	69.9
Vehicle Noise:	72.1	71.6	64.9	65.5	73.2	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	109	236	508	1,095
CNEL:	112	242	522	1,124

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

Scenario: E+P
Road Name: Alessandro Bl.
Road Segment: e/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,549 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,150 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.32	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	79.45	-15.24	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.61	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	69.1	63.9	60.4	69.3	69.6
Medium Trucks:	63.8	63.5	56.0	56.0	64.3	64.4
Heavy Trucks:	67.2	66.3	54.3	63.1	69.9	70.0
Vehicle Noise:	72.1	71.6	64.9	65.5	73.2	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	110	236	509	1,098
CNEL:	113	243	523	1,127

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

Scenario: OYC
Road Name: Alessandro Bl.
Road Segment: e/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,592 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,304 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.13%
Heavy Trucks:	72.6%	1.1%	26.3%	1.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.62	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	79.45	-14.94	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.33	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	69.4	64.2	60.7	69.6	69.9
Medium Trucks:	64.1	63.8	56.3	56.3	64.6	64.7
Heavy Trucks:	67.5	66.6	54.6	63.4	70.2	70.3
Vehicle Noise:	72.4	71.9	65.2	65.8	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	115	247	533	1,148
CNEL:	118	254	547	1,178

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

Scenario: OYC+P
Road Name: Alessandro Bl.
Road Segment: e/o Old 215 Frontage Rd.
Project Name: Cottonwood & Edgemont
Job Number: 14555

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,638 vehicles
Peak Hour Percentage:	7.53%
Peak Hour Volume:	2,307 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	102 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 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:	85.0%	6.4%	8.6%	96.33%
Medium Trucks:	85.1%	3.7%	11.2%	2.12%
Heavy Trucks:	72.6%	1.1%	26.3%	1.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.738
Medium Trucks:	43.535
Heavy Trucks:	43.555

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.63	0.77	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	79.45	-14.93	0.80	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.31	0.80	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	69.4	64.2	60.7	69.6	69.9
Medium Trucks:	64.1	63.9	56.3	56.3	64.6	64.7
Heavy Trucks:	67.5	66.6	54.6	63.4	70.2	70.3
Vehicle Noise:	72.4	72.0	65.2	65.8	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	115	248	534	1,150
CNEL:	118	254	548	1,181

This page intentionally left blank

APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

This page intentionally left blank

14555 - Cottonwood & Edgemont Warehouse

CadnaA Noise Prediction Model: 14555_04.cna
Date: 27.05.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**457.20**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	54.6	54.6	61.3	65.0	60.0	0.0				5.00	r	6247849.74	2281312.82	1543.00
RECEIVERS		R2	56.5	56.4	63.1	65.0	60.0	0.0				5.00	r	6248031.48	2281132.66	1540.00
RECEIVERS		R3	55.0	54.9	61.6	65.0	60.0	0.0				5.00	r	6248246.40	2280833.97	1541.88
RECEIVERS		R4	55.9	55.8	62.5	65.0	60.0	0.0				5.00	r	6248093.11	2280625.37	1544.48
RECEIVERS		R5	49.3	48.2	55.0	65.0	60.0	0.0				5.00	r	6247790.31	2280538.32	1540.28
RECEIVERS		R6	47.5	46.3	53.1	65.0	60.0	0.0				5.00	r	6247448.33	2281199.03	1524.27
RECEIVERS		x200	52.3	52.1	58.8	65.0	60.0	0.0				5.00	r	6247660.59	2281349.56	1531.15

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		PARK10	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247532.56	2280999.03	1541.14
POINTSOURCE		PARK09	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247550.88	2280938.92	1540.95
POINTSOURCE		PARK08	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247646.91	2280892.01	1540.11
POINTSOURCE		PARK07	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247731.21	2280922.06	1539.30
POINTSOURCE		PARK06	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247812.57	2280948.45	1538.50
POINTSOURCE		PARK05	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247805.24	2280897.14	1539.14
POINTSOURCE		PARK04	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247718.01	2280867.82	1540.00
POINTSOURCE		PARK03	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247635.18	2280839.23	1542.16
POINTSOURCE		PARK02	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247613.92	2280768.13	1542.10
POINTSOURCE		PARK01	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	r	6247638.11	2280697.02	1542.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	r	6248114.61	2281008.48	1537.81

