

APPENDIX G: NOISE IMPACT ANALYSIS



Pepper Avenue Specific Plan Amendment and Industrial Development Project

NOISE IMPACT ANALYSIS

CITY OF RIALTO

PREPARED BY:

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

MAY 16, 2022

TABLE OF CONTENTS

TABLE OF CONTENTS.....	III
APPENDICES.....	IV
LIST OF EXHIBITS.....	IV
LIST OF TABLES	V
LIST OF ABBREVIATED TERMS	VI
EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	3
1.1 Site Location.....	3
1.2 Project Description.....	3
2 FUNDAMENTALS	9
2.1 Range of Noise	9
2.2 Noise Descriptors	10
2.3 Sound Propagation.....	10
2.4 Noise Control	11
2.5 Noise Barrier Attenuation.....	11
2.6 Land Use Compatibility With Noise	12
2.7 Community Response to Noise	12
2.8 Vibration	13
3 REGULATORY SETTING	15
3.1 State of California Noise Requirements.....	15
3.2 City of Rialto General Plan Safety & Noise Element	15
3.3 Operational Noise Standards	17
3.4 Construction Noise Standards.....	18
3.5 Construction Vibration Standards.....	19
4 SIGNIFICANCE CRITERIA	21
4.1 Noise Level Standard Exceedances (Threshold A)	21
4.2 Vibration (Threshold B)	22
4.3 CEQA Guidelines Not Further Analyzed (Threshold C)	23
4.4 Significance Criteria Summary	23
5 EXISTING NOISE LEVEL MEASUREMENTS	25
5.1 Measurement Procedure and Criteria	25
5.2 Noise Measurement Locations	25
5.3 Noise Measurement Results	26
6 TRAFFIC NOISE METHODS AND PROCEDURES.....	29
6.1 FHWA Traffic Noise Prediction Model	29
7 OFF-SITE TRAFFIC NOISE ANALYSIS.....	33
7.1 Traffic Noise Contours	33
7.2 Existing Project Traffic Noise Level Increases	36
7.3 OY Traffic Noise Level Increases	36
7.4 FC Traffic Noise Level Increases	36
7.5 GPBO Traffic Noise Level Increases.....	36

8	SENSITIVE RECEIVER LOCATIONS	41
9	OPERATIONAL NOISE IMPACTS	45
9.1	Operational Noise Sources.....	45
9.2	Reference Noise Levels	45
9.3	CadnaA Noise Prediction Model	48
9.4	Project Operational Noise Levels	49
9.5	Project Operational Noise Level Compliance.....	50
9.6	Project Operational Noise Level Increases	51
10	CONSTRUCTION IMPACTS	55
10.1	Construction Noise Levels.....	55
10.2	Construction Reference Noise Levels	55
10.3	Construction Noise Analysis.....	56
10.4	Construction Noise Level Compliance	58
10.5	Construction Vibration Analysis.....	58
10.6	Nighttime Concrete Pour Noise Analysis	60
11	PROPOSED PEPPER AVENUE SPECIFIC PLAN AMENDMENT	63
12	REFERENCES.....	65
13	CERTIFICATION.....	67

APPENDICES

APPENDIX 3.1: CITY OF RIALTO MUNICIPAL CODE
APPENDIX 3.2: COUNTY OF SAN BERNARDINO DEVELOPMENT CODE
APPENDIX 5.1: STUDY AREA PHOTOS
APPENDIX 5.2: NOISE LEVEL MEASUREMENT WORKSHEETS
APPENDIX 7.1: OFF-SITE TRAFFIC NOISE CONTOURS
APPENDIX 9.1: CADNAA OPERATIONAL NOISE MODEL INPUTS
APPENDIX 10.1: CADNAA CONSTRUCTION NOISE MODEL INPUTS
APPENDIX 10.2: CADNAA NIGHTTIME CONCRETE POUR CONSTRUCTION NOISE MODEL INPUTS

LIST OF EXHIBITS

EXHIBIT 1-B: SITE PLAN.....	6
EXHIBIT 1-C: EXISTING SPECIFIC PLAN.....	7
EXHIBIT 1-D: PROPOSED SPECIFIC PLAN AMENDMENT	8
EXHIBIT 2-A: TYPICAL NOISE LEVELS	9
EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION	12
EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION	14
EXHIBIT 3-A: RIALTO NOISE GUIDELINES FOR LAND USE PLANNING.....	16
EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS.....	27
EXHIBIT 8-A: SENSITIVE RECEIVER LOCATIONS.....	43
EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS.....	46
EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS.....	57

EXHIBIT 10-B: NIGHTTIME CONCRETE POUR NOISE SOURCE AND RECEIVER LOCATIONS	62
---	----

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS	1
TABLE 1: SPECIFIC PLAN AMENDMENT CHANGES TO PLANNING AREA BUILDOUT	4
TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS	17
TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY	23
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS	26
TABLE 6-1: OFF-SITE ROADWAY PARAMETERS.....	30
TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES	31
TABLE 6-3: TIME OF DAY VEHICLE SPLITS	31
TABLE 6-4: WITHOUT PROJECT VEHICLE MIX	31
TABLE 6-5: EXISTING WITH PROJECT VEHICLE MIX	32
TABLE 6-6: OY WITH PROJECT VEHICLE MIX	32
TABLE 6-7: FC WITH PROJECT VEHICLE MIX.....	32
TABLE 6-8: GPBO WITH PROJECT VEHICLE MIX	32
TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS	33
TABLE 7-2: EXISTING WITH PROJECT CONTOURS	33
TABLE 7-3: OY WITHOUT PROJECT CONTOURS	34
TABLE 7-4: OY WITH PROJECT CONTOURS	34
TABLE 7-5: FC WITHOUT PROJECT CONTOURS	34
TABLE 7-6: FC WITH PROJECT CONTOURS.....	35
TABLE 7-7: GPBO WITHOUT PROJECT CONTOURS.....	35
TABLE 7-8: GPBO WITH PROJECT CONTOURS.....	35
TABLE 7-9: EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES	38
TABLE 7-10: OY WITH PROJECT TRAFFIC NOISE LEVEL INCREASES	38
TABLE 7-11: FC WITH PROJECT TRAFFIC NOISE LEVEL INCREASES.....	39
TABLE 7-12: GPBO WITH PROJECT TRAFFIC NOISE LEVEL INCREASES.....	39
TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS	47
TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS	49
TABLE 9-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS	50
TABLE 9-4: OPERATIONAL NOISE LEVEL COMPLIANCE	50
TABLE 9-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES.....	52
TABLE 9-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES	53
TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS	56
TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY.....	58
TABLE 10-3: CONSTRUCTION NOISE LEVEL COMPLIANCE	58
TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT	59
TABLE 10-5: PROJECT CONSTRUCTION VIBRATION LEVELS.....	60
TABLE 10-6: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE.....	61

LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
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
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Pepper Avenue Specific Plan Amendment and Industrial Development Project
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 Pepper Avenue Specific Plan Amendment and Industrial Development Project ("Project"). The Project is proposed to consist of a single 485,000 square foot (sf) warehouse building. This study has been prepared to satisfy applicable City of Rialto standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this Pepper Avenue Specific Plan Amendment and Industrial Development Project Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	<i>Less Than Significant</i>	-
Operational Noise	9	<i>Less Than Significant</i>	-
Construction Noise	10	<i>Less Than Significant</i>	-
Construction Vibration		<i>Less Than Significant</i>	-
Concrete Pour Noise		<i>Less Than Significant</i>	-

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 Pepper Avenue Specific Plan Amendment and Industrial Development Project (“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 Pepper Avenue Specific Plan (“Specific Plan” or “Specific Plan area”) is located within the northeast portion of the City of Rialto. The Specific Plan area is located east of Eucalyptus Avenue, south of Interstate 210 (I-210), west of Meridian Avenue and north of Walnut Avenue. Pepper Avenue bisects the Specific Plan area into two east and west halves of the site. The proposed industrial development Project is located on the east side of Pepper Avenue south of Interstate-210 (APNs 0264-201-05, -06, and portions of-26) in the City of Rialto, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

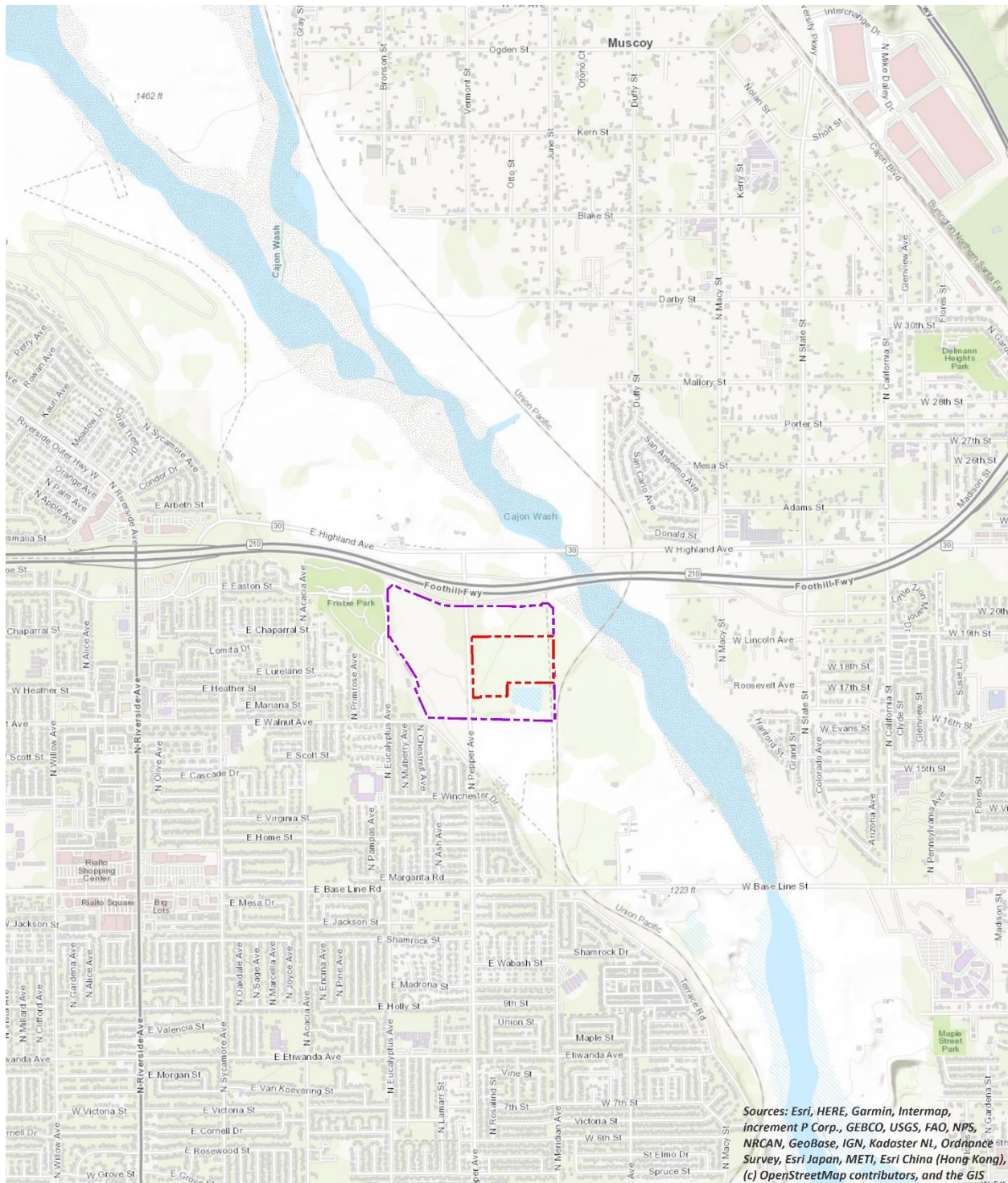
The proposed Specific Plan Amendment would redesignate the existing specific plan land use shown on Exhibit 1-C of approximately 35.56-acres of land on the east side of Pepper Avenue that is adjacent to the south of I-210 from Community Commercial to Light Industrial. Under the new land use in the proposed Specific Plan Amendment shown on Exhibit 1-D, development would change from the anticipated buildout of a portion of the Pepper Avenue Specific Plan area from 125,000 square feet of business park uses and 351,650 square feet of retail uses to 735,185 square feet of light industrial uses and 13,000 square feet of retail uses, as detailed in Table 1.

TABLE 1: SPECIFIC PLAN AMENDMENT CHANGES TO PLANNING AREA BUILDOUT

Existing Specific Plan				Proposed Specific Plan Amendment			
PA	Acres	Land Use	Buildout	PA	Acres	Land Use	Buildout
PA 1	15.1 acres	Community Commercial	95,000 SF Business Park 108,650 SF Retail	PA 1	2.86 acres	Community Commercial	13,000 SF Commercial Retail uses
PA 2	14.6 acres	Community Commercial	30,000 SF Business Park 127,000 sf Retail	PA 2	14.6 acres	Light Industrial	295,000 SF Industrial uses
PA 3	9.4 acres	Community Commercial w/ Residential Overlay	116,000 SF Retail	PA 3	9.4 acres	Light Industrial w/ Residential Overlay	190,000 SF Industrial uses ¹
				PA 10	11.56 acres	Light Industrial	250,185 SF Industrial uses
Total Square Footage			476,650 SF	Total Square Footage			748,185

In addition, the Project includes development and operation of a single 485,000 square foot (sf) warehouse building on PA 2 and PA3 (APNs 0264-201-05, -06, and -26). Although the site plan shows approximately 470,000 sf, the analysis will be based on 485,000 sf to allow a contingency for future changes in the site plan or development of additional mezzanine space, and therefore, the analysis overstates the Project's impacts. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2023. 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, and truck movements.

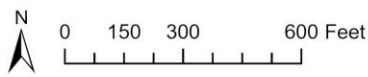
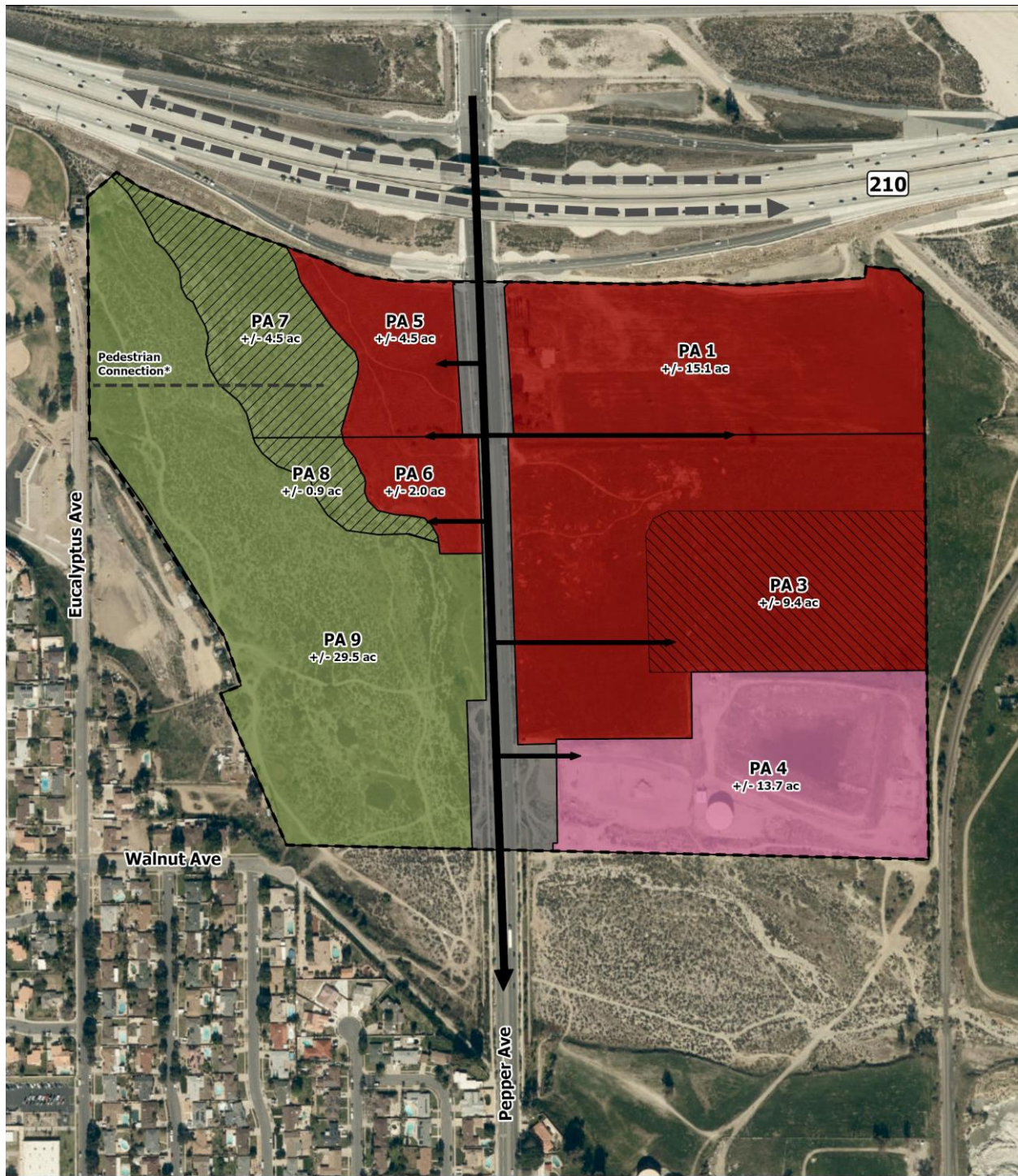
Exhibit 1-A: Location Map



