

APPENDIX 10

NOISE



Inland Valley Infrastructure Corridor

NOISE AND VIBRATION ANALYSIS

INLAND VALLEY DEVELOPMENT AGENCY

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LIST OF ABBREVIATED TERMS

(1)	Reference
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
MARB/IPA	March Air Reserve Base/Inland Port Airport
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Inland Valley Infrastructure Corridor
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

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EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Inland Valley Infrastructure Corridor improvement ("Project"). The Project site is located immediately north of the SBIA and the Project area extends to the north side of 6th Street. The western boundary extends to the terminus of the City Creek Bypass Channel, where it joins with Twin Creek, which is about a quarter of a mile to the east of Waterman Avenue. The Project area is bounded to the east by the SR-210 freeway. Third Street in both cities and Fifth Street in the City of Highland serve as the southern boundary of the Project area. The Project is envisioned to be developed over a period of about 20 years incrementally. The Project includes the installation of up to 20 miles of roadway, City Creek Bypass Channel improvements, a 3.5 million gallon (MG) storage reservoir located in the Lower Zone, a new Well 01 in the Intermediate Zone, and up to 5,000 feet of sewer lines. This Noise and Vibration Analysis has been prepared to satisfy applicable noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report, consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA 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>	-
Construction Noise	10	<i>Less Than Significant</i>	-
Construction Vibration		<i>Less Than Significant</i>	-

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1 INTRODUCTION

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

1.1 SITE LOCATION

The proposed Project area is located approximately 60 miles east of Los Angeles just south of the foothills of the San Bernardino Mountains. It is centrally located between three major freeways (State Route (SR)-210 to the north and east, the Interstate (I)-215 to the west, and the I-10 to the south) and regional attractions including the Loma Linda University and Medical Center (5 miles southwest of Project area), University of Redlands (8 miles southeast of Project area), the San Bernardino International Airport (SBIA), and commercial shopping destinations in Downtown San Bernardino and the Highland Town Center, both within 5 miles of the Project area, as shown on Exhibit 1-A.

The Project area is located immediately north of the SBIA and the Project area extends to the north side of 6th Street. The western boundary extends to the terminus of the City Creek Bypass Channel, where it joins with Twin Creek, which is about a quarter of a mile to the east of Waterman Avenue. The Project area is bounded to the east by the SR-210 freeway. Third Street in both cities and Fifth Street in the City of Highland serve as the southern boundary of the Project area.

The north side of the Project area is predominantly bordered by a mix of vacant lands and low to medium density residential uses. The Project area is located directly across the street from several public facilities including Indian Springs High School, Cypress Elementary School, Highland Community Park, the Highland Branch Library, and the SBIA.

1.2 PROJECT DESCRIPTION

The Project improvements, as in Exhibit 1-B, is envisioned to be developed over a period of about 20 years in an incremental manner. As discussed above, the Project includes the installation of the following:

- Up to 20 miles of roadway (assumes one-lane width)
- City Creek Bypass Channel improvements
- 3.5 MG storage reservoir located in the Lower Zone
- New Well 01 in the Intermediate Zone
- Up to 5,000 feet of sewer

In order to forecast the procession for development of the above infrastructure improvements, it is assumed that in the worst-case of construction, construction would consist of the following:

- **Project Category 1: Roadway Installation.** Construction of one mile of new roadway, lane-width assumed to be 12 feet with curb and gutter
- **Project Category 2: Channel Improvement Installation.** Installation of one-third of the ultimate City Creek Bypass Channel design (length installed each year anticipated to be about one mile for 3 years)
- **Project Category 3: Storage Reservoir.** Installation of a 3.5 MG storage reservoir
- **Project Category 4: Extraction Well.** Installation of a new extraction well
- **Project Category 5: Sewer Installation.** Installation of 2,500 feet of sewer