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	r	6248113.59	2280989.42	1537.24
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6247624.92	2280925.73	1587.30
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6247664.50	2280809.18	1587.99

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRUCK01	93.3	78.6	84.7	67.8	53.2	59.2	PWL-Pt	93.2					29.0	1.0	4.0	6.2	8	r
LINESOURCE		TRUCK02	91.7	77.1	83.1	67.8	53.2	59.2	PWL-Pt	93.2					29.0	1.0	4.0	6.2	8	r

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	8.00	r			6247468.58	2281029.03	1540.00	1532.00
					6247500.76	2281043.89	1540.37	1532.37
					6247518.80	2281059.55	1539.31	1531.31
					6247835.23	2281172.11	1547.19	1539.19
					6247876.81	2281186.06	1541.34	1533.34
					6247886.51	2281187.67	1541.30	1533.30
					6247896.34	2281187.60	1541.24	1533.24
					6247906.02	2281185.85	1541.14	1533.14
					6247915.26	2281182.48	1541.03	1533.03
					6247923.78	2281177.58	1541.02	1533.02
					6247931.35	2281171.30	1541.05	1533.05
					6247945.07	2281132.98	1541.00	1533.00
					6247959.58	2281094.95	1540.88	1532.88
					6247968.67	2281064.68	1540.73	1532.73
					6247976.26	2281033.99	1540.43	1532.43
					6247978.06	2281031.14	1540.34	1532.34
					6247979.35	2281028.03	1540.18	1532.18
					6247980.09	2281024.74	1540.04	1532.04
					6247980.27	2281021.37	1540.00	1532.00
					6247979.88	2281018.02	1540.00	1532.00
					6247978.94	2281014.79	1540.00	1532.00
					6247977.46	2281011.76	1540.00	1532.00
					6247975.50	2281009.02	1540.00	1532.00
					6247973.10	2281006.65	1540.00	1532.00
					6247970.34	2281004.72	1540.00	1532.00
					6247967.29	2281003.28	1540.10	1532.10
					6247964.04	2281002.38	1540.20	1532.20
					6247960.69	2281002.03	1540.22	1532.22
					6247887.86	2280973.07	1540.72	1532.72
					6247882.31	2280968.82	1540.78	1532.78
					6247877.51	2280963.72	1540.84	1532.84
					6247873.59	2280957.92	1540.91	1532.91
					6247870.66	2280951.56	1540.97	1532.97
					6247868.80	2280944.81	1541.04	1533.04
					6247538.76	2280828.91	1542.38	1534.38
LINESOURCE	8.00	r			6247868.80	2280944.81	1541.04	1533.04
					6247873.79	2280941.76	1541.02	1533.02
					6247879.19	2280939.51	1540.99	1532.99
					6247884.88	2280938.14	1540.96	1532.96
					6247890.71	2280937.66	1540.93	1532.93
					6247896.54	2280938.10	1541.40	1533.40
					6247902.23	2280939.45	1541.96	1533.96
					6247907.65	2280941.66	1542.48	1534.48
					6247962.79	2280961.49	1540.30	1532.30
					6247969.09	2280963.15	1540.00	1532.00
					6247975.57	2280963.81	1540.00	1532.00
					6247982.07	2280963.46	1540.00	1532.00
					6247988.44	2280962.11	1540.00	1532.00
					6247994.53	2280959.78	1540.00	1532.00
					6248000.18	2280956.54	1540.00	1532.00
					6248005.26	2280952.47	1540.00	1532.00
					6248009.65	2280947.66	1540.00	1532.00
					6248058.39	2280807.50	1540.06	1532.06
					6248057.28	2280798.18	1540.08	1532.08
					6248054.64	2280789.18	1540.29	1532.29
					6248050.55	2280780.73	1540.52	1532.52
					6248045.12	2280773.08	1540.72	1532.72
					6248038.51	2280766.42	1540.89	1532.89
					6248030.88	2280760.95	1541.44	1533.44
					6248022.46	2280756.81	1543.09	1535.09
					6247684.96	2280641.96	1544.98	1536.98
					6247654.81	2280643.24	1545.00	1537.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6247626.58	2280640.68	1544.62	1536.62
					6247607.33	2280634.26	1544.55	1536.55