6



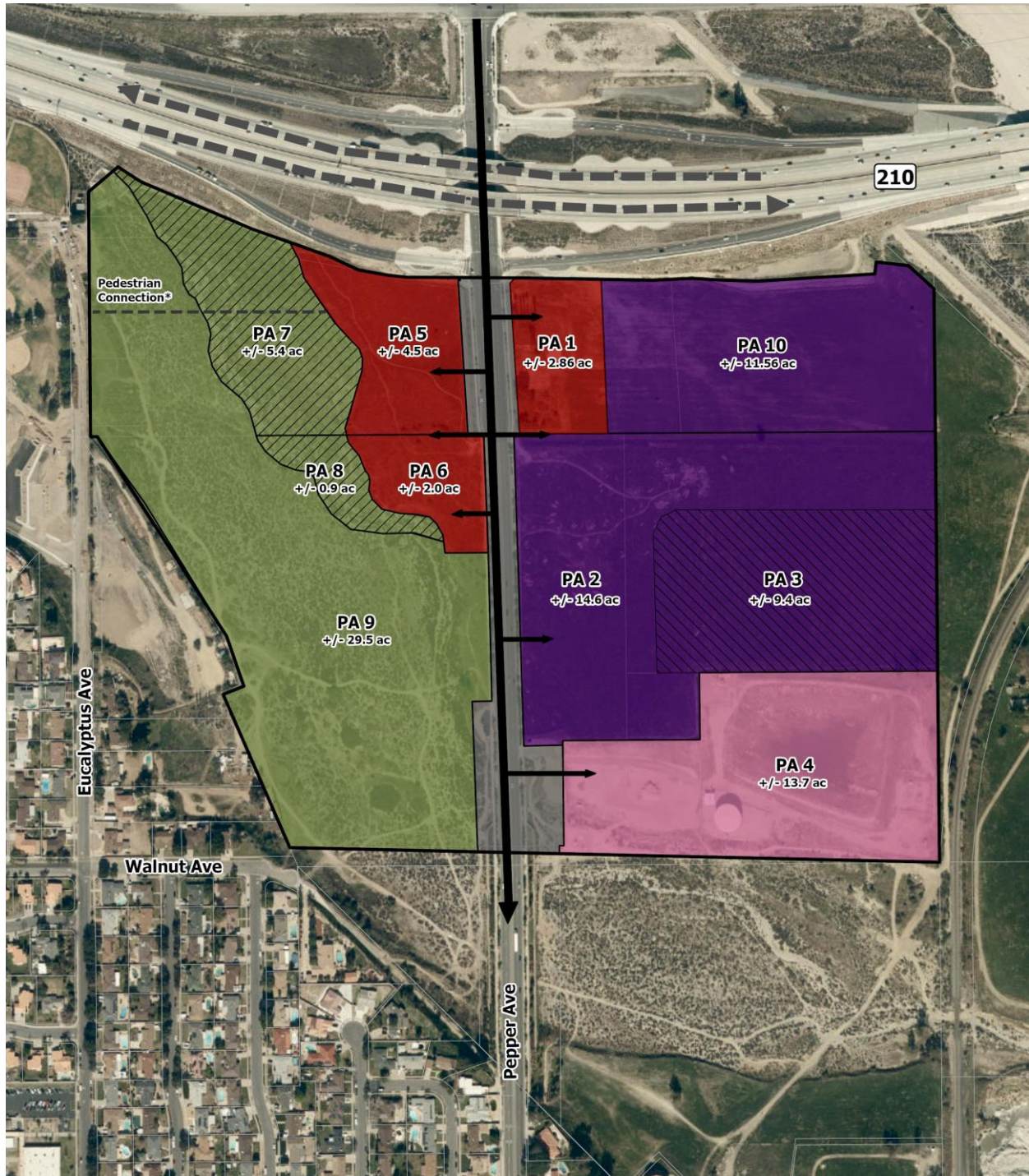
EXHIBIT 1-C: EXISTING SPECIFIC PLAN



Land Use Summary

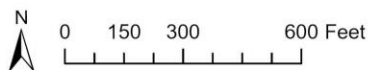
 Community Commercial	 Pepper Ave R.O.W
 Public Facility	 Residential Overlay
 Open Space	 Comm. Commercial Overlay

EXHIBIT 1-D: PROPOSED SPECIFIC PLAN AMENDMENT



Land Use Summary

 Light Industrial	 Pepper Ave R.O.W
 Community Commercial	 Residential Overlay
 Public Facility	 Comm. Commercial Overlay
 Open Space	



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		
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	SPEECH INTERFERENCE
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP 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 Rialto 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

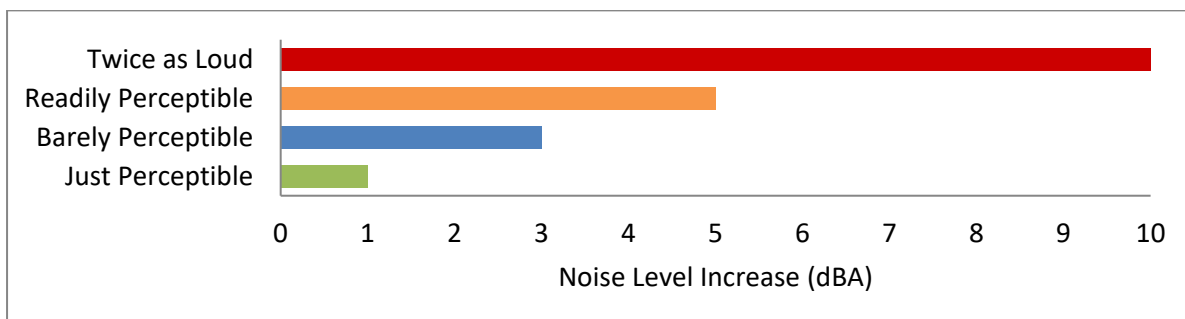
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development,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



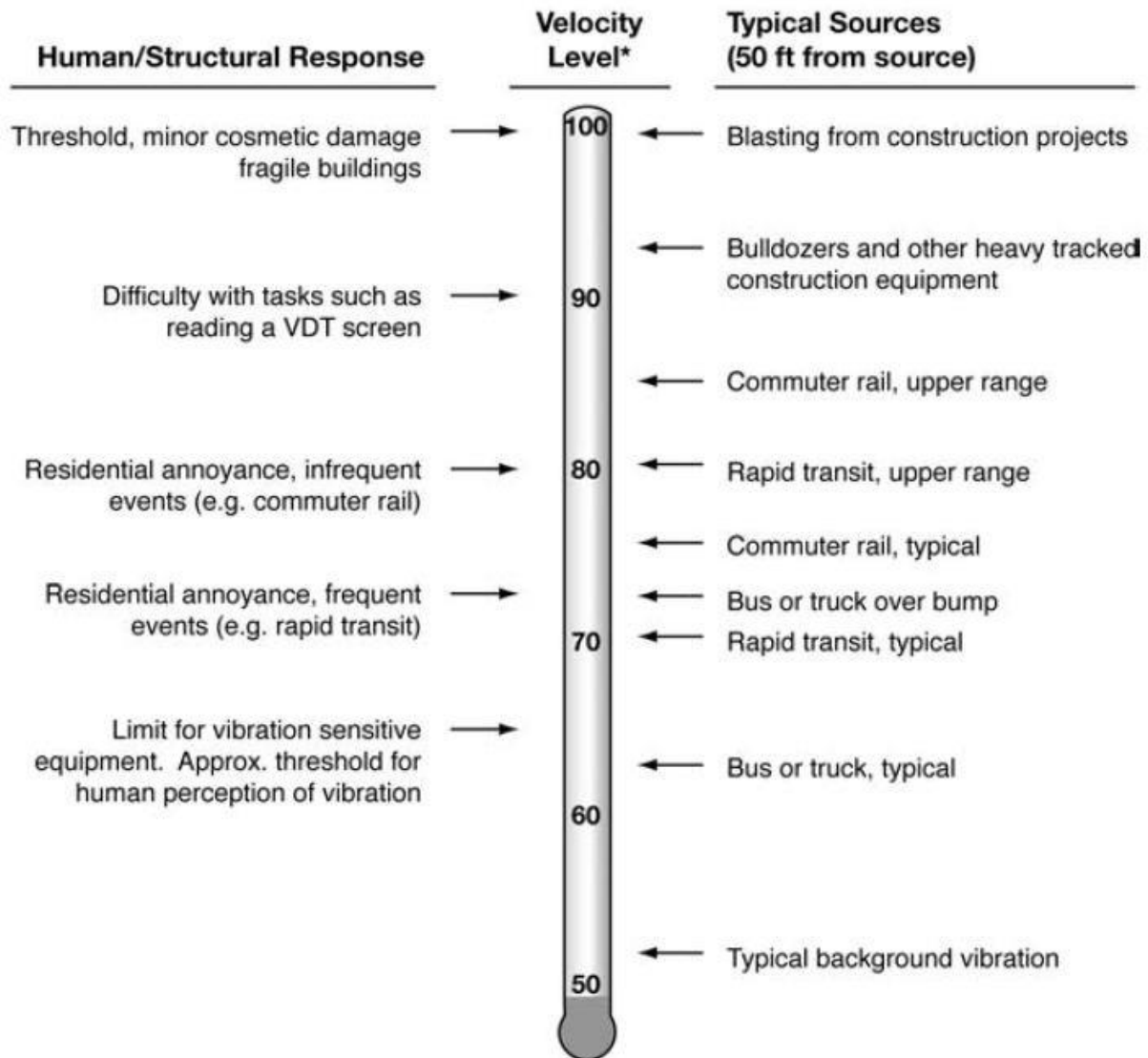
2.8 VIBRATION

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 and safety Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF RIALTO GENERAL PLAN SAFETY & NOISE ELEMENT

The City of Rialto *General Plan Safety & Noise Element* establishes policies to guard against the creation of any new noise and land use conflicts, and to minimize the impact of existing noise sources on the community. (10) The *Noise Element* does not contain specific transportation-related noise standards, however, it does provide land use compatibility guidelines for future development and the future noise contour boundaries for major roadways in the City of Rialto.

LAND USE COMPATIBILITY

The noise criteria identified in the City of Rialto Safety & Noise Element (Exhibit 5.5) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City of Rialto with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Rialto Noise Guidelines for Land Use Planning* matrix indicates that industrial land uses, such as the Project site, are considered *normally acceptable* with exterior noise levels below 70 dBA CNEL, and *conditionally acceptable* with noise levels below 75 dBA CNEL. Noise-sensitive residential land uses are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* with noise levels below 65 dBA CNEL. For *conditionally acceptable* land uses, *new development should be undertaken only after detailed analysis of noise reduction requirements are made*. (10)

EXHIBIT 3-A: RIALTO NOISE GUIDELINES FOR LAND USE PLANNING

Land Use Category	Community Noise Equivalent Level (CNEL), dB						
	55	60	65	70	75	80	85
R2 - Residential 2, R6 - Residential 6							
R12 - Residential 12							
R21 - Residential 21, R45 - Residential 45							
DMU - Downtown Mixed-Use							
CC - Community Commercial							
GC - General Commercial							
BP - Business Park, O - Office							
LI - Light Industrial							
GI - General Industrial							
P - Public Facility, P - School Facility							
OSRC Open Space - Recreation							
OSRS - Open Space - Resources							

			
Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Specified land use is satisfactory, assuming buildings are of conventional construction	New development should be undertaken only after detailed analysis of noise reduction requirements are made.	New development should be generally discouraged, if not, a detailed analysis of noise reduction requirements must be made.	New development should generally not be undertaken

Source: City of Rialto General Plan Safety & Noise Element, Exhibit 5.5.

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Pepper Avenue Specific Plan Amendment and Industrial Development Project, stationary-source (operational) noise such as the expected loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements are typically evaluated against standards established under a jurisdiction's Municipal Code. Section 9.50.050[B] of the City Rialto Municipal Code included in Appendix 3.1 restricts loading/unloading, the use of dollies, carts, forklifts, or wheeled equipment that causes any unnecessary noise within one thousand feet of a residence between the hours of 8:00 p.m. and 7:00 a.m. However, the City of Rialto Municipal Code does not identify specific exterior noise level standards (11). Therefore, the County of San Bernardino Development Code standards are used in this noise study to assess the potential impacts at adjacent sensitive receiver locations consistent with Section 9.50.050[B] of the City Rialto Municipal Code. The operational noise level standards used in this noise study are summarized on Table 3-1.

The San Bernardino County Code, Title 8 Development Code, Section 83.01.080(c) establishes the noise level standards for stationary noise sources. Since the Project's industrial land use will potentially impact adjacent noise-sensitive uses in the Project study area, this noise study relies on the more conservative residential noise level standards to describe potential operational noise impacts. For residential properties, the exterior noise level shall not exceed 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.) for both the whole hour, and for not more than 30 minutes in any hour. (12)

The exterior noise level standards shall apply for a cumulative period of 30 minutes in any hour, as well as the standard plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time. Further, Section 83.01.080(e) indicates that if the existing ambient noise level already exceeds any of the exterior noise level limit categories, then the standard shall be adjusted to reflect the ambient conditions. The County of San Bernardino operational noise level standards are shown on Table 3-1 and included in Appendix 3.2.

TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS

Time Period	Exterior Noise Level Standards (dBA) ¹				
	L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
Daytime (7:00 a.m. to 10:00 p.m.)	55	60	65	70	75
Nighttime (10:00 p.m. to 7:00 a.m.)	45	50	55	60	65

¹ County of San Bernardino Development Code, Title 8, Section 83.01.080 (Appendix 3.2). The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{50} is the noise level exceeded 50% of the time.

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

3.4 CONSTRUCTION NOISE STANDARDS

Section 9.50.050[F] of the City Rialto Municipal Code included in Appendix 3.1 restricts the use pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist or other similar devices and 9.50.050[G] electrically operated compressor, fan, or other similar devices between the hours of 8:00 p.m. and 7:00 a.m. In addition, Section 9.50.070 of the City of Rialto Municipal Code, states that construction activities are permitted between the hours of 7:00 a.m. to 5:30 p.m. Monday through Friday from October 1st to April 30th, 6:00 a.m. to 7:00 p.m. Monday through Friday from May 1st to September 30th, and 8:00 a.m. to 5:00 p.m. on Saturdays any time of year; with no activity allowed on Sundays or state holidays. (11) While the City establishes limits to the hours during which construction activity may take place, neither the City of Rialto or County of San Bernardino General Plans or Municipal Codes establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq} (8 p. 179).

3.5 CONSTRUCTION VIBRATION STANDARDS

To analyze vibration impacts originating from the operation and construction of the Pepper Avenue Specific Plan Amendment and Industrial Development Project, vibration-generating activities are typically evaluated against standards established under a jurisdiction's Municipal Code. Since the City of Rialto Municipal Code does not identify specific vibration level standards, the County Development Code vibration level standards are used in this analysis to assess potential impacts at nearby sensitive receiver locations.

The County Development Code, Section 83.01.090(a) states that vibration shall be no *greater than or equal to two-tenths inches per second measured at or beyond the lot line*. (12) Therefore, to determine if the vibration levels due to the operation and construction of the Project, the peak particle velocity (PPV) vibration level standard of 0.2 inches per second (in/sec) is used.

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 STANDARD EXCEEDANCES (THRESHOLD A)

Noise resulting from the Project is evaluated based on the potential of the project to exceed noise standards (the Appendix G CEQA Guidelines described above) and the change in ambient noise 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 the 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 exceeds the previously existing ambient noise level, the less acceptable the new noise 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 the 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. 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

The City of Rialto General Plan Safety & Noise Element, Exhibit 5.5, *Noise guidelines for Land Use Planning* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise levels for non-noise-sensitive light industrial land uses are 70 dBA CNEL. Noise levels greater than 70 dBA CNEL for light industrial land uses are considered *conditionally acceptable* per the *Noise Guidelines for Land Use Planning*. (10)

When the without Project noise levels at the non-noise-sensitive light industrial land uses are below the *normally acceptable* 70 dBA CNEL compatibility criteria, a Project generated *readily perceptible* 5 dBA or greater noise level increase is considered a significant impact.

When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL at light industrial uses pursuant to the General Plan land use compatibility criteria, a Project generated *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Rialto General Plan Safety & Noise Element, Exhibit 5.5, *Noise Guidelines for Land Use Planning* 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 the Pepper Avenue Specific Plan Amendment and Industrial Development Project are appropriately evaluated against the thresholds of significance outlined in the Caltrans Construction Vibration Manual defines the thresholds for readily or distinctly vibration levels for transient and continuous vibration sources as 0.24 and 0.08 PPV in/sec, respectively. The vibration from traffic is considered continuous and vibration from a single blasting event is a single transient event; however, many types of construction activities fall between a single event and a continuous source. A vibration level of 0.16 PPV in/sec is the middle point between the 0.08 and 0.24 PPV

in/sec. To be conservative a vibration level of 0.1 PPV in/sec is considered appropriate for a source that is both transient and continuous. Thus, this analysis uses 0.1 PPV in/sec threshold for construction activity under CEQA.

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest airport is the San Bernardino International Airport located roughly 5.8 miles southeast of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant*, and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive ¹	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise Sensitive ^{1,2}	if ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Residential	Exterior Noise Level Limit ³	55 dBA L _{eq}	45 dBA L _{eq}
	Noise-Sensitive ¹	if ambient is < 60 dBA L _{eq}	≥ 5 dBA L _{eq} Project increase	
		if ambient is 60 - 65 dBA L _{eq}	≥ 3 dBA L _{eq} Project increase	
		if ambient is > 65 dBA L _{eq}	≥ 1.5 dBA L _{eq} Project increase	
Construction	Noise-Sensitive	Noise Level Threshold ⁴	80 dBA L _{eq}	70 dBA L _{eq}
		Vibration Level Threshold ⁵	0.2 PPV in/sec	n/a

¹ FICON, 1992.

² The City of Rialto General Plan Safety & Noise Element, Exhibit 5.5.

³ County of San Bernardino Development Code, Title 8, Section 83.01.080 (Appendix 3.2)

⁴ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.

⁵ Section 83.01.090(a) of the County of San Bernardino County Code.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m. "n/a" = construction activities are not planned during the nighttime hours; "PPV" = peak particle velocity.

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 five locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, October 20th, 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 daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (16)

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, *that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community.* (8)

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

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

5.3 NOISE MEASUREMENT RESULTS

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

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

Location ¹	Description	Energy Average Noise Level (dBA L_{eq}) ²	
		Daytime	Nighttime
L1	Located northwest of the Project site near Frisbee Park at 1901 North Acacia Avenue.	61.1	63.8
L2	Located northeast of the Project site near single-family residence at 2281 West Washington Avenue.	62.7	64.7
L3	Located east of the Project site near single-family residence at 2185 Roosevelt Avenue.	54.3	55.4
L4	Located south of the Project site near single-family residence at 1438 Terrace Road.	68.6	64.5
L5	Located west of the Project site near single-family residence at 1698 North Eucalyptus Avenue.	64.2	65.6

¹ See Exhibit 5-A for the noise level measurement locations.

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

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

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1 , L_2 , L_5 , L_8 , L_{25} , L_{50} , L_{90} , L_{95} , and L_{99} percentile noise levels observed during the daytime and nighttime periods.

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 City of Rialto Noise Guidelines for Land Use Planning (see Exhibit 3-A), 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. (17) 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. (18) 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. (19)

6.1.1 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the three off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Rialto and County of San Bernardino General Plans and Circulation Elements, and the posted vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on the actual vehicle project trip generation in the *Pepper Avenue Specific Plan Amendment and Industrial Development Project Traffic Impact Analysis*, prepared by EPD Solutions, Inc. for the following traffic scenarios that include both implementation of the proposed Specific Plan Amendment and proposed industrial development Project. (20)

- Existing Conditions (E)
- Existing Conditions plus Project (E+P)
- Project Opening Year (OY) (Existing + Ambient Growth)
- Project Opening Year with Project (OYP)
- Future Conditions (FC) (Opening Day with Project plus Cumulative Projects)
- General Plan (GPBO)
- General Plan with Project (GPBPO+P)

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 at the boundary of the right-of-way of the receiving adjacent land use, 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	Pepper Av.	n/o Baseline Rd.	Major Arterial	Sensitive	60'	45
2	Pepper Av.	n/o Winchester Dr.	Major Arterial	Sensitive	60'	45
3	Pepper Av.	s/o I-210 EB Ramp	Major Arterial	Non-Sensitive	60'	45

¹ City of Rialto and County of San Bernardino General Plan Circulation Elements.

² Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

³ Distance to receiving land use is based upon the right-of-way distances.

To quantify the off-site noise levels, the actual 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 *Pepper Avenue Specific Plan Amendment and Industrial Development Project Traffic Impact Analysis*. Using the Project truck trips in combination with the Project trip distribution, EPD Solutions, 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 to 6-7 show the vehicle mixes used for the with Project (Specific Plan Amendment and industrial development Project) traffic scenarios.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes ¹							
			Existing		OY		FC		GPBO	
			Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Pepper Av.	n/o Baseline Rd.	20,955	21,104	21,793	21,942	24,991	25,140	28,236	28,385
2	Pepper Av.	n/o Winchester Dr.	22,129	22,278	23,014	23,163	26,356	26,505	25,412	25,561
3	Pepper Av.	s/o I-210 EB Ramp	22,129	22,810	23,014	24,375	30,778	31,459	33,837	34,518

¹ Pepper Avenue Industrial Warehouse Traffic Impact Analysis, EPD Solutions, 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	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

¹ Typical Southern California vehicle mix. Values rounded to the nearest one-hundredth.

"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			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	95.01%	1.59%	3.40%	100.00%

Based on an existing vehicle count taken at Pepper Avenue and Winchester Drive (Pepper Avenue Industrial Warehouse Traffic Impact Analysis, EPD Solutions, Inc.). Vehicle mix percentage values rounded to the nearest one-hundredth.

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 WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project ¹			
			Autos	Medium Trucks	Heavy Trucks	Total ²
1	Pepper Av.	n/o Baseline Rd.	95.04%	1.58%	3.38%	100.00%
2	Pepper Av.	n/o Winchester Dr.	95.04%	1.58%	3.38%	100.00%
3	Pepper Av.	s/o I-210 EB Ramp	85.79%	1.91%	12.30%	100.00%

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

TABLE 6-6: OY WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project ¹			
			Autos	Medium Trucks	Heavy Trucks	Total ²
1	Pepper Av.	n/o Baseline Rd.	95.04%	1.58%	3.38%	100.00%
2	Pepper Av.	n/o Winchester Dr.	95.04%	1.58%	3.38%	100.00%
3	Pepper Av.	s/o I-210 EB Ramp	84.86%	1.88%	13.25%	100.00%

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

TABLE 6-7: FC WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project ¹			
			Autos	Medium Trucks	Heavy Trucks	Total ²
1	Pepper Av.	n/o Baseline Rd.	95.04%	1.58%	3.38%	100.00%
2	Pepper Av.	n/o Winchester Dr.	95.03%	1.58%	3.38%	100.00%
3	Pepper Av.	s/o I-210 EB Ramp	86.08%	1.92%	12.00%	100.00%

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

TABLE 6-8: GPBO WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project ¹			
			Autos	Medium Trucks	Heavy Trucks	Total ²
1	Pepper Av.	n/o Baseline Rd.	95.03%	1.58%	3.39%	100.00%
2	Pepper Av.	n/o Winchester Dr.	95.04%	1.58%	3.38%	100.00%
3	Pepper Av.	s/o I-210 EB Ramp	86.15%	1.92%	11.93%	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 development of the proposed Project, noise contours were developed based on the *Pepper Avenue Specific Plan Amendment and Industrial Development Project Traffic Analysis* prepared by EPD Solutions, Inc. (20) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 to 7-8 present a summary of the exterior traffic noise levels for each traffic condition. Appendix 7.1 includes the traffic noise level contours worksheets for each traffic condition.

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	Pepper Av.	n/o Baseline Rd.	Sensitive	73.3	100	215	463
2	Pepper Av.	n/o Winchester Dr.	Sensitive	73.5	103	223	480
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	77.4	186	400	863

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

² The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

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

TABLE 7-2: EXISTING WITH PROJECT 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	Pepper Av.	n/o Baseline Rd.	Sensitive	73.3	100	215	464
2	Pepper Av.	n/o Winchester Dr.	Sensitive	73.6	104	223	481
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	77.8	200	430	927

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

² The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

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

TABLE 7-3: OY 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	Pepper Av.	n/o Baseline Rd.	Sensitive	73.5	102	221	475
2	Pepper Av.	n/o Winchester Dr.	Sensitive	73.7	106	229	493
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	77.5	191	411	886

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

² The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

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

TABLE 7-4: OY 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	Pepper Av.	n/o Baseline Rd.	Sensitive	73.5	103	221	476
2	Pepper Av.	n/o Winchester Dr.	Sensitive	73.7	106	229	494
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	78.4	218	469	1011

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

² The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

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

TABLE 7-5: FC 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	Pepper Av.	n/o Baseline Rd.	Sensitive	74.1	112	242	521
2	Pepper Av.	n/o Winchester Dr.	Sensitive	74.3	116	250	539
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	78.8	232	499	1075

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

² The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

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

TABLE 7-6: FC 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	Pepper Av.	n/o Baseline Rd.	Sensitive	74.1	112	242	521
2	Pepper Av.	n/o Winchester Dr.	Sensitive	74.3	116	251	540
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	79.1	244	526	1133

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

² The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

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

TABLE 7-7: GPBO 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	Pepper Av.	n/o Baseline Rd.	Sensitive	74.6	122	262	565
2	Pepper Av.	n/o Winchester Dr.	Sensitive	74.1	113	244	526
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	79.2	247	531	1145

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

² The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

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

TABLE 7-8: GPBO 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	Pepper Av.	n/o Baseline Rd.	Sensitive	74.6	122	262	565
2	Pepper Av.	n/o Winchester Dr.	Sensitive	74.2	114	245	527
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	79.5	259	558	1201

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

² The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

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

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Specific Plan Amendment and industrial development Project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the Traffic Analysis prepared by EPD Solutions., Inc. However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until Year 2023 conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels range from 73.3 to 77.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions ranging from 73.3 to 77.8 dBA CNEL. Table 7-9 shows that the Project off-site traffic noise level increases range from 0.0 to 0.4 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

7.3 OY TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Opening Year without Project conditions CNEL noise levels. The OY without Project exterior noise levels range from 73.5 to 77.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows that the OY with Project conditions will range from 73.5 to 78.4 dBA CNEL. Table 7-10 shows that the Project off-site traffic noise level increases range from 0.0 to 0.9 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

7.4 FC TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the Future Conditions without Project conditions CNEL noise levels. The FC without Project exterior noise levels range from 74.1 to 78.8 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows that the FC with Project conditions will range from 74.1 to 79.1 dBA CNEL. Table 7-11 shows that the Project off-site traffic noise level increases range from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

7.5 GPBO TRAFFIC NOISE LEVEL INCREASES

Table 7-7 presents the General Plan Buildout without Project conditions CNEL noise levels. As detailed in the Traffic Impact Analysis prepared for the Project, the GPBO consists of a 1 percent per year linear growth rate was identified and applied to the existing traffic volumes. Using this method, a growth of 24 percent was applied to the existing 2021 traffic volumes to forecast

future 2045 General Plan conditions. In addition, traffic from cumulative projects along Pepper Avenue (Pepper Avenue Development and Foothill Freeway Commerce Center) were also included in the General Plan Buildout traffic volumes. The GPBO without Project exterior noise levels range from 74.1 to 79.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-8 shows that the GPBO with Project conditions will range from 74.2 to 79.5 dBA CNEL. Table 7-12 shows that the Project off-site traffic noise level increases range from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

TABLE 7-9: 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	Pepper Av.	n/o Baseline Rd.	Sensitive	73.3	73.3	0.0	1.5	No
2	Pepper Av.	n/o Winchester Dr.	Sensitive	73.5	73.6	0.1	1.5	No
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	77.4	77.8	0.4	3.0	No

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

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

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

TABLE 7-10: OY 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	Pepper Av.	n/o Baseline Rd.	Sensitive	73.5	73.5	0.0	1.5	No
2	Pepper Av.	n/o Winchester Dr.	Sensitive	73.7	73.7	0.0	1.5	No
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	77.5	78.4	0.9	3.0	No

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

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

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

TABLE 7-11: FC 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	Pepper Av.	n/o Baseline Rd.	Sensitive	74.1	74.1	0.0	1.5	No
2	Pepper Av.	n/o Winchester Dr.	Sensitive	74.3	74.3	0.0	1.5	No
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	78.8	79.1	0.3	3.0	No

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

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

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

TABLE 7-12: GPBO 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	Pepper Av.	n/o Baseline Rd.	Sensitive	74.6	74.6	0.0	1.5	No
2	Pepper Av.	n/o Winchester Dr.	Sensitive	74.1	74.2	0.1	1.5	No
3	Pepper Av.	s/o I-210 EB Ramp	Non-Sensitive	79.2	79.5	0.3	3.0	No

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

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

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

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, outpatient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, five receiver locations in the vicinity of the Project site were identified. 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 Frisbee Park at 1901 North Acacia Avenue, approximately 1,481 feet west of the Project site. Receiver R1 is placed in the park's playing field. 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 2294 Lincoln Avenue, approximately 2,018 feet northeast of the Project site. Receiver 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 residence at 2185 Roosevelt Avenue, approximately 2,757 feet east of the Project site. Receiver R3 is placed in the private outdoor living areas (backyard) facing the Project site. 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 1475 North Pepper Avenue, approximately 1,205 feet south of the Project site. Receiver 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 existing noise sensitive residence at 1645 North Eucalyptus Avenue, approximately 1,162 feet west of the Project site. Receiver R5 is placed in the private outdoor living areas (backyard) 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 a non-conforming residential home located at 1398 North Lassen Street, approximately 255 feet southeast of the Project site. A 24-hour noise measurement was taken, L3, 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 Pepper Avenue Specific Plan Amendment and Industrial Development Project. Exhibit 9-A identifies the noise source locations used to assess the operational noise levels.

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, and truck movements.

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, and truck movements 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. (16)

46



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

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.

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 an 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 exiting the Project driveways and maneuvering in and out of the outdoor loading dock activity area.

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 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, and truck movements, 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. Table 9-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 33.7 to 48.1 dBA L_{eq} .

TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source ¹	Operational Noise Levels by Receiver Location (dBA L_{eq})					
	R1	R2	R3	R4	R5	R6
Loading Dock Activity	36.8	34.5	33.5	41.0	41.9	48.0
Roof-Top Air Conditioning Units	21.0	19.4	16.7	21.8	21.9	24.3
Trash Enclosure Activity	6.8	8.1	5.8	10.3	10.4	21.4
Parking Lot Vehicle Movements	29.5	13.7	13.4	24.8	31.3	23.0
Truck Movements	27.5	20.3	16.8	24.1	24.8	28.5
Total (All Noise Sources)	38.0	34.8	33.7	41.2	42.4	48.1

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

Table 9-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 33.7 to 48.1 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 9-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source ¹	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Loading Dock Activity	36.8	34.5	33.5	41.0	41.9	48.0
Roof-Top Air Conditioning Units	18.6	17.0	14.3	19.3	19.5	21.9
Trash Enclosure Activity	5.8	7.2	4.8	9.4	9.4	20.4
Parking Lot Vehicle Movements	29.5	13.7	13.4	24.8	31.3	23.0
Truck Movements	27.5	20.3	16.8	24.1	24.8	28.5
Total (All Noise Sources)	38.0	34.8	33.7	41.2	42.4	48.1

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 County of San Bernardino exterior noise level standards at nearest noise-sensitive receiver locations. Table 9-4 shows the operational noise levels associated with Pepper Avenue Specific Plan Amendment and Industrial Development Project will satisfy the Section 83.01.080 of the County of San Bernardino Development Code at the nearest receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearest noise-sensitive receiver locations.

TABLE 9-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location ¹	Project Operational Noise Levels (dBA L _{eq}) ²		Noise Level Standards (dBA L _{eq}) ³		Noise Level Standards Exceeded? ⁴	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	38.0	38.0	55	45	No	No
R2	34.8	34.8	55	45	No	No
R3	33.7	33.7	55	45	No	No
R4	41.2	41.2	55	45	No	No
R5	42.4	42.4	55	45	No	No
R6	48.1	48.1	55	55.4	No	No

¹ See Exhibit 8-A for the receiver locations.

² Proposed Project operational noise levels as shown on Tables 9-2 and 9-3.

³ Exterior noise level standards, as shown on Table 4-1. Exterior noise level standard for R6 adjusted to reflect the ambient noise levels (see Table 5-1) per the County of San Bernardino Development Code Section 83.01.080(e).

⁴ Do the estimated Project operational noise source activities exceed the noise level standards?

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

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:

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

Where “SPL1,” “SPL2,” etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. As indicated on Tables 9-5 and 9-6, the Project will generate daytime and nighttime operational noise level increases ranging from 0.0 to 0.2 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented on Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 9-5: 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	38.0	L1	61.1	61.1	0.0	5.0	No
R2	34.8	L2	62.7	62.7	0.0	5.0	No
R3	33.7	L3	54.3	54.3	0.0	5.0	No
R4	41.2	L4	68.6	68.6	0.0	1.5	No
R5	42.4	L5	64.2	64.2	0.0	5.0	No
R6	48.1	L3	54.3	55.2	0.9	5.0	No

¹ See Exhibit 8-A for the receiver locations.

² Total Project daytime operational noise levels as shown on Table 9-2.

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 9-6: 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	38.0	L1	63.8	63.8	0.0	5.0	No
R2	34.8	L2	64.7	64.7	0.0	5.0	No
R3	33.7	L3	55.4	55.4	0.0	5.0	No
R4	41.2	L4	64.5	64.5	0.0	5.0	No
R5	42.4	L5	65.6	65.6	0.0	1.5	No
R6	48.1	L3	55.4	56.1	0.7	5.0	No

¹ See Exhibit 8-A for the receiver locations.

² Total Project nighttime operational noise levels as shown on Table 9-3.

³ Reference noise level measurement locations as shown on Exhibit 5-A.

⁴ Observed nighttime ambient noise levels as shown on Table 5-1.

⁵ Represents the combined ambient conditions plus the Project activities.

⁶ The noise level increase expected with the addition of the proposed Project activities.

⁷ Significance increase criteria as shown on Table 4-1.

This page intentionally left blank

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 locations in relation to the nearest sensitive receiver locations previously described in Section 8. According to Section 9.50.050[F] of the City of Rialto Municipal Code the use pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist or other similar devices and 9.50.050[G] electrically operated compressor, fan or other similar devices are restricted between the hours of 8:00 p.m. and 7:00 a.m. Section 9.50.070 of the City of Rialto Municipal Code, states that construction activities are permitted between the hours of 7:00 a.m. to 5:30 p.m. Monday through Friday from October 1st to April 30th, 6:00 a.m. to 7:00 p.m. Monday through Friday from May 1st to September 30th, and 8:00 a.m. to 5:00 p.m. on Saturdays any time of year; with no activity allowed on Sundays or state holidays. (11)

In addition, since neither the City of Rialto General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA Leq as a reasonable threshold for noise sensitive residential land use. (8 p. 179)

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. (21) 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.

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 42.0 to 62.2 dBA L_{eq} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-1: 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.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS

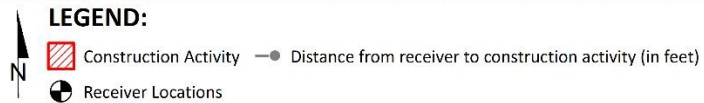
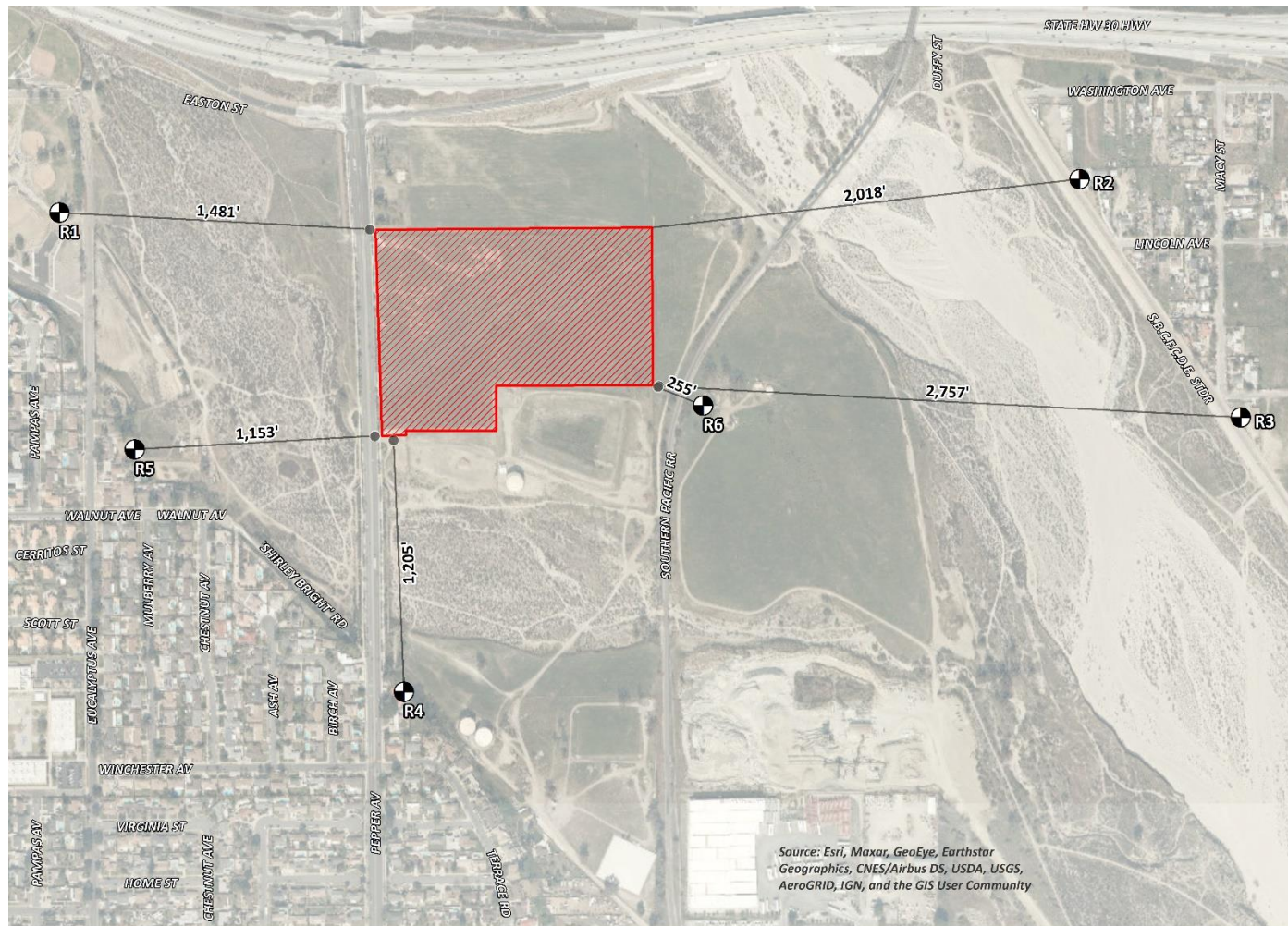


TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location ¹	Construction Noise Levels (dBA L _{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels ²
R1	49.9	52.9	50.9	52.9	46.9	52.9
R2	47.4	50.4	48.4	50.4	44.4	50.4
R3	45.0	48.0	46.0	48.0	42.0	48.0
R4	51.9	54.9	52.9	54.9	48.9	54.9
R5	51.8	54.8	52.8	54.8	48.8	54.8
R6	59.2	62.2	60.2	62.2	56.2	62.2

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 10.1.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 10-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location ¹	Construction Noise Levels (dBA L _{eq})		
	Highest Construction Noise Levels ²	Threshold ³	Threshold Exceeded? ⁴
R1	52.9	80	No
R2	50.4	80	No
R3	48.0	80	No
R4	54.9	80	No
R5	54.8	80	No
R6	62.2	80	No

¹ Noise receiver locations are shown on Exhibit 10-A.

² Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 10-2.

³ Construction noise level thresholds as shown on Table 4-1.

⁴ Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.5 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground

vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for 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: $PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$

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

Using the vibration source level of construction equipment provided on Table 10-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 255 to 2,757 feet from Project construction activities, construction vibration velocity levels are estimated to be from 0.000 to 0.003 in/sec and will remain below the County of San Bernardino 0.2 PPV in/sec threshold for vibration at all receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter.

TABLE 10-5: PROJECT 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	1,481'	0.000	0.000	0.000	0.000	0.000	0.2	No
R2	2,018'	0.000	0.000	0.000	0.000	0.000	0.2	No
R3	2,757'	0.000	0.000	0.000	0.000	0.000	0.2	No
R4	1,205'	0.000	0.000	0.000	0.000	0.000	0.2	No
R5	1,153'	0.000	0.000	0.000	0.000	0.000	0.2	No
R6	255'	0.000	0.001	0.002	0.003	0.003	0.2	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 County of San Bernardino Development Code, Section 83.01.090(a) (Appendix 3.2)⁵ Does the peak vibration exceed the acceptable vibration thresholds?

"PPV" = Peak Particle Velocity

10.6 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 area as shown on Exhibit 10-B. Since the nighttime concrete pours will take place outside the permitted City of Rialto Municipal Code Section 9.50.070 hours of 7:00 a.m. to 5:30 p.m. Monday through Friday from October 1st to April 30th, 6:00 a.m. to 7:00 p.m. Monday through Friday from May 1st to September 30th, and 8:00 a.m. to 5:00 p.m. on Saturdays any time of year, the Project Applicant shall be required to obtain authorization for nighttime work from the City of Rialto. Any nighttime construction noise activities shall satisfy the FTA residential 70 dBA L_{eq} noise limit outlined in Table 4-1. The reference concrete pour noise levels are expected to occur during the building construction stage and range from 73 to 82 dBA L_{eq} at 50 feet with a combined noise level of 83 dBA L_{eq} as previously shown on Table 10-1.

As shown on Table 10-6, the noise levels associated with the nighttime concrete pour activities (paving) are estimated to range from 41.6 to 53.8 dBA L_{eq} and will satisfy the FTA 70 dBA L_{eq} nighttime residential noise level threshold at all the receiver locations. 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 10-6: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location ¹	Construction Noise Levels (dBA L _{eq})		
	Paving Construction ²	Nighttime Threshold ³	Threshold Exceeded? ⁴
R1	46.4	70	No
R2	44.2	70	No
R3	41.6	70	No
R4	47.1	70	No
R5	47.5	70	No
R6	53.8	70	No

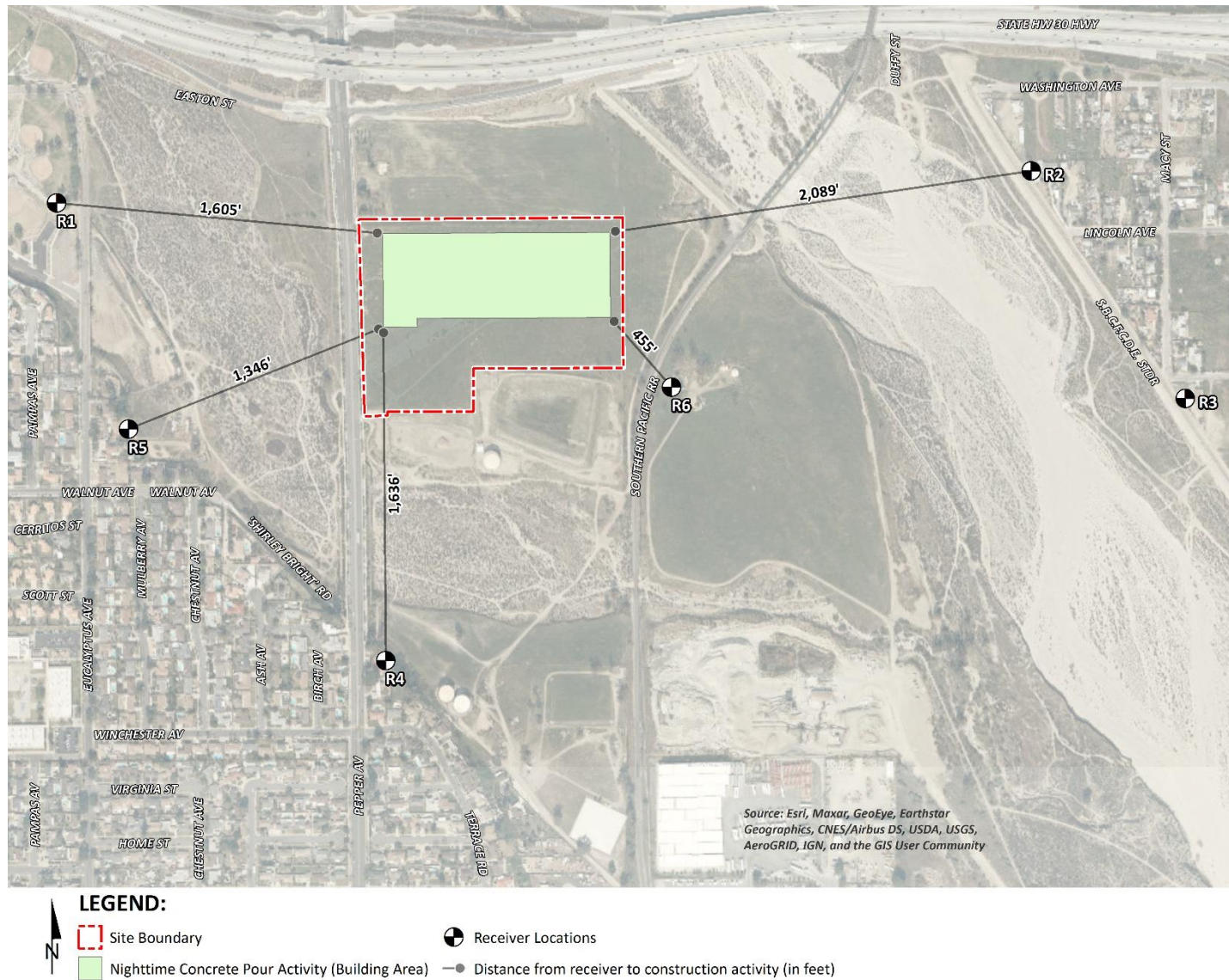
¹ Noise receiver locations are shown on Exhibit 8-B.

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 4-1.

⁴ Do the estimated Project construction noise levels exceed the nighttime construction noise level threshold?

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



11 PROPOSED PEPPER AVENUE SPECIFIC PLAN AMENDMENT

The proposed Project includes a Specific Plan Amendment (referred to as the Pepper Avenue Specific Plan Amendment) would split Planning Area (PA) 1 into two separate PAs – PA 1, encompassing approximately 2.86 acres, and a new PA 10, encompassing approximately 11.56 acres. The reduced PA 1 would remain as Community Commercial, and no land use designation changes would occur. The proposed Pepper Avenue Specific Plan Amendment applies the new Light Industrial land use designation to PA 2, PA 3, and the new PA 10. In addition to the proposed light industrial development project proposed in PA 2 and PA 3, buildout of the proposed Specific Plan Amendment includes 250,185 sf of warehouse use in PA 10, a 4,600-sf convenience store/gas station, 2,400 sf of fast-food restaurant with drive-through window use, 2,400 sf of coffee shop with drive-through use, and a 3,600-sf strip retail plaza in PA 1.

It should be noted that operational and construction-related noise levels for the Pepper Avenue Specific Plan Amendment buildout of PA 1 and PA 10 are speculative and cannot be accurately determined at this stage of the planning process. Therefore, such impacts are too speculative to evaluate (see CEQA Guidelines Section 15145). To the extent that specific projects are known, those projects have already been or would be subjected to their own environmental analysis. Additionally, due to the variables that must be considered when examining the operational and construction related impacts, it would be speculative to state conclusively the Project would cause a significant noise impact.

This page intentionally left blank

12 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway 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. **City of Rialto.** *General Plan Safety & Noise Element.* December 2010.
11. —. *Municipal Code, Chapter 9.50 - Noise Control.*
12. **County of San Bernardino.** *Code of Ordinances, Title 8 Development Code, Chapter 83.01 General Performance Standards.*
13. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
14. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
15. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
16. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
17. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
18. **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.
19. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
20. **Environment Planning Development Solutions, Inc.** *Pepper Industrial Building Traffic Impact Analysis.* May 2022.

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

13 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Pepper Avenue Specific Plan Amendment and Industrial Development 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 San Diego • March, 2018
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 RIALTO MUNICIPAL CODE

This page intentionally left blank

Chapter 9.50 - NOISE CONTROL

Sections:

9.50.010 - Purpose and intent.

- A. It is the purpose of these regulations to implement the goals and objectives of the noise element of the city's general plan to establish community-wide noise standards and to serve as a reference for locating other city regulations relating to noise in the community. It is further the purpose of these regulations to recognize that the existence of excessive noise within the city is a condition that is detrimental to the health, safety, welfare and quality of life of the citizens and shall be regulated in the public interest.
- B. In furtherance of the foregoing purpose, it is found and declared as follows:
1. The making, creation or maintenance of such loud, unnecessary, unnatural or unusual noises that are prolonged, unusual, annoying, disturbing and unnatural in their time, place and use are a detriment to public health, comfort, convenience, safety, general welfare and the peace and quiet of the city and its inhabitants; and
 2. The public necessity for the provisions and prohibitions contained in and enacted by this chapter is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions set forth in and enacted by this chapter are in pursuance of and for the purpose of securing and promoting the public health, comfort, convenience, safety, general welfare and property and the peace and quiet of the city and its inhabitants.

(Ord. 1417 § 1 (part), 2008)

9.50.020 - Definitions.

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

"Construction equipment" means tools, machinery or equipment used in connection with construction operations, including all types of "special construction" equipment as defined in the pertinent sections of California Vehicle Code when used in the construction process on any construction site, home improvement site or property maintenance site, regardless of whether such site be located on highway or off highway.

"Enforcement officer" means a city code enforcement officer or peace officer authorized to enforce the provisions and prohibitions of this chapter pursuant to Section 9.50.080.

"Plainly audible" means any sound that can be detected by a person using his or her unaided hearing faculties. As an example, if the sound source under investigation is a portable or personal vehicular sound amplification or reproduction device, the investigating enforcement officer need not determine the title of a song, specific words, or the artist performing the song. The detection of the vibration from the rhythmic bass component of the music is sufficient to constitute a plainly audible sound.

"Public right-of-way" means any street, avenue, boulevard, highway, sidewalk, alley or similar place, owned or controlled by a government entity.

"Public space" means any real property or structures on real property, owned by a government entity and normally accessible to the public, including but not limited to parks and other recreation areas.

"Responsible person" means:

1. Any person who owns, leases or is lawfully in charge of the property or motor vehicle where the noise violation takes place; or
2. Any person who owns or controls the source of the noise or violation. If the responsible person is a minor, then the parent or guardian who has custody of the child at the time of the violation shall be the responsible person who is liable under this chapter.

(Ord. 1417 § 1 (part), 2008)

9.50.030 - Prohibited acts.

A. It is unlawful for any person to engage in the following activities:

1. Sounding any horn or signal device on any automobile, motorcycle, bus or other motor vehicle in any other manner or circumstances or for any other purpose than required or permitted by the Vehicle Code or other California laws.
2. Racing the engine of any motor vehicle while the vehicle is not in motion, except when necessary to do so in the course of repairing, adjusting or testing the same.
3. Operating or permitting the use of any motor vehicle on any public right-of-way or public place or on private property within a residential zone for which the exhaust muffler, intake muffler or any other noise abatement device has been modified or changed in a manner such that the noise emitted by the motor vehicle is increased above that emitted by the vehicle as originally manufactured.
4. Operating or permitting the use or operation of personal or commercial music or sound amplification or production equipment that is:
 - a. Plainly audible across property boundaries;
 - b. Plainly audible through partitions common to two residences within a building;
 - c. Plainly audible at a distance of fifty feet in any direction from the source of music or sound between the hours of eight a.m. and ten p.m.; or
 - d. Plainly audible at a distance of twenty-five feet in any direction from the source of music or sound between the hours of ten p.m. and eight a.m.
5. The intentional sounding or permitting the sounding outdoors of any fire, burglar, or civil defense alarm, siren, whistle, or any motor vehicle burglar alarm, except for emergency purposes or for testing, unless such alarm is terminated within fifteen minutes of activation.
6. Creating excessive noise adjacent to any school, church, court or library while the same is in use, or adjacent to any hospital or care facility, which unreasonably interferes with the workings of such institution, or which disturbs or unduly annoys patients in the hospital, students in the school, users of the court or library, provided conspicuous signs are displayed in such streets indicating the presence of a school, institution of learning, church, court or hospital.
7. Making or knowingly and unreasonably permitting to be made any unreasonably loud, unnecessary or unusual noise that disturbs the comfort, repose, health, peace and quiet or which causes discomfort or annoyance to any reasonable person of normal sensitivity. The characteristics and conditions that may be considered in determining whether this section has been violated, include, but are not limited to, the following:
 - a. The level of noise;

- b. Whether the nature of the noise is usual or unusual;
 - c. Whether the origin of the noise is natural or unnatural;
 - d. The level of the background noise;
 - e. The proximity of the noise to sleeping facilities;
 - f. The nature and zoning of the areas within which the noise emanates;
 - g. The density of the inhabitation of the area within which the noise emanates;
 - h. The time of day or night the noise occurs;
 - i. The duration of the noise;
 - j. Whether the noise is recurrent, intermittent or constant; and
 - k. Whether the noise is produced by a commercial or noncommercial activity.
- B. A violation of this section is an infraction and a public nuisance.
- C. A violation of this section may result in the following:
- 1. Issuance of an infraction citation;
 - 2. Issuance of a notice of public nuisance;
 - 3. Imposition of criminal and civil penalties; and
 - 4. Confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise.
- D. An enforcement officer who encounters a violation of this section may issue a written notice to the responsible person demanding immediate abatement of the violation (written notice). The written notice shall inform the recipient that a second violation of the same provision within a seventy-two-hour period may result in the issuance of a criminal citation and/or notice of public nuisance, the imposition of criminal and civil penalties, and confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise.
- E. Any peace officer who encounters a second violation of this section within a seventy-two-hour period following issuance of a written notice is empowered to confiscate and impound as evidence, any or all of the components amplifying or transmitting the sound.
- F. Any person claiming legal ownership of the items confiscated and impounded under this section may request the return of the item by filing a written request with the police department within seven calendar days of the confiscation. Such requests shall be processed in accordance with the procedures adopted by the department.

(Ord. 1417 § 1 (part), 2008)

9.50.040 - Excessive noise and vibration emanating from a motor vehicle.

- A. No person shall operating or occupy a motor vehicle on any public right-of-way, public place or private property, while operating or permitting the use or operation of any radio, stereo receiver, musical instrument, television, computer, compact disc player, tape recorder, cassette player or any other device for the production or reproduction of sound from within the motor vehicle so that the sound is plainly audible at a distance of fifty feet from such vehicle, or in the case of a motor vehicle on private property, beyond the property line.
- B. Pursuant to Section 9.50.130, a violation of this section is a misdemeanor offense and a public nuisance.
- C. A violation of this section may result in the following:
 - 1. Issuance of a misdemeanor citation;

2. Issuance of a notice of public nuisance;
 3. Imposition of criminal and civil penalties; and
 4. Immediate confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise or the immediate confiscation and impoundment of the motor vehicle to which the component is attached if the same may not be removed without causing harm to the vehicle or the component.
- D. Any person claiming legal ownership of a motor vehicle confiscated and impounded under this section may request the return of the vehicle by filing a written request with the police department within seven calendar days of the confiscation. Such requests shall be processed in accordance with the procedures adopted by the department.
- E. Any person claiming legal ownership of the items confiscated and impounded under this section, other than a motor vehicle, may request the return of the item by filing a written request with the police department, which shall be processed in accordance with the procedures adopted by the department.

(Ord. 1417 § 1 (part), 2008)

9.50.050 - Controlled hours of operation.

It is unlawful for any person to engage in the following activities other than between the hours of seven a.m. and eight p.m. in all zones:

- A. Operate or permit the use of powered model vehicles and planes;
- B. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous or unnecessary noise within one thousand feet of a residence;
- C. Operate or permit the use of domestic power tools, or machinery or any other equipment or tool in any garage, workshop, house or any other structure;
- D. Operate or permit the use of gasoline or electric powered leaf blowers, such as commonly used by gardeners and other persons for cleaning lawns, yards, driveways, gutters and other property;
- E. Operate or permit the use of privately operated street/parking lot sweepers or vacuums, except that emergency work and/or work necessitated by unusual conditions may be performed with the written consent of the city manager;
- F. Operate or permit the use of pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist or other similar devices;
- G. Operate or permit the use of electrically operated compressor, fan, and other similar devices;
- H. Perform ground maintenance on golf course grounds and tennis courts contiguous to golf courses that creates a noise disturbance across a residential or commercial property line;
- I. Operate or permit the use of any motor vehicle with a gross vehicle weight rating in excess of ten thousand pounds, or of any auxiliary equipment attached to such a vehicle, including but not limited to refrigerated truck compressors, for a period longer than fifteen minutes in any hour while the vehicle is stationary and on a public right-of-way or public space except when movement of the vehicle is restricted by other traffic;
- J. Repair, rebuild, reconstruct or dismantle any motor vehicle or other mechanical equipment or devices in a manner so as to be plainly audible across property lines.

(Ord. 1417 § 1 (part), 2008)

9.50.060 - Exemptions.