EXHIBIT 1-A: LOCATION MAP

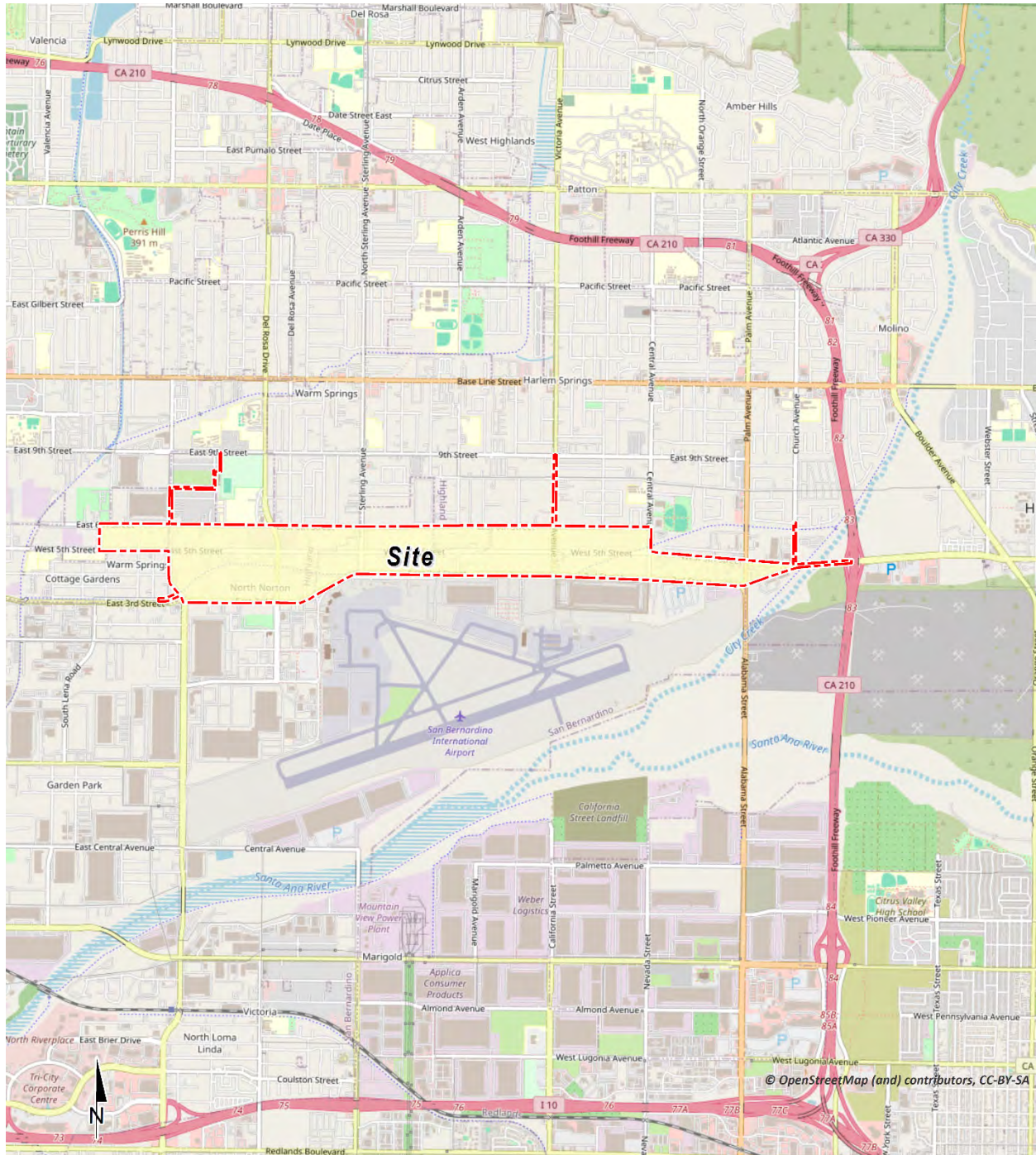


EXHIBIT 1-B: PROPOSED IMPROVEMENTS



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	SPEECH INTERFERENCE
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	SLEEP DISTURBANCE
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	NO EFFECT
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30		
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20	FAINT	NO EFFECT
	BROADCAST/RECORDING STUDIO	10		
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 County of San Bernardino and the Cities of San Bernardino and Highland rely 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

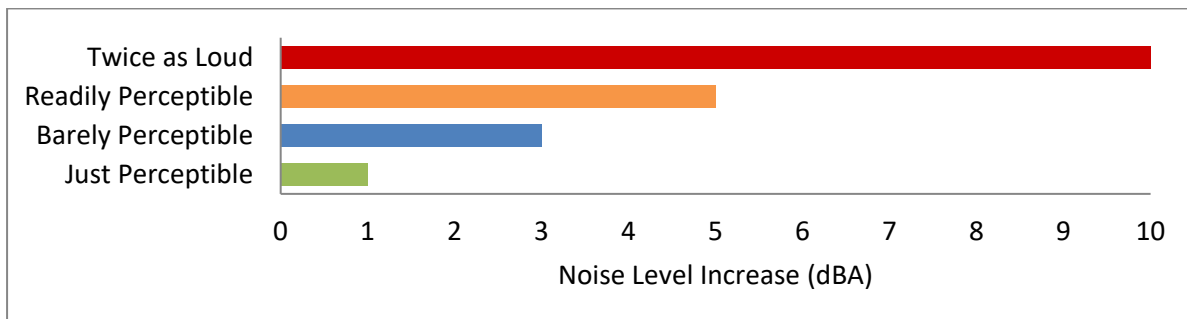
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development,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