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		DOCK01	111.5	111.5	111.5	82.0	82.0	82.0	Lw	111.5					8	r
AREASOURCE		DOCK02	111.5	111.5	111.5	82.0	82.0	82.0	Lw	111.5					8	r
AREASOURCE		TRAILER01	103.4	103.4	103.4	76.7	76.7	76.7	Lw	103.4					8	r
AREASOURCE		TRAILER02	103.4	103.4	103.4	71.3	71.3	71.3	Lw	103.4					8	r

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	r			6247843.33	2281149.85	1541.00	1533.00
					6247899.27	2281170.02	1541.01	1533.01
					6247953.17	2281018.60	1540.40	1532.40
					6247895.90	2280998.51	1540.50	1532.50
AREASOURCE	8.00	r			6247923.66	2280921.13	1544.40	1536.40
					6247979.47	2280940.96	1540.70	1532.70
					6248032.73	2280790.18	1540.18	1532.18
					6247975.09	2280770.02	1540.40	1532.40
AREASOURCE	8.00	r			6247840.24	2281286.16	1544.46	1536.46
					6247937.13	2281286.80	1544.41	1536.41
					6247937.13	2281234.83	1541.71	1533.71
					6247838.96	2281235.47	1541.79	1533.79
AREASOURCE	8.00	r			6248032.09	2281103.93	1540.00	1532.00
					6248131.54	2281103.29	1542.21	1534.21
					6248128.97	2280836.37	1542.94	1534.94
					6248078.28	2280839.58	1540.00	1532.00
					6248077.64	2281025.65	1540.00	1532.00
					6248030.80	2281026.30	1540.00	1532.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
			left	right		horz.	vert.	Begin		End	x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIERTEMP		0									6247826.80	2281196.57	1546.00	1532.00
											6247827.59	2281296.17	1552.00	1538.00
BARRIERTEMP		0									6247827.59	2281296.17	1552.00	1538.00
											6247948.74	2281295.88	1552.00	1538.00
BARRIERTEMP		0									6247948.69	2281296.52	1552.00	1538.00
											6247948.37	2281255.88	1550.00	1536.00
BARRIERTEMP		0									6247948.37	2281255.88	1550.00	1536.00
											6248013.37	2281255.73	1550.00	1536.00
BARRIERTEMP		0									6248013.37	2281255.73	1550.00	1536.00
											6248012.09	2281115.73	1548.00	1534.00
BARRIERTEMP		0									6248011.74	2281116.56	1548.00	1534.00
											6248142.09	2281115.42	1549.80	1535.80
BARRIERTEMP		0									6248142.09	2281115.42	1549.80	1535.80
											6248138.98	2280776.29	1550.90	1536.90
BARRIERTEMP		0									6248138.98	2280776.29	1550.90	1536.90
											6247990.29	2280723.86	1550.00	1536.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		45.00	r	6247553.39	2281047.90	1582.30	1537.30
								6247843.33	2281149.85	1582.30	1533.00
								6247895.90	2280998.51	1582.30	1532.50
								6247635.77	2280907.25	1582.30	1535.23
								6247634.41	2280911.12	1582.30	1535.22
								6247608.01	2280901.33	1582.30	1535.50
								6247598.68	2280927.28	1582.30	1535.81
								6247594.58	2280926.37	1582.30	1535.65
BUILDING		BUILDING00002	x	0		45.00	r	6247642.83	2280788.45	1582.99	1537.99
								6247646.70	2280790.27	1582.99	1537.97
								6247637.59	2280817.13	1582.99	1537.97
								6247663.76	2280826.00	1582.99	1537.83
								6247662.63	2280830.10	1582.99	1537.81
								6247923.66	2280921.13	1582.99	1536.40
								6247975.09	2280770.02	1582.99	1532.40

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
								6247685.16	2280668.52	1582.99	1538.00

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

This page intentionally left blank

14555 - Cottonwood & Edgemont Warehouse

CadnaA Noise Prediction Model: 14555_04_Construction.cna
Date: 27.05.22
Analyst: S. Shami