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

- A. Those noise events in the community (e.g., airport noise, arterial traffic noise, railroad noise) that are more accurately measured by application of the general plan noise element policy, utilizing the community noise equivalent level (CNEL) method;
- B. Activities conducted on the grounds of any public or private school during regular hours of operation;
- C. Outdoor gatherings, public dances, shows and sporting and entertainment events provided the events are authorized by the city;
- D. Activities conducted at public spaces during regular hours of operation;
- E. Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work;
- F. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions;
- G. Mobile noise sounds associated with agricultural operations provided such operations do not take place between the hours of eight p.m. and seven a.m. on weekdays, including Saturdays, or at any time on Sunday or a state holiday;
- H. Mobile noise sources associated with agricultural pest control through pesticide application;
- I. Warning devices necessary for the protection of the public safety, including, but not limited to, police, fire and ambulance sirens and train horns and sounds for the purpose of alerting persons to the existence of an emergency;
- J. Construction, repair or excavation necessary for the immediate preservation of life or property;
- K. Construction, operation, maintenance and repairs of equipment, apparatus or facilities of park and recreation departments, public work projects or essential public services and facilities, including trash collection and those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission;
- L. Construction, repair or excavation work performed pursuant to a valid written agreement with the city or any of its political subdivisions which agreement provides for noise mitigation measures;
- M. Any activity to the extent regulation thereof has been preempted by state or federal law;
- N. Any activity or noise source governed elsewhere in this code. Such activities include but are not limited to:
 - 1. Security alarm systems (see Chapter 7.01 of this code),
 - 2. Animal noise (see Title 6 of this code),
 - 3. Sound trucks and advertising by sound (see Chapter 9 of this code),
 - 4. Performance standards for various commercial and industrial uses (see Title 18 of this code);
- O. Sounds generated in commercial and industrial zones that are necessary and incidental to the uses permitted therein;
- P. Sounds generated from or incidental to emergency repairs to any public works function; and
- Q. Sounds generated in connection with speech or communication protected by the U.S. Constitution or the California Constitution, except to the extent such sounds are subject to permissible time, manner and place restrictions.

(Ord. 1417 § 1 (part), 2008)

9.50.070 - Disturbances from construction activity.

- A. No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours provided for by subsection B of this section.
- B. The permitted hours for such construction work are as follows:

1. October 1st through April 30th.

Monday—Friday	7:00 a.m. to 5:30 p.m.
Saturday	8:00 a.m. to 5:00 p.m.
Sunday	No permissible hours
State holidays	No permissible hours

2. May 1st through September 30th.

Monday—Friday	6:00 a.m. to 7:00 p.m.
Saturday	8:00 a.m. to 5:00 p.m.
Sunday	No permissible hours
State holidays	No permissible hours

- C. For purposes of this section, the following definitions shall apply:
1. "Building" means any structure used or intended for supporting or sheltering any use or occupancy.
 2. "Structure" means that which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.
- D. For purposes of this section, the following exceptions shall apply:
1. Emergency repair of existing installations, equipment, or appliances; and
 2. Such work that complies with the terms and conditions of a written early work permit issued by the city manager or his or her designee upon a showing of a sufficient need and justification for the permit due to hot or inclement weather, the use of an unusually long process material, or other circumstances of an unusual and compelling nature.

(Ord. 1417 § 1 (part), 2008)

9.50.080 - Administration.

Except as otherwise provided, the provisions and prohibitions of this chapter shall be jointly administered by and the responsibility of the city's police department and department of development services, code enforcement division. The chief of police may adopt administrative rules and regulations which are consistent with the provisions of this chapter for the purpose of implementing the same.

(Ord. 1417 § 1 (part), 2008)

9.50.090 - Cost recovery for second response.

- A. Any and all personnel who may be deployed by the city pursuant to this chapter shall be deemed to be on regular duty under the general supervision of the chief of police, fire chief, the director of development services or other city department director, and any officer or employee in charge under their respective commands and shall be entitled to any and all benefits provided by law or ordinance for such personnel as employees of the city, except that the rate of pay for such special security services shall be set forth herein. The pay for each employee thus employed during such employment shall be at his or her actual rate of pay. The chief of police or other department director, as the case may be, shall report to the chief financial officer the name of the person, firm, organization or corporation requiring such personnel, the names of the employees so employed and the number of hours of employment of each. The chief financial officer shall thereupon bill the person.
- B. Whenever any enforcement officer issues a written warning to a responsible person to discontinue a noise violation, the responsible person shall be liable for the actual cost of each subsequent response required to abate the violation within seventy-two hours of the issuance of the written warning (response charge).
- C. The bill for the response charge shall be served upon the responsible person within thirty days after the violation. If the responsible person has no last known business or residence address, the location of the violation shall be deemed to be the proper address for service. The bill shall include a notice of the right of the person being charged to request a hearing to dispute the imposition of the response charge or the amount of the charge.
- D. The response charge shall be deemed to be a civil debt to the city.
- E. All responsible persons shall be jointly and severally liable for the response charge regardless of whether or not they received a written notice.

(Ord. 1417 § 1 (part), 2008)

9.50.100 - Public nuisance.

A violation of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute a public nuisance that shall be subject to the provisions of Chapters 9.39 and 9.42 of this title.

(Ord. 1417 § 1 (part), 2008)

9.50.110 - Infraction violation.

A violation of Section 9.50.030, 9.50.050 or 9.50.070 of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute an infraction violation and the violator shall be subject to the provisions set forth in Section 1.16.010 of this code, including but not limited to the imposition of any and all criminal penalties set forth therein.

(Ord. 1417 § 1 (part), 2008)

9.50.120 - Misdemeanor violation.

A violation of Section 9.50.040 of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute a misdemeanor violation which shall be subject to the provisions set forth in Section 1.16.010 of this code, including but not limited to the imposition of any and all criminal penalties set forth therein.

(Ord. 1417 § 1 (part), 2008)

9.50.130 - Civil fines.

Any person convicted of an infraction or misdemeanor violation under this chapter shall, for each separate violation, be subject to: (A) a fine in an amount not to exceed two hundred fifty dollars for a first conviction of an offense; (B) a fine in an amount not to exceed five hundred dollars for a second conviction of the same offense within a twelve-month period from the date of the first offense; and (C) a fine in an amount not to exceed seven hundred fifty dollars for the third conviction of the same offense within a twelve-month period from the date of the first offense. The fine for a fourth and any subsequent convictions of the same offense within a twelve-month period from the date of the first offense shall be one thousand dollars.

(Ord. 1417 § 1 (part), 2008)

9.50.140 - Additional penalties.

Nothing in this chapter shall preclude the city from pursuing any other legal remedies provided by this code or otherwise available to the city at law or in equity.

(Ord. 1417 § 1 (part), 2008)

APPENDIX 3.2:

COUNTY OF SAN BERNARDINO DEVELOPMENT CODE

This page intentionally left blank

§ 83.01.080 Noise.

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

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

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

(2) With a sound level meter that meets the standards of the American National Standards Institute (ANSI § S14 1979, Type 1 or Type 2);

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

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

(c) *Noise Standards for Stationary Noise Sources.*

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

Table 83-2		
Noise Standards for Stationary Noise Sources		
<i>Affected Land Uses (Receiving Noise)</i>	<i>7:00 a.m. - 10:00 p.m. Leq</i>	<i>10:00 p.m. - 7:00 a.m. Leq</i>
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)
Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.		
dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.		
Ldn = (Day-Night Noise Level). The average equivalent A-weighted sound level during a 24-hour day obtained by adding 10 decibels to the hourly noise levels measured during the night (from 10:00 p.m. to 7:00 a.m.). In this way Ldn takes into account the lower tolerance of people for noise during nighttime periods.		

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

(A) The noise standard for the receiving land use as specified in Subdivision (b) (Noise-Impacted Areas), above, for a cumulative period of more than 30 minutes in any hour.

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

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

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

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

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

Table 83-3			
Noise Standards for Adjacent Mobile Noise Sources			
Land Use		Ldn (or CNEL) dB(A)	
Categories	Uses	Interior ⁽¹⁾	Exterior ⁽²⁾
Residential	Single and multi-family, duplex, mobile homes	45	60 ⁽³⁾
Commercial	Hotel, motel, transient housing	45	60 ⁽³⁾
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65
Notes:			
(1) The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.			
(2) The outdoor environment shall be limited to:			
· Hospital/office building patios · Hotel and motel recreation areas · Mobile home parks			

- Multi-family private patios or balconies
- Park picnic areas
- Private yard of single-family dwellings
- School playgrounds

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

CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.

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

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

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

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

(2) Emergency equipment, vehicles, and devices.

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

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

Table 83-4

Noise Standards for Other Structures

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

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

(Ord. 4011, passed - -2007; Am. Ord. 4245, passed - -2014)

APPENDIX 5.1:

STUDY AREA PHOTOS

This page intentionally left blank

JN: 12961 Study Area Photos



L1_E
34, 7' 59.940000" 117, 21' 26.990000"



L1_N
34, 7' 59.880000" 117, 21' 26.990000"



L1_S
34, 7' 59.910000" 117, 21' 27.020000"



L1_W
34, 7' 59.940000" 117, 21' 27.020000"



L2_E
34, 8' 1.930000" 117, 20' 30.880000"



L2_N
34, 8' 1.930000" 117, 20' 30.940000"

JN: 12961 Study Area Photos



L2_S
34, 8' 1.930000"117, 20' 30.910000"



L2_W
34, 8' 1.930000"117, 20' 30.910000"



L3_E
34, 7' 48.870000"117, 20' 23.880000"



L3_N
34, 7' 48.830000"117, 20' 23.880000"



L3_S
34, 7' 48.830000"117, 20' 23.880000"



L3_W
34, 7' 48.870000"117, 20' 23.850000"

JN: 12961 Study Area Photos



L4_E
34, 7' 31.130000"117, 21' 9.640000"



L4_N
34, 7' 31.040000"117, 21' 9.660000"



L4_S
34, 7' 31.070000"117, 21' 9.640000"



L4_W
34, 7' 31.110000"117, 21' 9.660000"



L5_E
34, 7' 49.090000"117, 21' 26.770000"



L5_N
34, 7' 49.130000"117, 21' 26.860000"

JN: 12961 Study Area Photos



L5_S

34, 7' 49.140000" 117, 21' 26.830000"



L5_W

34, 7' 49.100000" 117, 21' 26.800000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

This page intentionally left blank

24-Hour Noise Level Measurement Summary

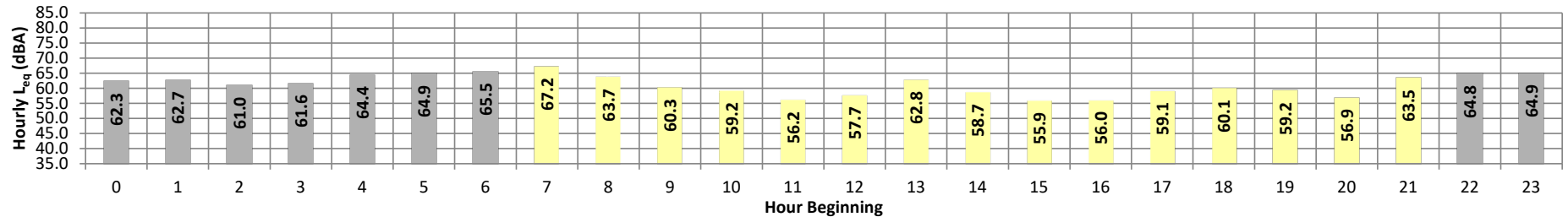
Date: Wednesday, October 20, 2021
Project: Pepper Industrial

Location: L1 - Located northwest of the Project site near Frisbee Park at
Source: 1901 North Acacia Avenue.

Meter: Piccolo II

JN: 12961
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	62.3	66.6	59.5	66.4	66.0	64.9	64.4	62.9	61.7	60.2	60.0	59.6	62.3	10.0	72.3
	1	62.7	66.4	60.0	66.2	66.0	65.3	64.8	63.4	62.3	60.7	60.4	60.0	62.7	10.0	72.7
	2	61.0	64.0	58.6	63.7	63.4	62.9	62.6	61.6	60.7	59.2	58.9	58.7	61.0	10.0	71.0
	3	61.6	64.9	59.3	64.8	64.5	63.8	63.3	62.1	61.3	60.0	59.7	59.4	61.6	10.0	71.6
	4	64.4	66.4	63.0	66.2	66.0	65.7	65.5	64.8	64.3	63.4	63.2	63.1	64.4	10.0	74.4
	5	64.9	67.2	63.3	67.0	66.9	66.4	66.1	65.4	64.7	63.8	63.6	63.4	64.9	10.0	74.9
	6	65.5	68.8	63.8	68.7	68.3	67.2	66.7	65.9	65.3	64.3	64.1	63.9	65.5	10.0	75.5
Day	7	67.2	69.6	65.6	69.4	69.2	68.6	68.3	67.6	67.1	66.1	65.9	65.7	67.2	0.0	67.2
	8	63.7	66.5	62.0	66.3	66.0	65.3	65.0	64.2	63.5	62.5	62.3	62.1	63.7	0.0	63.7
	9	60.3	66.4	57.7	66.0	65.5	63.5	62.4	60.3	59.6	58.3	58.1	57.8	60.3	0.0	60.3
	10	59.2	70.3	54.2	70.0	68.8	64.9	62.1	57.2	56.2	54.8	54.6	54.3	59.2	0.0	59.2
	11	56.2	63.4	53.2	63.0	62.2	59.7	58.4	56.2	55.3	53.9	53.6	53.3	56.2	0.0	56.2
	12	57.7	68.2	52.9	67.9	67.0	63.5	60.6	56.2	55.0	53.6	53.3	53.0	57.7	0.0	57.7
	13	62.8	69.9	54.5	69.7	69.5	68.9	68.2	63.5	59.0	55.9	55.5	54.7	62.8	0.0	62.8
	14	58.7	69.8	52.4	69.4	68.6	65.8	63.1	56.3	54.5	53.0	52.7	52.5	58.7	0.0	58.7
	15	55.9	64.7	52.5	64.1	63.4	60.5	58.4	55.4	54.3	53.1	52.9	52.6	55.9	0.0	55.9
	16	56.0	64.2	52.5	63.5	62.3	60.2	58.8	55.9	54.6	53.1	52.9	52.6	56.0	0.0	56.0
	17	59.1	70.3	53.8	70.0	69.1	65.3	61.9	56.9	55.6	54.4	54.2	53.9	59.1	0.0	59.1
	18	60.1	71.3	54.6	70.5	69.3	66.6	63.2	58.2	56.9	55.2	55.0	54.7	60.1	0.0	60.1
	19	59.2	68.2	55.2	67.5	66.7	64.0	61.8	58.8	57.4	55.9	55.6	55.4	59.2	5.0	64.2
	20	56.9	62.6	54.0	62.1	61.7	60.5	59.6	57.1	56.1	54.7	54.4	54.1	56.9	5.0	61.9
	21	63.5	72.7	59.4	72.2	71.3	68.5	66.5	62.9	61.6	60.1	59.8	59.5	63.5	5.0	68.5
	Night	22	64.8	69.5	61.8	69.1	68.9	67.9	67.3	65.2	64.1	62.5	62.3	61.9	64.8	10.0
23		64.9	70.8	61.5	70.4	69.9	68.7	67.8	65.3	63.9	62.3	62.0	61.6	64.9	10.0	74.9
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	55.9	62.6	52.4	62.1	61.7	59.7	58.4	55.4	54.3	53.0	52.7	52.5	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	67.2	72.7	65.6	72.2	71.3	68.9	68.3	67.6	67.1	66.1	65.9	65.7			
Energy Average		61.1	Average:		67.4	66.7	64.4	62.5	59.1	57.8	56.3	56.0	55.8			
Night	Min	61.0	64.0	58.6	63.7	63.4	62.9	62.6	61.6	60.7	59.2	58.9	58.7	62.3	61.1	63.8
	Max	65.5	70.8	63.8	70.4	69.9	68.7	67.8	65.9	65.3	64.3	64.1	63.9			
Energy Average		63.8	Average:		66.9	66.7	65.9	65.4	64.1	63.2	61.8	61.6	61.3			

24-Hour Noise Level Measurement Summary

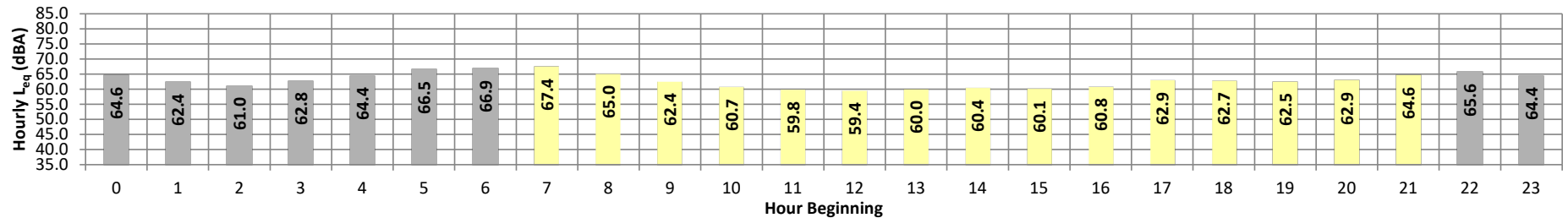
Date: Wednesday, October 20, 2021
Project: Pepper Industrial

Location: L2 - Located northeast of the Project site near single-family
Source: residence at 2281 West Washington Avenue.