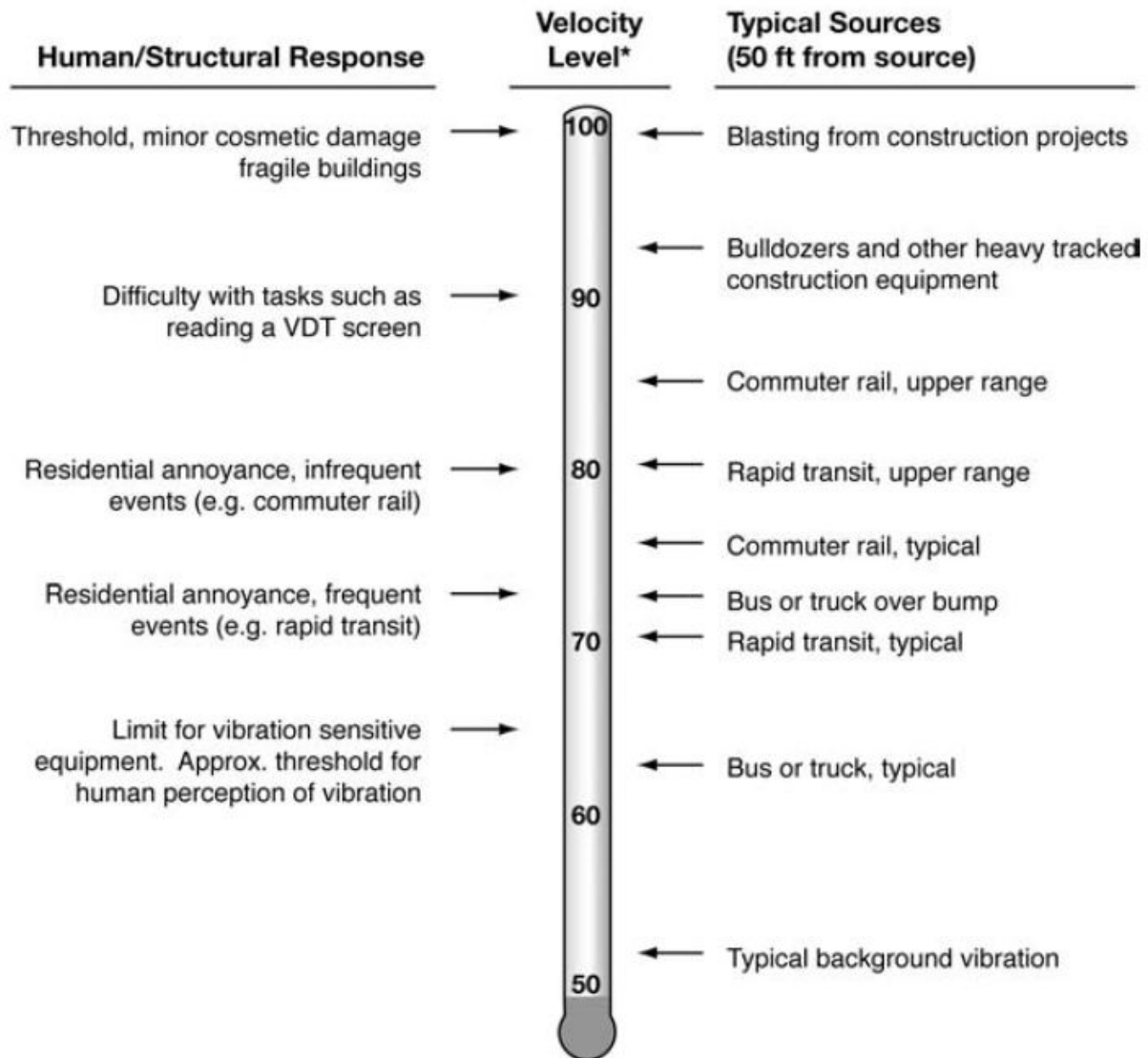
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*, 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.

Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (8). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (8). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structures reduce vibration levels due to the coupling of the building to the soil. 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 (8). 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 (8). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (9). Thus, either can be used in the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide a background of common vibration levels and set vibration limits. (8) Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels. As stated in the FTA guidance manual, 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). (10) OPR identifies suggested land use noise compatibility levels as part of its General Plan Guidelines. These suggested guidelines provide planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels. The guidelines identify normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for various land uses. The land use compatibility guidelines are intended to be an advisory resource when considering changes in land use and policies, such as zoning modifications. In addition, the State through the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.1 COUNTY OF SAN BERNARDINO