Calculation Configuration

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

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	67.0	67.0	73.7	65.0	60.0	0.0				5.00	r	6247849.74	2281312.82	5.00
RECEIVERS		R2	69.9	69.9	76.5	65.0	60.0	0.0				5.00	r	6248031.48	2281132.66	5.00
RECEIVERS		R3	62.4	62.4	69.1	65.0	60.0	0.0				5.00	r	6248246.40	2280833.97	5.00
RECEIVERS		R4	62.2	62.2	68.8	65.0	60.0	0.0				5.00	r	6248093.11	2280625.37	5.00
RECEIVERS		R5	62.9	62.9	69.6	65.0	60.0	0.0				5.00	r	6247790.31	2280538.32	5.00
RECEIVERS		R6	61.4	61.4	68.1	65.0	60.0	0.0				5.00	r	6247448.33	2281199.03	5.00
RECEIVERS		x200	61.0	61.0	67.7	65.0	60.0	0.0				5.00	r	6247660.59	2281349.56	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	115.0	115.0	115.0	70.4	70.4	70.4	Lw	115					8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a			6247621.17	2280593.94	8.00	0.00
					6247455.67	2281065.82	8.00	0.00
					6247826.80	2281196.57	8.00	0.00
					6247827.59	2281296.17	8.00	0.00
					6247948.74	2281295.88	8.00	0.00
					6247948.37	2281255.88	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6248013.37	2281255.73	8.00	0.00
			6248012.09	2281115.73	8.00	0.00
			6248142.09	2281115.42	8.00	0.00
			6248138.98	2280776.29	8.00	0.00

APPENDIX 10.2:

CADNAA CONCRETE POUR NOISE MODEL INPUTS

This page intentionally left blank

14555 - Cottonwood & Edgemont Warehouse

CadnaA Noise Prediction Model: 14555_04_ConcretePour.cna
Date: 27.05.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**457.20**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	36.6	36.6	43.3	65.0	60.0	0.0				5.00	r	6247849.74	2281312.82	1543.00
RECEIVERS		R2	39.3	39.3	45.9	65.0	60.0	0.0				5.00	r	6248031.48	2281132.66	1540.00
RECEIVERS		R3	41.0	41.0	47.6	65.0	60.0	0.0				5.00	r	6248246.40	2280833.97	1541.88
RECEIVERS		R4	47.4	47.4	54.1	65.0	60.0	0.0				5.00	r	6248093.11	2280625.37	1544.48
RECEIVERS		R5	51.1	51.1	57.8	65.0	60.0	0.0				5.00	r	6247790.31	2280538.32	1540.28
RECEIVERS		R6	46.3	46.3	52.9	65.0	60.0	0.0				5.00	r	6247448.33	2281199.03	1524.27
RECEIVERS		x200	47.2	47.2	53.8	65.0	60.0	0.0				5.00	r	6247660.59	2281349.56	1531.15

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
BUILDING		BUILDING00001	100.3	100.3	100.3	63.7	63.7	63.7	Lw	100.3					8	r
BUILDING		BUILDING00002	100.3	100.3	100.3	63.7	63.7	63.7	Lw	100.3					8	r

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING	8.00	r			6247553.39	2281047.90	1545.30	1537.30
					6247843.33	2281149.85	1541.00	1533.00
					6247895.90	2280998.51	1540.50	1532.50
					6247635.77	2280907.25	1543.23	1535.23
					6247634.41	2280911.12	1543.22	1535.22

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6247608.01	2280901.33	1543.50	1535.50
					6247598.68	2280927.28	1543.81	1535.81
					6247594.58	2280926.37	1543.65	1535.65
BUILDING	8.00	r			6247642.83	2280788.45	1545.99	1537.99
					6247646.70	2280790.27	1545.97	1537.97
					6247637.59	2280817.13	1545.97	1537.97
					6247663.76	2280826.00	1545.83	1537.83
					6247662.63	2280830.10	1545.81	1537.81
					6247923.66	2280921.13	1544.40	1536.40
					6247975.09	2280770.02	1540.40	1532.40
					6247685.16	2280668.52	1546.00	1538.00