Meter: Piccolo II

JN: 12961
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	64.6	71.5	59.4	71.2	70.9	69.6	68.4	65.3	62.7	60.3	59.9	59.5	64.6	10.0	74.6
	1	62.4	67.5	58.5	67.2	66.8	65.8	65.0	63.0	61.7	59.6	59.2	58.7	62.4	10.0	72.4
	2	61.0	65.4	57.0	65.2	65.0	64.4	63.7	61.9	60.2	57.9	57.5	57.1	61.0	10.0	71.0
	3	62.8	67.9	58.8	67.6	67.4	66.5	65.5	63.3	62.0	59.8	59.4	59.0	62.8	10.0	72.8
	4	64.4	68.1	61.6	67.8	67.6	67.0	66.5	65.1	64.0	62.4	62.1	61.7	64.4	10.0	74.4
	5	66.5	69.5	64.0	69.3	69.1	68.7	68.2	67.2	66.2	64.7	64.4	64.1	66.5	10.0	76.5
	6	66.9	69.8	64.4	69.6	69.5	69.1	68.7	67.4	66.6	65.1	64.8	64.5	66.9	10.0	76.9
Day	7	67.4	69.9	65.5	69.7	69.5	69.1	68.8	67.9	67.2	66.1	65.8	65.6	67.4	0.0	67.4
	8	65.0	68.6	62.5	68.4	68.2	67.6	67.0	65.4	64.5	63.1	62.9	62.6	65.0	0.0	65.0
	9	62.4	67.5	58.9	67.1	66.7	65.7	64.9	63.0	61.8	59.9	59.4	59.0	62.4	0.0	62.4
	10	60.7	65.4	56.7	65.2	65.0	64.1	63.4	61.5	60.0	57.8	57.3	56.8	60.7	0.0	60.7
	11	59.8	64.6	55.6	64.4	64.2	63.3	62.6	60.5	59.1	56.8	56.2	55.7	59.8	0.0	59.8
	12	59.4	64.4	55.7	63.9	63.6	62.7	61.9	60.1	58.8	56.7	56.3	55.8	59.4	0.0	59.4
	13	60.0	64.2	56.4	63.9	63.7	63.0	62.4	60.8	59.4	57.3	56.9	56.5	60.0	0.0	60.0
	14	60.4	65.0	56.7	64.6	64.3	63.5	62.9	61.2	59.8	57.7	57.2	56.8	60.4	0.0	60.4
	15	60.1	64.9	56.9	64.6	64.1	63.2	62.5	60.7	59.5	57.7	57.4	57.0	60.1	0.0	60.1
	16	60.8	65.6	57.7	65.2	64.8	63.8	63.2	61.3	60.0	58.4	58.1	57.8	60.8	0.0	60.8
	17	62.9	69.0	59.5	68.7	68.3	66.8	65.5	63.2	61.8	60.2	59.9	59.6	62.9	0.0	62.9
	18	62.7	68.1	59.4	67.7	67.2	66.3	65.5	63.2	62.0	60.1	59.8	59.5	62.7	0.0	62.7
	19	62.5	70.5	58.7	69.9	68.1	65.8	64.9	62.8	61.5	59.6	59.1	58.8	62.5	5.0	67.5
	20	62.9	70.3	58.5	69.8	68.7	66.9	66.1	63.2	61.7	59.4	59.0	58.6	62.9	5.0	67.9
		21	64.6	69.2	61.1	69.0	68.7	68.0	67.3	65.1	63.9	62.0	61.6	61.2	64.6	5.0
Night	22	65.6	70.5	62.1	70.2	69.9	69.0	68.2	66.3	64.8	62.9	62.6	62.2	65.6	10.0	75.6
	23	64.4	69.7	60.6	69.5	69.3	68.1	67.0	65.1	63.6	61.5	61.1	60.7	64.4	10.0	74.4
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	59.4	64.2	55.6	63.9	63.6	62.7	61.9	60.1	58.8	56.7	56.2	55.7	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	67.4	70.5	65.5	69.9	69.5	69.1	68.8	67.9	67.2	66.1	65.8	65.6			
Energy Average		62.7	Average:		66.8	66.3	65.3	64.6	62.7	61.4	59.5	59.1	58.7			
Night	Min	61.0	65.4	57.0	65.2	65.0	64.4	63.7	61.9	60.2	57.9	57.5	57.1	63.6	62.7	64.7
	Max	66.9	71.5	64.4	71.2	70.9	69.6	68.7	67.4	66.6	65.1	64.8	64.5			
Energy Average		64.7	Average:		68.6	68.4	67.6	66.8	64.9	63.5	61.6	61.2	60.8			

24-Hour Noise Level Measurement Summary

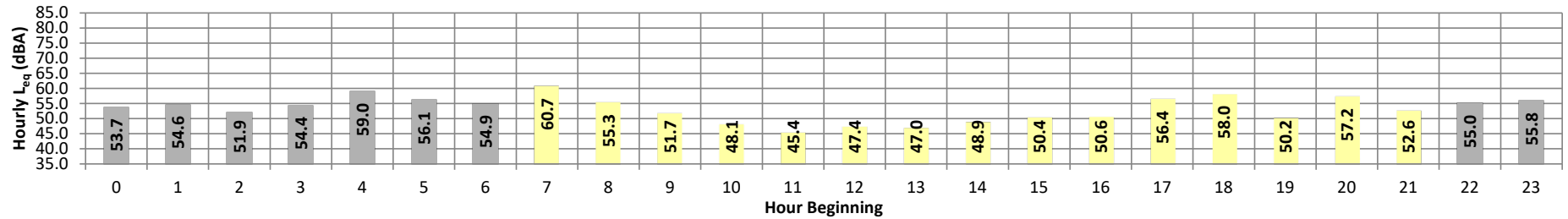
Date: Wednesday, October 20, 2021
Project: Pepper Industrial

Location: L3 - Located east of the Project site near single-family
Source: residence at 2185 Roosevelt Avenue.

Meter: Piccolo II

JN: 12961
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	53.7	59.6	48.8	59.2	58.8	57.9	57.2	54.8	52.4	49.8	49.4	48.9	53.7	10.0	63.7
	1	54.6	59.3	50.5	58.8	58.5	57.7	57.3	55.4	53.9	51.6	51.1	50.6	54.6	10.0	64.6
	2	51.9	56.3	49.1	55.9	55.5	54.3	53.8	52.5	51.5	49.9	49.6	49.2	51.9	10.0	61.9
	3	54.4	59.8	50.9	59.4	59.0	58.0	57.2	55.0	53.3	51.7	51.4	51.0	54.4	10.0	64.4
	4	59.0	62.2	56.5	61.9	61.7	61.2	60.7	59.5	58.6	57.2	57.0	56.7	59.0	10.0	69.0
	5	56.1	59.1	54.1	58.8	58.6	58.0	57.7	56.5	55.8	54.7	54.5	54.2	56.1	10.0	66.1
	6	54.9	59.4	52.8	59.0	58.6	57.8	57.1	55.2	54.2	53.3	53.1	52.9	54.9	10.0	64.9
Day	7	60.7	67.8	56.5	67.0	66.4	65.2	64.4	61.2	58.9	57.0	56.8	56.6	60.7	0.0	60.7
	8	55.3	70.4	48.9	69.2	68.6	67.2	66.3	62.5	58.2	50.5	49.7	49.1	55.3	0.0	55.3
	9	51.7	67.2	46.1	66.0	65.3	63.9	62.8	58.0	51.6	46.8	46.5	46.2	51.7	0.0	51.7
	10	48.1	56.7	43.5	56.3	55.5	54.0	52.6	47.8	45.5	44.0	43.8	43.6	48.1	0.0	48.1
	11	45.4	52.1	41.5	51.5	51.1	49.9	49.1	45.8	43.7	42.1	41.9	41.6	45.4	0.0	45.4
	12	47.4	53.9	43.0	53.3	52.7	51.3	50.5	48.1	46.2	43.9	43.6	43.2	47.4	0.0	47.4
	13	47.0	52.0	43.8	51.4	51.0	50.2	49.5	47.6	46.3	44.5	44.3	44.0	47.0	0.0	47.0
	14	48.9	55.5	44.2	54.9	54.3	53.2	52.3	49.7	47.3	45.2	44.6	44.3	48.9	0.0	48.9
	15	50.4	56.3	45.4	55.7	55.3	54.3	53.3	51.1	49.5	46.7	46.3	45.7	50.4	0.0	50.4
	16	50.6	59.4	46.3	58.6	57.6	54.7	53.8	50.5	48.9	47.1	46.8	46.5	50.6	0.0	50.6
	17	56.4	71.3	48.5	70.5	69.9	68.3	67.3	63.6	59.5	54.8	53.2	48.8	56.4	0.0	56.4
	18	58.0	71.3	49.4	70.2	68.5	64.6	61.6	55.1	52.1	50.3	50.0	49.6	58.0	0.0	58.0
	19	50.2	55.6	47.5	55.3	54.7	52.5	51.9	50.7	49.6	48.2	47.9	47.6	50.2	5.0	55.2
	20	57.2	67.6	45.8	67.4	66.8	64.7	63.7	52.8	49.8	46.7	46.3	45.9	57.2	5.0	62.2
		21	52.6	59.8	46.3	59.2	58.7	57.3	56.2	53.6	50.8	47.5	47.0	46.5	52.6	5.0
Night	22	55.0	63.5	49.8	63.2	62.9	61.0	58.8	54.4	52.5	50.5	50.2	49.9	55.0	10.0	65.0
	23	55.8	60.9	51.8	60.6	60.2	59.2	58.4	56.3	55.1	52.8	52.4	51.9	55.8	10.0	65.8
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	24-Hour		
Day	Min	45.4	52.0	41.5	51.4	51.0	49.9	49.1	45.8	43.7	42.1	41.9	41.6	54.8	54.3	55.4
	Max	60.7	71.3	56.5	70.5	69.9	68.3	67.3	63.6	59.5	57.0	56.8	56.6			
Energy Average		54.3	Average:		60.4	59.8	58.1	57.0	53.2	50.5	47.7	47.3	46.6			
Night	Min	51.9	56.3	48.8	55.9	55.5	54.3	53.8	52.5	51.5	49.8	49.4	48.9	54.8	54.3	55.4
	Max	59.0	63.5	56.5	63.2	62.9	61.2	60.7	59.5	58.6	57.2	57.0	56.7			
Energy Average		55.4	Average:		59.7	59.3	58.3	57.6	55.5	54.2	52.4	52.1	51.7			

24-Hour Noise Level Measurement Summary

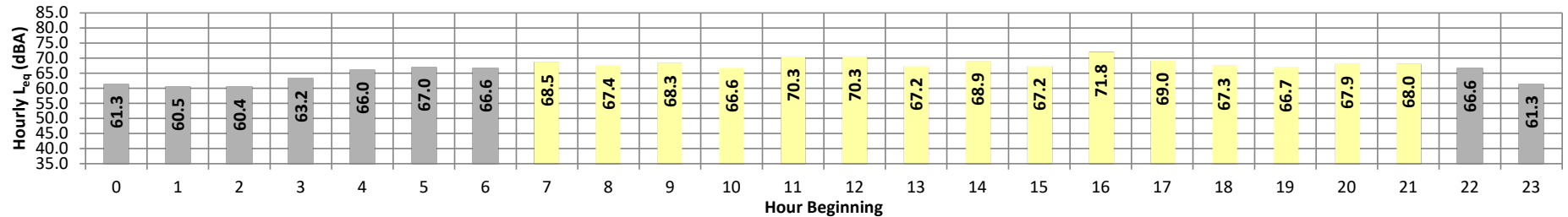
Date: Wednesday, October 20, 2021
Project: Pepper Industrial

Location: L4 - Located south of the Project site near single-family
Source: residence at 1438 Terrace Road.

Meter: Piccolo II

JN: 12961
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	61.3	72.8	47.2	72.3	71.8	68.7	66.3	60.0	54.1	48.4	47.8	47.3	61.3	10.0	71.3	
	1	60.5	70.1	53.0	69.8	69.3	67.4	65.7	59.6	55.4	53.5	53.3	53.1	60.5	10.0	70.5	
	2	60.4	70.8	49.2	70.5	70.0	67.9	66.0	58.7	53.7	50.0	49.7	49.3	60.4	10.0	70.4	
	3	63.2	72.7	53.3	72.3	71.7	69.9	68.4	63.3	58.3	54.4	53.9	53.5	63.2	10.0	73.2	
	4	66.0	77.2	55.3	76.4	75.3	73.0	70.8	65.4	60.9	56.3	55.8	55.4	66.0	10.0	76.0	
	5	67.0	75.4	56.9	75.0	74.5	73.1	71.9	67.7	63.6	58.1	57.5	57.0	67.0	10.0	77.0	
	6	66.6	76.1	57.3	75.7	75.1	73.0	71.2	66.8	63.0	58.5	57.9	57.5	66.6	10.0	76.6	
Day	7	68.5	76.9	59.9	76.4	75.8	74.3	73.2	69.1	65.6	61.0	60.4	60.0	68.5	0.0	68.5	
	8	67.4	78.1	56.6	77.6	76.6	73.7	71.8	67.4	63.2	58.0	57.3	56.7	67.4	0.0	67.4	
	9	68.3	79.2	55.2	78.7	77.9	75.5	73.1	67.4	63.3	56.9	56.1	55.4	68.3	0.0	68.3	
	10	66.6	75.7	51.8	75.4	74.9	73.2	71.7	67.3	62.6	54.3	52.9	51.9	66.6	0.0	66.6	
	11	70.3	83.8	50.6	83.4	82.1	77.2	73.1	66.8	62.5	54.2	52.6	50.9	70.3	0.0	70.3	
	12	70.3	83.5	51.8	83.0	82.1	77.3	74.0	67.1	62.8	54.3	52.9	52.0	70.3	0.0	70.3	
	13	67.2	77.0	52.7	76.5	75.6	74.0	72.6	67.1	62.7	55.4	54.1	53.1	67.2	0.0	67.2	
	14	68.9	79.7	54.5	79.3	78.6	76.2	73.3	68.1	63.9	57.0	55.7	54.7	68.9	0.0	68.9	
	15	67.2	77.1	53.0	76.8	76.3	74.0	71.8	67.2	63.2	55.3	54.1	53.2	67.2	0.0	67.2	
	16	71.8	83.1	53.8	82.7	82.4	80.9	78.5	67.0	63.6	56.3	55.2	54.0	71.8	0.0	71.8	
	17	69.0	79.6	54.3	79.3	78.8	76.3	73.9	68.2	64.0	56.5	55.4	54.5	69.0	0.0	69.0	
	18	67.3	77.2	54.2	76.8	76.2	73.8	71.7	67.2	63.8	56.9	55.6	54.4	67.3	0.0	67.3	
	19	66.7	77.9	51.6	77.5	76.8	73.5	71.0	65.9	62.1	54.3	52.9	51.8	66.7	5.0	71.7	
	20	67.9	79.6	50.7	78.9	78.0	75.7	72.6	66.1	61.8	53.6	52.0	51.0	67.9	5.0	72.9	
	21	68.0	78.7	50.0	78.4	77.9	75.6	73.9	66.3	60.2	52.4	51.2	50.2	68.0	5.0	73.0	
Night	22	66.6	79.3	49.9	78.6	77.6	74.1	71.3	63.8	58.5	51.4	50.7	50.0	66.6	10.0	76.6	
	23	61.3	71.3	47.2	71.0	70.5	68.5	66.8	61.1	55.2	48.4	47.8	47.3	61.3	10.0	71.3	
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)			
Day	Min	66.6	75.7	50.0	75.4	74.9	73.2	71.0	65.9	60.2	52.4	51.2	50.2	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)	
	Max	71.8	83.8	59.9	83.4	82.4	80.9	78.5	69.1	65.6	61.0	60.4	60.0				
Energy Average		68.6	Average:		78.7	78.0	75.4	73.1	67.2	63.0	55.8	54.6	53.6		67.5	68.6	64.5
Night	Min	60.4	70.1	47.2	69.8	69.3	67.4	65.7	58.7	53.7	48.4	47.8	47.3				
	Max	67.0	79.3	57.3	78.6	77.6	74.1	71.9	67.7	63.6	58.5	57.9	57.5				
Energy Average		64.5	Average:		73.5	72.9	70.6	68.7	62.9	58.1	53.2	52.7	52.3				

24-Hour Noise Level Measurement Summary

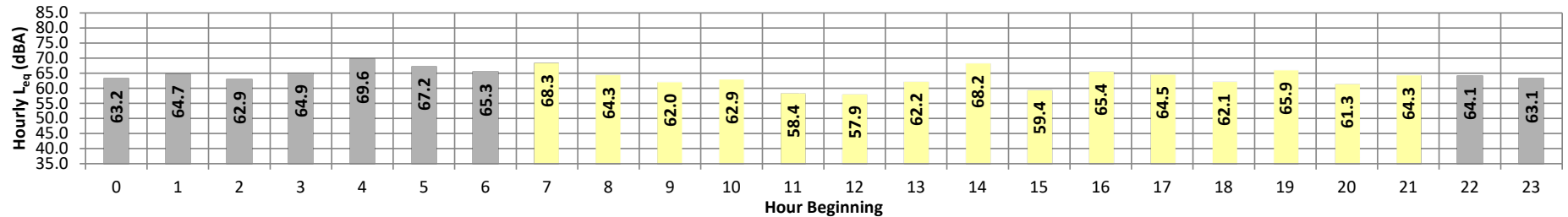
Date: Wednesday, October 20, 2021
Project: Pepper Industrial

Location: L5 - Located west of the Project site near single-family
Source: residence at 1698 North Eucalyptus Avenue.

Meter: Piccolo II

JN: 12961
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	63.2	70.1	59.0	69.8	69.3	67.5	66.2	63.3	61.9	60.0	59.6	59.2	63.2	10.0	73.2
	1	64.7	70.9	60.8	70.5	70.0	68.2	67.1	65.3	63.8	61.8	61.4	60.9	64.7	10.0	74.7
	2	62.9	67.1	59.1	66.8	66.5	65.6	65.1	63.7	62.5	60.2	59.7	59.3	62.9	10.0	72.9
	3	64.9	69.5	61.7	69.2	68.9	67.8	67.2	65.6	64.3	62.5	62.2	61.8	64.9	10.0	74.9
	4	69.6	72.5	67.3	72.3	72.0	71.5	71.1	70.2	69.4	67.9	67.7	67.4	69.6	10.0	79.6
	5	67.2	70.3	65.2	70.1	69.8	69.0	68.5	67.7	67.0	65.8	65.5	65.3	67.2	10.0	77.2
	6	65.3	69.9	63.7	69.6	69.2	67.8	66.8	65.4	64.9	64.1	63.9	63.8	65.3	10.0	75.3
Day	7	68.3	73.8	66.5	73.6	73.1	71.2	69.9	68.2	67.7	66.9	66.7	66.6	68.3	0.0	68.3
	8	64.3	71.1	61.9	70.8	70.3	68.2	66.8	64.0	63.3	62.4	62.2	62.0	64.3	0.0	64.3
	9	62.0	70.4	58.2	70.0	69.4	67.0	65.2	61.4	60.3	58.8	58.6	58.3	62.0	0.0	62.0
	10	62.9	75.5	54.6	74.8	73.6	69.6	67.0	59.5	57.1	55.4	55.1	54.7	62.9	0.0	62.9
	11	58.4	69.7	51.7	68.9	67.8	64.7	62.5	56.7	54.4	52.4	52.1	51.8	58.4	0.0	58.4
	12	57.9	70.0	50.9	69.3	68.2	64.5	61.5	55.7	53.5	51.6	51.3	51.0	57.9	0.0	57.9
	13	62.2	75.2	51.4	74.6	73.4	69.0	66.5	58.1	54.4	52.2	51.8	51.5	62.2	0.0	62.2
	14	68.2	84.0	49.9	82.7	80.5	74.8	70.2	58.6	53.0	50.6	50.3	50.1	68.2	0.0	68.2
	15	59.4	71.8	50.1	71.1	70.2	66.5	63.9	55.9	52.9	50.9	50.5	50.2	59.4	0.0	59.4
	16	65.4	79.0	49.0	78.5	77.3	73.4	69.5	59.7	54.1	49.9	49.5	49.1	65.4	0.0	65.4
	17	64.5	75.9	51.1	75.6	74.8	72.1	69.5	62.6	56.5	52.2	51.6	51.2	64.5	0.0	64.5
	18	62.1	72.1	52.1	71.7	71.0	68.8	67.3	61.6	56.9	53.1	52.7	52.2	62.1	0.0	62.1
	19	65.9	78.1	53.4	77.8	77.1	73.3	70.2	63.3	58.0	54.2	53.8	53.5	65.9	5.0	70.9
	20	61.3	71.9	52.8	71.6	71.0	68.3	66.1	60.0	56.3	53.8	53.4	53.0	61.3	5.0	66.3
		21	64.3	74.2	57.7	73.8	73.0	70.4	68.7	63.6	60.6	58.3	58.0	57.7	64.3	5.0
Night	22	64.1	71.4	60.3	71.1	70.6	68.9	67.5	64.0	62.6	61.0	60.7	60.4	64.1	10.0	74.1
	23	63.1	68.6	59.4	68.3	67.9	66.6	65.7	63.6	62.4	60.4	60.0	59.6	63.1	10.0	73.1
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	57.9	69.7	49.0	68.9	67.8	64.5	61.5	55.7	52.9	49.9	49.5	49.1	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	68.3	84.0	66.5	82.7	80.5	74.8	70.2	68.2	67.7	66.9	66.7	66.6			
Energy Average		64.2	Average:		73.7	72.7	69.5	67.0	60.6	57.3	54.8	54.5	54.2	64.8 64.2 65.6		
Night	Min	62.9	67.1	59.0	66.8	66.5	65.6	65.1	63.3	61.9	60.0	59.6	59.2			
	Max	69.6	72.5	67.3	72.3	72.0	71.5	71.1	70.2	69.4	67.9	67.7	67.4			
Energy Average		65.6	Average:		69.7	69.3	68.1	67.3	65.4	64.3	62.6	62.3	61.9			

This page intentionally left blank

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

This page intentionally left blank

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)												
Scenario: E Road Name: Pepper Av. Road Segment: n/o Baseline Rd.					Project Name: Pepper Avenue Industrial Job Number: 12961							
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS							
Highway Data					Site Conditions (Hard = 10, Soft = 15)							
Average Daily Traffic (Adt): 20,955 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,096 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15							
Site Data					Vehicle Mix							
					Vehicle Type		Day	Evening	Night	Daily		
					Autos: 71.8% 12.1% 16.1% 95.01%							
					Medium Trucks: 83.0% 5.4% 11.6% 1.59%							
					Heavy Trucks: 64.5% 5.7% 29.7% 3.40%							
					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: 53.301							
					Medium Trucks: 53.135							
					Heavy Trucks: 53.151							
					FHWA Noise Model Calculations							
					Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:					68.46	1.15	-0.52	-1.20	-4.69	0.000	0.000	
Medium Trucks:					79.45	-16.61	-0.50	-1.20	-4.88	0.000	0.000	
Heavy Trucks:					84.25	-13.31	-0.50	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)												
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL						
Autos:					67.9	65.7	64.0	60.4	68.0	68.4		
Medium Trucks:					61.1	59.5	53.7	52.3	60.5	60.7		
Heavy Trucks:					69.2	66.6	62.0	64.4	71.1	71.2		
Vehicle Noise:					72.0	69.6	66.4	66.1	73.1	73.3		
Centerline Distance to Noise Contour (in feet)												
							70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:							96	207	446	961		
CNEL:							100	215	463	997		

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: E+P Road Name: Pepper Av. Road Segment: n/o Baseline Rd.				Project Name: Pepper Avenue Industrial Job Number: 12961					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 21,104 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,110 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType		Day	Evening	Night	Daily
				Autos:		71.8%	12.1%	16.1%	95.04%
				Medium Trucks:		83.0%	5.4%	11.6%	1.58%
				Heavy Trucks:		64.5%	5.7%	29.7%	3.38%
				Noise Source Elevations (in feet)					
Autos:		0.000							
Medium Trucks:		2.297							
Heavy Trucks:		8.004	Grade Adjustment: 0.0						
Lane Equivalent Distance (in feet)									
Autos:		53.301							
Medium Trucks:		53.135							
Heavy Trucks:		53.151							
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.19	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-16.61	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-13.31	-0.50	-1.20	-5.34	0.000	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	65.7	64.0	60.4	68.0	68.5			
Medium Trucks:	61.1	59.5	53.7	52.3	60.5	60.7			
Heavy Trucks:	69.2	66.6	62.0	64.4	71.1	71.2			
Vehicle Noise:	72.0	69.6	66.4	66.1	73.1	73.3			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				96	207	447	962		
CNEL:				100	215	464	999		

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: OY Road Name: Pepper Av. Road Segment: n/o Baseline Rd.					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,793 vehicles					Autos: 15				
Peak Hour Percentage: 10.00%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,179 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph									
Near/Far Lane Distance: 56 feet					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Site Data Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 71.8% 12.1% 16.1% 95.01%				
					Medium Trucks: 83.0% 5.4% 11.6% 1.59%				
					Heavy Trucks: 64.5% 5.7% 29.7% 3.40%				
					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: 53.301				
					Medium Trucks: 53.135				
Heavy Trucks: 53.151									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.32	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-16.44	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-13.14	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.1	65.8	64.1	60.6	68.1	68.6			
Medium Trucks:	61.3	59.7	53.9	52.4	60.6	60.9			
Heavy Trucks:	69.4	66.7	62.2	64.6	71.3	71.4			
Vehicle Noise:	72.2	69.8	66.5	66.2	73.2	73.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			99	212	458	986			
CNEL:			102	221	475	1,024			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)										
Scenario: OYP Road Name: Pepper Av. Road Segment: n/o Baseline Rd.				Project Name: Pepper Avenue Industrial Job Number: 12961						
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS						
Highway Data				Site Conditions (Hard = 10, Soft = 15)						
Average Daily Traffic (Adt): 21,942 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,194 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15						
Site Data				Vehicle Mix						
				VehicleType		Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 71.8% 12.1% 16.1% 95.04% Medium Trucks: 83.0% 5.4% 11.6% 1.58% Heavy Trucks: 64.5% 5.7% 29.7% 3.38%						
				Noise Source Elevations (in feet)						
				Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.004 Grade Adjustment: 0.0						
				Lane Equivalent Distance (in feet)						
				Autos: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151						
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	68.46	1.35	-0.52	-1.20	-4.69	0.000	0.000			
Medium Trucks:	79.45	-16.44	-0.50	-1.20	-4.88	0.000	0.000			
Heavy Trucks:	84.25	-13.14	-0.50	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	68.1	65.9	64.2	60.6	68.2	68.6				
Medium Trucks:	61.3	59.7	53.9	52.4	60.6	60.9				
Heavy Trucks:	69.4	66.7	62.2	64.6	71.3	71.4				
Vehicle Noise:	72.2	69.8	66.6	66.2	73.2	73.5				
Centerline Distance to Noise Contour (in feet)										
				70 dBA		65 dBA		60 dBA		55 dBA
Ldn:				99		213		458		988
CNEL:				103		221		476		1,028

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: FC Road Name: Pepper Av. Road Segment: n/o Baseline Rd.					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,991 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,499 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Vehicle Type	Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 95.01% Medium Trucks: 83.0% 5.4% 11.6% 1.59% Heavy Trucks: 64.5% 5.7% 29.7% 3.40%				
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.92	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.84	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-12.54	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.7	66.4	64.7	61.2	68.7	69.2			
Medium Trucks:	61.9	60.3	54.5	53.0	61.2	61.5			
Heavy Trucks:	70.0	67.3	62.8	65.2	71.9	72.0			
Vehicle Noise:	72.8	70.4	67.1	66.8	73.8	74.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			108	233	501	1,080			
CNEL:			112	242	521	1,122			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: FC+P Road Name: Pepper Av. Road Segment: n/o Baseline Rd.					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,140 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,514 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 95.04% Medium Trucks: 83.0% 5.4% 11.6% 1.58% Heavy Trucks: 64.5% 5.7% 29.7% 3.38%				
					Noise Source Elevations (in feet)				
					Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.004 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.95	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.84	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-12.54	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.7	66.5	64.8	61.2	68.8	69.2			
Medium Trucks:	61.9	60.3	54.5	53.0	61.2	61.5			
Heavy Trucks:	70.0	67.3	62.8	65.2	71.9	72.0			
Vehicle Noise:	72.8	70.4	67.1	66.8	73.8	74.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			108	233	502	1,082			
CNEL:			112	242	521	1,123			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: GPBO Road Name: Pepper Av. Road Segment: n/o Baseline Rd.					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 28,236 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,824 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 71.8% 12.1% 16.1% 95.01% Medium Trucks: 83.0% 5.4% 11.6% 1.59% Heavy Trucks: 64.5% 5.7% 29.7% 3.40%				
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.45	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.31	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-12.01	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.2	67.0	65.3	61.7	69.3	69.7			
Medium Trucks:	62.4	60.8	55.0	53.6	61.7	62.0			
Heavy Trucks:	70.5	67.8	63.3	65.7	72.4	72.5			
Vehicle Noise:	73.3	70.9	67.7	67.4	74.4	74.6			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			117	253	544	1,172			
CNEL:			122	262	565	1,217			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)										
Scenario: GPBO+P Road Name: Pepper Av. Road Segment: n/o Baseline Rd.					Project Name: Pepper Avenue Industrial Job Number: 12961					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 28,385 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,839 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
					Vehicle Type	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 71.8% 12.1% 16.1% 95.03% Medium Trucks: 83.0% 5.4% 11.6% 1.58% Heavy Trucks: 64.5% 5.7% 29.7% 3.39%					
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151					
FHWA Noise Model Calculations										
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	68.46	2.47	-0.52	-1.20	-4.69	0.000	0.000			
Medium Trucks:	79.45	-15.31	-0.50	-1.20	-4.88	0.000	0.000			
Heavy Trucks:	84.25	-12.01	-0.50	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	69.2	67.0	65.3	61.7	69.3	69.7				
Medium Trucks:	62.4	60.8	55.0	53.6	61.7	62.0				
Heavy Trucks:	70.5	67.8	63.3	65.7	72.4	72.5				
Vehicle Noise:	73.3	70.9	67.7	67.4	74.4	74.6				
Centerline Distance to Noise Contour (in feet)										
				70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:				117	253	545	1,173			
CNEL:				122	262	565	1,218			

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: E Road Name: Pepper Av. Road Segment: n/o Winchester Dr.					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,129 vehicles					Autos: 15				
Peak Hour Percentage: 10.00%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,213 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 56 feet					Vehicle Type	Day	Evening	Night	Daily
Site Data					Autos: 71.8% 12.1% 16.1% 95.01%				
Barrier Height: 0.0 feet					Medium Trucks: 83.0% 5.4% 11.6% 1.59%				
Barrier Type (0-Wall, 1-Berm): 0.0					Heavy Trucks: 64.5% 5.7% 29.7% 3.40%				
Centerline Dist. to Barrier: 60.0 feet					Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 60.0 feet					Autos: 0.000				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 8.004				
Pad Elevation: 0.0 feet					Grade Adjustment: 0.0				
Road Elevation: 0.0 feet					Lane Equivalent Distance (in feet)				
Road Grade: 0.0%					Autos: 53.301				
Left View: -90.0 degrees					Medium Trucks: 53.135				
Right View: 90.0 degrees					Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.39	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-16.37	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-13.07	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.1	65.9	64.2	60.6	68.2	68.7			
Medium Trucks:	61.4	59.8	53.9	52.5	60.7	60.9			
Heavy Trucks:	69.5	66.8	62.3	64.7	71.3	71.5			
Vehicle Noise:	72.2	69.8	66.6	66.3	73.3	73.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			100	215	462	996			
CNEL:			103	223	480	1,034			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: E+P Road Name: Pepper Av. Road Segment: n/o Winchester Dr.				Project Name: Pepper Avenue Industrial Job Number: 12961					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 22,278 vehicles				Autos: 15					
Peak Hour Percentage: 10.00%				Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,228 vehicles				Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph				Vehicle Mix					
Near/Far Lane Distance: 56 feet				VehicleType	Day	Evening	Night	Daily	
Site Data				Autos: 71.8% 12.1% 16.1% 95.04%					
Barrier Height: 0.0 feet				Medium Trucks: 83.0% 5.4% 11.6% 1.58%					
Barrier Type (0-Wall, 1-Berm): 0.0				Heavy Trucks: 64.5% 5.7% 29.7% 3.38%					
Centerline Dist. to Barrier: 60.0 feet				Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 60.0 feet				Autos: 0.000					
Barrier Distance to Observer: 0.0 feet				Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet				Heavy Trucks: 8.004 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet				Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet				Autos: 53.301					
Road Grade: 0.0%				Medium Trucks: 53.135					
Left View: -90.0 degrees				Heavy Trucks: 53.151					
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.42	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-16.37	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-13.07	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.2	65.9	64.2	60.7	68.2	68.7			
Medium Trucks:	61.4	59.8	53.9	52.5	60.7	60.9			
Heavy Trucks:	69.5	66.8	62.3	64.7	71.3	71.5			
Vehicle Noise:	72.3	69.8	66.6	66.3	73.3	73.6			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			100	215	463	998			
CNEL:			104	223	481	1,036			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: OY Road Name: Pepper Av. Road Segment: n/o Winchester Dr.				Project Name: Pepper Avenue Industrial Job Number: 12961					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 23,014 vehicles				Autos: 15					
Peak Hour Percentage: 10.00%				Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,301 vehicles				Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph				Vehicle Mix					
Near/Far Lane Distance: 56 feet				VehicleType		Day	Evening	Night	Daily
Site Data				Autos: 71.8% 12.1% 16.1% 95.01%					
Barrier Height: 0.0 feet				Medium Trucks: 83.0% 5.4% 11.6% 1.59%					
Barrier Type (0-Wall, 1-Berm): 0.0				Heavy Trucks: 64.5% 5.7% 29.7% 3.40%					
Centerline Dist. to Barrier: 60.0 feet				Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 60.0 feet				Autos: 0.000					
Barrier Distance to Observer: 0.0 feet				Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet				Heavy Trucks: 8.004 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet				Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet				Autos: 53.301					
Road Grade: 0.0%				Medium Trucks: 53.135					
Left View: -90.0 degrees				Heavy Trucks: 53.151					
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.56	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-16.20	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-12.90	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.3	66.1	64.4	60.8	68.4	68.8			
Medium Trucks:	61.5	59.9	54.1	52.7	60.9	61.1			
Heavy Trucks:	69.7	67.0	62.4	64.8	71.5	71.6			
Vehicle Noise:	72.4	70.0	66.8	66.5	73.5	73.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			102	220	475	1,023			
CNEL:			106	229	493	1,062			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)											
Scenario: OYP Road Name: Pepper Av. Road Segment: n/o Winchester Dr.				Project Name: Pepper Avenue Industrial Job Number: 12961							
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS							
Highway Data				Site Conditions (Hard = 10, Soft = 15)							
Average Daily Traffic (Adt): 23,163 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,316 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15							
Site Data				Vehicle Mix							
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily			
				Autos: 71.8% 12.1% 16.1% 95.04% Medium Trucks: 83.0% 5.4% 11.6% 1.58% Heavy Trucks: 64.5% 5.7% 29.7% 3.38%							
				Noise Source Elevations (in feet)							
				Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.004 Grade Adjustment: 0.0							
				Lane Equivalent Distance (in feet)							
				Autos: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151							
FHWA Noise Model Calculations											
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten				
Autos:	68.46	1.59	-0.52	-1.20	-4.69	0.000	0.000				
Medium Trucks:	79.45	-16.20	-0.50	-1.20	-4.88	0.000	0.000				
Heavy Trucks:	84.25	-12.90	-0.50	-1.20	-5.34	0.000	0.000				
Unmitigated Noise Levels (without Topo and barrier attenuation)											
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL					
Autos:	68.3	66.1	64.4	60.8	68.4	68.9					
Medium Trucks:	61.5	59.9	54.1	52.7	60.9	61.1					
Heavy Trucks:	69.7	67.0	62.4	64.8	71.5	71.6					
Vehicle Noise:	72.4	70.0	66.8	66.5	73.5	73.7					
Centerline Distance to Noise Contour (in feet)											
				70 dBA		65 dBA		60 dBA		55 dBA	
Ldn:				102		221		475		1,024	
CNEL:				106		229		494		1,063	

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: FC Road Name: Pepper Av. Road Segment: n/o Winchester Dr.					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 26,356 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,636 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					Vehicle Type	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 71.8% 12.1% 16.1% 95.01% Medium Trucks: 83.0% 5.4% 11.6% 1.59% Heavy Trucks: 64.5% 5.7% 29.7% 3.40%				
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.15	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.61	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-12.31	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.9	66.7	65.0	61.4	69.0	69.4			
Medium Trucks:	62.1	60.5	54.7	53.3	61.4	61.7			
Heavy Trucks:	70.2	67.5	63.0	65.4	72.1	72.2			
Vehicle Noise:	73.0	70.6	67.4	67.1	74.1	74.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			112	241	520	1,119			
CNEL:			116	250	539	1,162			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: FC+P Road Name: Pepper Av. Road Segment: n/o Winchester Dr.					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 26,505 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,651 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 95.03% Medium Trucks: 83.0% 5.4% 11.6% 1.58% Heavy Trucks: 64.5% 5.7% 29.7% 3.38%				
					Noise Source Elevations (in feet)				
					Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.004 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.17	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.61	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-12.31	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.9	66.7	65.0	61.4	69.0	69.4			
Medium Trucks:	62.1	60.5	54.7	53.3	61.4	61.7			
Heavy Trucks:	70.2	67.5	63.0	65.4	72.1	72.2			
Vehicle Noise:	73.0	70.6	67.4	67.1	74.1	74.3			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				112	241	520	1,121		
CNEL:				116	251	540	1,164		

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)										
Scenario: GPBO Road Name: Pepper Av. Road Segment: n/o Winchester Dr.					Project Name: Pepper Avenue Industrial Job Number: 12961					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 25,412 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,541 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
					VehicleType		Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 95.01% Medium Trucks: 83.0% 5.4% 11.6% 1.59% Heavy Trucks: 64.5% 5.7% 29.7% 3.40%					
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151					
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	68.46	1.99	-0.52	-1.20	-4.69	0.000	0.000			
Medium Trucks:	79.45	-15.77	-0.50	-1.20	-4.88	0.000	0.000			
Heavy Trucks:	84.25	-12.47	-0.50	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	68.7	66.5	64.8	61.2	68.8	69.3				
Medium Trucks:	62.0	60.4	54.5	53.1	61.3	61.5				
Heavy Trucks:	70.1	67.4	62.9	65.3	71.9	72.1				
Vehicle Noise:	72.8	70.4	67.2	66.9	73.9	74.1				
Centerline Distance to Noise Contour (in feet)										
			70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:			109	235	507	1,093				
CNEL:			113	244	526	1,134				

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: GPBO+P Road Name: Pepper Av. Road Segment: n/o Winchester Dr.					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,561 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,556 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 95.04% Medium Trucks: 83.0% 5.4% 11.6% 1.58% Heavy Trucks: 64.5% 5.7% 29.7% 3.38%				
					Noise Source Elevations (in feet)				
					Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.004 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.02	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.77	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-12.47	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.8	66.5	64.8	61.3	68.8	69.3			
Medium Trucks:	62.0	60.4	54.5	53.1	61.3	61.5			
Heavy Trucks:	70.1	67.4	62.9	65.3	71.9	72.1			
Vehicle Noise:	72.9	70.4	67.2	66.9	73.9	74.2			
Centerline Distance to Noise Contour (in feet)									
				70 dBA		65 dBA		60 dBA	
				55 dBA					
Ldn:				109		236		508	
CNEL:				114		245		527	
								1,136	

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: E Road Name: Pepper Av. Road Segment: s/o I-210 EB Ramp					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,129 vehicles					Autos: 15				
Peak Hour Percentage: 10.00%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,213 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 56 feet					Vehicle Type	Day	Evening	Night	Daily
Site Data					Autos: 71.8% 12.1% 16.1% 86.85%				
Barrier Height: 0.0 feet					Medium Trucks: 83.0% 5.4% 11.6% 1.94%				
Barrier Type (0-Wall, 1-Berm): 0.0					Heavy Trucks: 64.5% 5.7% 29.7% 11.21%				
Centerline Dist. to Barrier: 60.0 feet					Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 60.0 feet					Autos: 0.000				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 8.004				
Pad Elevation: 0.0 feet					Grade Adjustment: 0.0				
Road Elevation: 0.0 feet					Lane Equivalent Distance (in feet)				
Road Grade: 0.0%					Autos: 53.301				
Left View: -90.0 degrees					Medium Trucks: 53.135				
Right View: 90.0 degrees					Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.00	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.52	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-7.89	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	67.7	65.5	63.8	60.3	67.8	68.3			
Medium Trucks:	62.2	60.6	54.8	53.4	61.5	61.8			
Heavy Trucks:	74.7	72.0	67.5	69.9	76.5	76.7			
Vehicle Noise:	75.7	73.1	69.2	70.4	77.2	77.4			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			181	389	839	1,807			
CNEL:			186	400	863	1,859			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: E+P Road Name: Pepper Av. Road Segment: s/o I-210 EB Ramp					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):		22,810 vehicles			Autos:		15		
Peak Hour Percentage:		10.00%			Medium Trucks (2 Axles):		15		
Peak Hour Volume:		2,281 vehicles			Heavy Trucks (3+ Axles):		15		
Vehicle Speed:		45 mph			Vehicle Mix				
Near/Far Lane Distance:		56 feet			VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 71.8% 12.1% 16.1% 85.79%				
Barrier Height:		0.0 feet			Medium Trucks:		83.0% 5.4% 11.6% 1.91%		
Barrier Type (0-Wall, 1-Berm):		0.0			Heavy Trucks:		64.5% 5.7% 29.7% 12.30%		
Centerline Dist. to Barrier:		60.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:		60.0 feet			Autos:		0.000		
Barrier Distance to Observer:		0.0 feet			Medium Trucks:		2.297		
Observer Height (Above Pad):		5.0 feet			Heavy Trucks:		8.004		
Pad Elevation:		0.0 feet			Grade Adjustment:		0.0		
Road Elevation:		0.0 feet			Lane Equivalent Distance (in feet)				
Road Grade:		0.0%			Autos:		53.301		
Left View:		-90.0 degrees			Medium Trucks:		53.135		
Right View:		90.0 degrees			Heavy Trucks:		53.151		
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.08	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.45	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-7.36	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	67.8	65.6	63.9	60.3	67.9	68.3			
Medium Trucks:	62.3	60.7	54.8	53.4	61.6	61.9			
Heavy Trucks:	75.2	72.5	68.0	70.4	77.0	77.2			
Vehicle Noise:	76.1	73.5	69.6	70.9	77.7	77.8			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				194	419	902	1,943		
CNEL:				200	430	927	1,997		

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: OY Road Name: Pepper Av. Road Segment: s/o I-210 EB Ramp					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,014 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 2,301 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 86.85% Medium Trucks: 83.0% 5.4% 11.6% 1.94% Heavy Trucks: 64.5% 5.7% 29.7% 11.21%				
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.17	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.35	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-7.72	-0.50	-1.20	-5.34	0.000	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	65.7	64.0	60.4	68.0	68.4			
Medium Trucks:	62.4	60.8	55.0	53.5	61.7	62.0			
Heavy Trucks:	74.8	72.1	67.6	70.0	76.7	76.8			
Vehicle Noise:	75.8	73.3	69.3	70.6	77.4	77.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			186	400	861	1,855			
CNEL:			191	411	886	1,908			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: OYP Road Name: Pepper Av. Road Segment: s/o I-210 EB Ramp				Project Name: Pepper Avenue Industrial Job Number: 12961					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):		24,375 vehicles		Autos:		15			
Peak Hour Percentage:		10.00%		Medium Trucks (2 Axles):		15			
Peak Hour Volume:		2,438 vehicles		Heavy Trucks (3+ Axles):		15			
Vehicle Speed:		45 mph		Vehicle Mix					
Near/Far Lane Distance:		56 feet		VehicleType		Day	Evening	Night	Daily
Site Data				Autos:		71.8%	12.1%	16.1%	84.86%
Barrier Height:		0.0 feet		Medium Trucks:		83.0%	5.4%	11.6%	1.88%
Barrier Type (0-Wall, 1-Berm):		0.0		Heavy Trucks:		64.5%	5.7%	29.7%	13.25%
Centerline Dist. to Barrier:		60.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer:		60.0 feet		Autos:		0.000			
Barrier Distance to Observer:		0.0 feet		Medium Trucks:		2.297			
Observer Height (Above Pad):		5.0 feet		Heavy Trucks:		8.004		Grade Adjustment: 0.0	
Pad Elevation:		0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation:		0.0 feet		Autos:		53.301			
Road Grade:		0.0%		Medium Trucks:		53.135			
Left View:		-90.0 degrees		Heavy Trucks:		53.151			
Right View:		90.0 degrees							
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.32	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-15.22	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-6.74	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.1	65.8	64.1	60.6	68.1	68.6			
Medium Trucks:	62.5	60.9	55.1	53.6	61.8	62.1			
Heavy Trucks:	75.8	73.1	68.6	71.0	77.7	77.8			
Vehicle Noise:	76.7	74.1	70.1	71.4	78.2	78.4			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			212	457	984	2,119			
CNEL:			218	469	1,011	2,177			

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: FC Road Name: Pepper Av. Road Segment: s/o I-210 EB Ramp					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 30,778 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 3,078 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					Vehicle Type	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 71.8% 12.1% 16.1% 86.85% Medium Trucks: 83.0% 5.4% 11.6% 1.94% Heavy Trucks: 64.5% 5.7% 29.7% 11.21%				
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.43	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-14.09	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-6.46	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.2	66.9	65.2	61.7	69.3	69.7			
Medium Trucks:	63.7	62.1	56.2	54.8	63.0	63.2			
Heavy Trucks:	76.1	73.4	68.9	71.3	77.9	78.1			
Vehicle Noise:	77.1	74.5	70.6	71.8	78.6	78.8			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			225	485	1,045	2,252			
CNEL:			232	499	1,075	2,316			

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: FC+P Road Name: Pepper Av. Road Segment: s/o I-210 EB Ramp					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,459 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 3,146 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 86.08% Medium Trucks: 83.0% 5.4% 11.6% 1.92% Heavy Trucks: 64.5% 5.7% 29.7% 12.00%				
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.49	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-14.04	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-6.07	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.2	67.0	65.3	61.7	69.3	69.8			
Medium Trucks:	63.7	62.1	56.3	54.8	63.0	63.3			
Heavy Trucks:	76.5	73.8	69.3	71.7	78.3	78.5			
Vehicle Noise:	77.4	74.9	70.9	72.2	79.0	79.1			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				237	512	1,102	2,374		
CNEL:				244	526	1,133	2,441		

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)										
Scenario: GPBO Road Name: Pepper Av. Road Segment: s/o I-210 EB Ramp					Project Name: Pepper Avenue Industrial Job Number: 12961					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 33,837 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 3,384 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
					VehicleType		Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 86.85% Medium Trucks: 83.0% 5.4% 11.6% 1.94% Heavy Trucks: 64.5% 5.7% 29.7% 11.21%					
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151					
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	68.46	2.84	-0.52	-1.20	-4.69	0.000	0.000			
Medium Trucks:	79.45	-13.67	-0.50	-1.20	-4.88	0.000	0.000			
Heavy Trucks:	84.25	-6.05	-0.50	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	69.6	67.4	65.7	62.1	69.7	70.1				
Medium Trucks:	64.1	62.5	56.6	55.2	63.4	63.6				
Heavy Trucks:	76.5	73.8	69.3	71.7	78.4	78.5				
Vehicle Noise:	77.5	74.9	71.0	72.2	79.0	79.2				
Centerline Distance to Noise Contour (in feet)										
			70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:			240	517	1,113	2,399				
CNEL:			247	531	1,145	2,467				

Friday, May 13, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)									
Scenario: GPBO+P Road Name: Pepper Av. Road Segment: s/o I-210 EB Ramp					Project Name: Pepper Avenue Industrial Job Number: 12961				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 34,518 vehicles Peak Hour Percentage: 10.00% Peak Hour Volume: 3,452 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 56 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 71.8% 12.1% 16.1% 86.15% Medium Trucks: 83.0% 5.4% 11.6% 1.92% Heavy Trucks: 64.5% 5.7% 29.7% 11.93%				
					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: 53.301 Medium Trucks: 53.135 Heavy Trucks: 53.151				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.90	-0.52	-1.20	-4.69	0.000	0.000		
Medium Trucks:	79.45	-13.63	-0.50	-1.20	-4.88	0.000	0.000		
Heavy Trucks:	84.25	-5.69	-0.50	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.6	67.4	65.7	62.2	69.7	70.2			
Medium Trucks:	64.1	62.5	56.7	55.2	63.4	63.7			
Heavy Trucks:	76.9	74.2	69.7	72.1	78.7	78.9			
Vehicle Noise:	77.8	75.2	71.3	72.6	79.3	79.5			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				252	542	1,169	2,518		
CNEL:				259	558	1,201	2,588		

APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

This page intentionally left blank

12961 - Pepper Avenue Industrial Warehouse

CadnaA Noise Prediction Model: 12961_04.cna

Date: 12.05.22

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 Rcvr - 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	38.1	38.0	44.7	55.0	45.0	0.0				5.00 a	6226408.91	2357529.32	5.00
RECEIVERS		R2	34.9	34.8	41.5	55.0	45.0	0.0				5.00 a	6231189.69	2357604.83	5.00
RECEIVERS		R3	33.7	33.7	40.4	55.0	45.0	0.0				5.00 a	6231925.87	2356475.57	5.00
RECEIVERS		R4	41.2	41.2	47.8	55.0	45.0	0.0				5.00 a	6227983.57	2355255.76	5.00
RECEIVERS		R5	42.4	42.4	49.1	55.0	45.0	0.0				5.00 a	6226741.83	2356412.82	5.00
RECEIVERS		R6	48.1	48.1	54.7	55.0	55.4	0.0				5.00 a	6229407.48	2356573.75	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height	Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night		X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00 a	6229114.59	2356891.96	5.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00 a	6228182.06	2356769.22	5.00
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00 g	6228036.94	2356919.35	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00 g	6229077.94	2357302.91	50.00
POINTSOURCE		PARK01	87.8	87.8	87.8	Lw	87.8					5.00 a	6228058.49	2356770.52	5.00
POINTSOURCE		PARK02	87.8	87.8	87.8	Lw	87.8					5.00 a	6228035.29	2356822.27	5.00
POINTSOURCE		PARK03	87.8	87.8	87.8	Lw	87.8					5.00 a	6228140.73	2356793.19	5.00
POINTSOURCE		PARK04	87.8	87.8	87.8	Lw	87.8					5.00 a	6228093.58	2356851.78	5.00
POINTSOURCE		PARK05	87.8	87.8	87.8	Lw	87.8					5.00 a	6227949.20	2356809.29	5.00
POINTSOURCE		PARK06	87.8	87.8	87.8	Lw	87.8					5.00 a	6227955.83	2356915.92	5.00
POINTSOURCE		PARK07	87.8	87.8	87.8	Lw	87.8					5.00 a	6227954.19	2357008.24	5.00
POINTSOURCE		PARK08	87.8	87.8	87.8	Lw	87.8					5.00 a	6227953.21	2357139.07	5.00

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		PARK09	87.8	87.8	87.8	Lw	87.8					5.00	a 6227949.91	2357228.21	5.00
POINTSOURCE		PARK10	87.8	87.8	87.8	Lw	87.8					5.00	a 6227949.93	2357323.71	5.00

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)
LINESOURCE		TRUCK01	93.2	93.2	93.2	72.4	72.4	72.4	Lw	93.2								8
LINESOURCE		TRUCK02	93.2	93.2	93.2	65.8	65.8	65.8	Lw	93.2								8

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
LINESOURCE	8.00	a	6227897.24	2356681.62	8.00	0.00
			6228289.56	2356679.06	8.00	0.00
LINESOURCE	8.00	a	6229154.00	2356859.13	8.00	0.00
			6229160.73	2357357.67	8.00	0.00
			6229156.90	2357368.17	8.00	0.00
			6229152.18	2357373.87	8.00	0.00
			6229140.28	2357382.10	8.00	0.00
			6229125.08	2357384.76	8.00	0.00
			6227887.42	2357400.95	8.00	0.00

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)	
AREASOURCE		DOCK01	111.5	111.5	111.5	66.7	66.7	66.7	Lw	111.5					8

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	a	6228164.77	2356932.43	8.00	0.00
			6229098.72	2356920.48	8.00	0.00
			6229100.05	2356857.12	8.00	0.00
			6229174.56	2356859.89	8.00	0.00
			6229172.27	2356672.30	8.00	0.00
			6228439.76	2356682.39	8.00	0.00
			6228434.97	2356471.10	8.00	0.00
			6228013.53	2356478.27	8.00	0.00
			6228015.63	2356555.03	8.00	0.00
			6227923.38	2356552.61	8.00	0.00
			6227926.32	2356664.04	8.00	0.00
			6228289.36	2356660.47	8.00	0.00
			6228290.27	2356744.84	8.00	0.00
			6228164.24	2356746.99	8.00	0.00
			6228167.23	2356888.25	8.00	0.00

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						9.00	a	6228167.23	2356888.25	9.00	0.00
										6228164.24	2356746.99	9.00	0.00
										6228290.27	2356744.84	9.00	0.00
										6228290.00	2356720.35	9.00	0.00
BARRIERTEMP		0						9.00	a	6228287.70	2356662.45	9.00	0.00
										6227923.67	2356667.02	9.00	0.00
										6227921.39	2356549.96	9.00	0.00
										6228011.99	2356552.06	9.00	0.00
										6228011.88	2356476.62	9.00	0.00
										6228437.62	2356469.12	9.00	0.00
										6228442.40	2356680.74	9.00	0.00
										6229175.80	2356668.78	9.00	0.00
										6229178.48	2356859.45	9.00	0.00
										6229185.19	2357413.39	9.00	0.00
										6228108.17	2357421.16	9.00	0.00

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	a 6228004.17	2357351.67	45.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height	Coordinates			
						Begin	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)
							6229117.87	2357338.34	45.00	0.00
							6229113.16	2356920.30	45.00	0.00
							6228164.77	2356932.43	45.00	0.00
							6228167.23	2356888.25	45.00	0.00
							6227999.56	2356891.90	45.00	0.00

This page intentionally left blank

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

This page intentionally left blank

12961 - Pepper Avenue Industrial Warehouse

CadnaA Noise Prediction Model: 12961_04 - Construction.cna

Date: 12.05.22

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 Rcvr - 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	52.9	52.9	59.6	55.0	45.0	0.0				5.00	a	6226408.91	2357529.32	5.00
RECEIVERS		R2	50.4	50.4	57.1	55.0	45.0	0.0				5.00	a	6231189.69	2357604.83	5.00
RECEIVERS		R3	48.0	48.0	54.6	55.0	45.0	0.0				5.00	a	6231925.87	2356475.57	5.00
RECEIVERS		R4	54.9	54.9	61.6	55.0	45.0	0.0				5.00	a	6227983.57	2355255.76	5.00
RECEIVERS		R5	54.8	54.8	61.5	55.0	45.0	0.0				5.00	a	6226741.83	2356412.82	5.00
RECEIVERS		R6	62.2	62.2	68.8	55.0	55.4	0.0				5.00	a	6229407.48	2356573.75	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)				(min)	(min)	(min)	
SITEBOUNDARY		CONSTRUCTION	115.0	115.0	115.0	65.1	65.1	65.1	Lw	115					8 a

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a	6227887.11	2357423.30	8.00	0.00
			6229181.28	2357410.78	8.00	0.00
			6229172.27	2356672.30	8.00	0.00
			6228439.76	2356682.39	8.00	0.00
			6228434.97	2356471.10	8.00	0.00
			6228013.53	2356478.27	8.00	0.00
			6228013.19	2356458.09	8.00	0.00

Name	Height			Coordinates			
	Begin	End		x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6227900.33	2356455.26	8.00	0.00

APPENDIX 10.2:

CADNAA NIGHTTIME CONCRETE POUR CONSTRUCTION NOISE MODEL INPUTS

This page intentionally left blank

12961 - Pepper Avenue Industrial Warehouse

CadnaA Noise Prediction Model: 12961_04 - Concrete Pour.cna

Date: 12.05.22

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 Rcvr - 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	46.4	46.4	53.1	55.0	45.0	0.0				5.00	a	6226408.91	2357529.32	5.00
RECEIVERS		R2	44.2	44.2	50.9	55.0	45.0	0.0				5.00	a	6231189.69	2357604.83	5.00
RECEIVERS		R3	41.6	41.6	48.3	55.0	45.0	0.0				5.00	a	6231925.87	2356475.57	5.00
RECEIVERS		R4	47.1	47.1	53.8	55.0	45.0	0.0				5.00	a	6227983.57	2355255.76	5.00
RECEIVERS		R5	47.5	47.5	54.2	55.0	45.0	0.0				5.00	a	6226741.83	2356412.82	5.00
RECEIVERS		R6	53.8	53.8	60.5	55.0	55.4	0.0				5.00	a	6229407.48	2356573.75	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)	
BUILDING		CONCRETE POUR	115.0	115.0	115.0	68.6	68.6	68.6	Lw	115					8 a

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
BUILDING	8.00	a	6228004.17	2357351.67	8.00	0.00
			6229117.87	2357338.34	8.00	0.00
			6229113.16	2356920.30	8.00	0.00
			6228164.77	2356932.43	8.00	0.00
			6228167.23	2356888.25	8.00	0.00
			6227999.56	2356891.90	8.00	0.00

This page intentionally left blank