3.1.1 COUNTYWIDE PLAN HAZARDS ELEMENT

The County Of San Bernardino is committed to protecting life, property, and commerce from impacts associated with natural hazards, human-generated hazards, and increased risk due to climate change. The County also works to ensure that residents in unincorporated disadvantaged communities have a reduced risk of exposure to pollution and have equitable access to public facilities and services. Effectively reducing these risks requires the County and its partners to evaluate public safety threats, proactively plan and protect against potential hazards, and establish systems that will make the county and its people safer and more self-reliant. (11) To address noise sources found in the County Of San Bernardino, the following policies have been identified in the Countywide Plan Hazards Element:

- **Policy HZ-2.6:** Coordination with transportation authorities. We collaborate with airport owners, FAA, Caltrans, SBCTA, SCAG, neighboring jurisdictions, and other transportation providers in the preparation and maintenance of, and updates to transportation-related plans and projects to minimize noise impacts and provide appropriate mitigation measures.

- **Policy HZ-2.7:** Truck delivery areas. We encourage truck delivery areas to be located away from residential properties and require associated noise impacts to be mitigated.
- **Policy HZ-2.8:** Proximity to noise generating uses. We limit or restrict new noise sensitive land uses in proximity to existing conforming noise generating uses and planned industrial areas.
- **Policy HZ-2.9:** Control sound at the source. We prioritize noise mitigation measures that control sound at the source before buffers, sound walls, and other perimeter measures.
- **Policy HZ-2.10:** Agricultural operations. We require new development adjacent to existing conforming agricultural operations to provide adequate buffers to reduce the exposure of new development to operational noise, odor, and the storage or application of pesticides or other hazardous materials.
- **Policy HZ-3.19:** Community education. We make educational materials available to the public in unincorporated environmental justice focus areas so that they clearly understand the potential for adverse pollution, noise, odor, vibration, and lighting and glare, and the effects of toxic materials to promote civil engagement. We require that such educational materials be developed in accordance with Plain Language Guidelines.

3.1.2 DEVELOPMENT CODE

While the County of San Bernardino Countywide Plan Hazards Element provides guidelines and criteria to assess transportation noise on sensitive land uses, the County Code, Title 8 Development Code contains the noise level limits for mobile, stationary, and construction-related noise sources. (12)

Transportation Noise Standards

Section 83.01.080(d), Table 83-3, contains the County Of San Bernardino's mobile noise source-related standards, shown on Exhibit 3-C. Exterior transportation (mobile) noise level standards for residential land uses in the Project study area are shown to be 60 dBA CNEL, while non-noise-sensitive land uses, such as office uses, require exterior noise levels of 65 dBA CNEL per the County's Table 83-3 mobile noise source standards.

EXHIBIT 3-A: COUNTY OF SAN BERNARDINO MOBILE NOISE LEVEL STANDARDS

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.

Source: County of San Bernardino County Code, Title 8 Development Code, Table 83-3.

Operational Noise Standards

To analyze noise impacts originating from a designated fixed location such as the Inland Valley Infrastructure Corridor Project, stationary-source (operational) noise such as the expected Project's noise sources are evaluated against the County Code, Title 8 Development Code, Section 83.01.080(c) establishes the noise level standards for stationary noise sources. Since the Project's 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. The exterior noise level (11) 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 in Table 3-1 and included in Appendix 3.1.

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 3.1). The percent noise level is the level exceeded "n" percent of the time during the measurement period. L₅₀ is the noise level exceeded 50% of the time.

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's operational activities, the L₅₀ or average L_{eq} noise level metrics best describe the noise levels from the Project's noise sources. 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 (L₅₀) and the mean (L_{eq}), the L_{eq} will always be larger than or equal to the L₅₀. The more variable the noise becomes, the larger the L_{eq} becomes in comparison to the L₅₀. Therefore, this noise study conservatively relies on the average L_{eq} sound level limits to describe the Project's operational noise levels.

Construction Noise Standards

Section 83.01.080(g)(3) of the County of San Bernardino Development Code, provided in Appendix 3.1, indicates that construction activity is considered exempt from the noise level standards between the hours of 7:00 a.m. to 7:00 p.m. except on Sundays and Federal holidays. (12)

Construction Vibration Standards

The County of San Bernardino 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 is used.

3.2 CITY OF SAN BERNARDINO

3.2.1 GENERAL PLAN NOISE ELEMENT

The City of San Bernardino General Plan Noise Element identifies several policies to minimize the impacts of excessive noise levels throughout the community. (13) The Noise Element provides policy guidance which addresses the generation, mitigation, avoidance, and the control of excessive noise. To protect City of San Bernardino residents from excessive noise levels, the Noise Element contains the following three goals:

- 14.1 *Ensure that residents are protected from excessive noise through careful land planning.*
- 14.2 *Encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations, and railroad movements.*
- 14.3 *Protect residents from the negative effects of “spill over” or nuisance noise.*

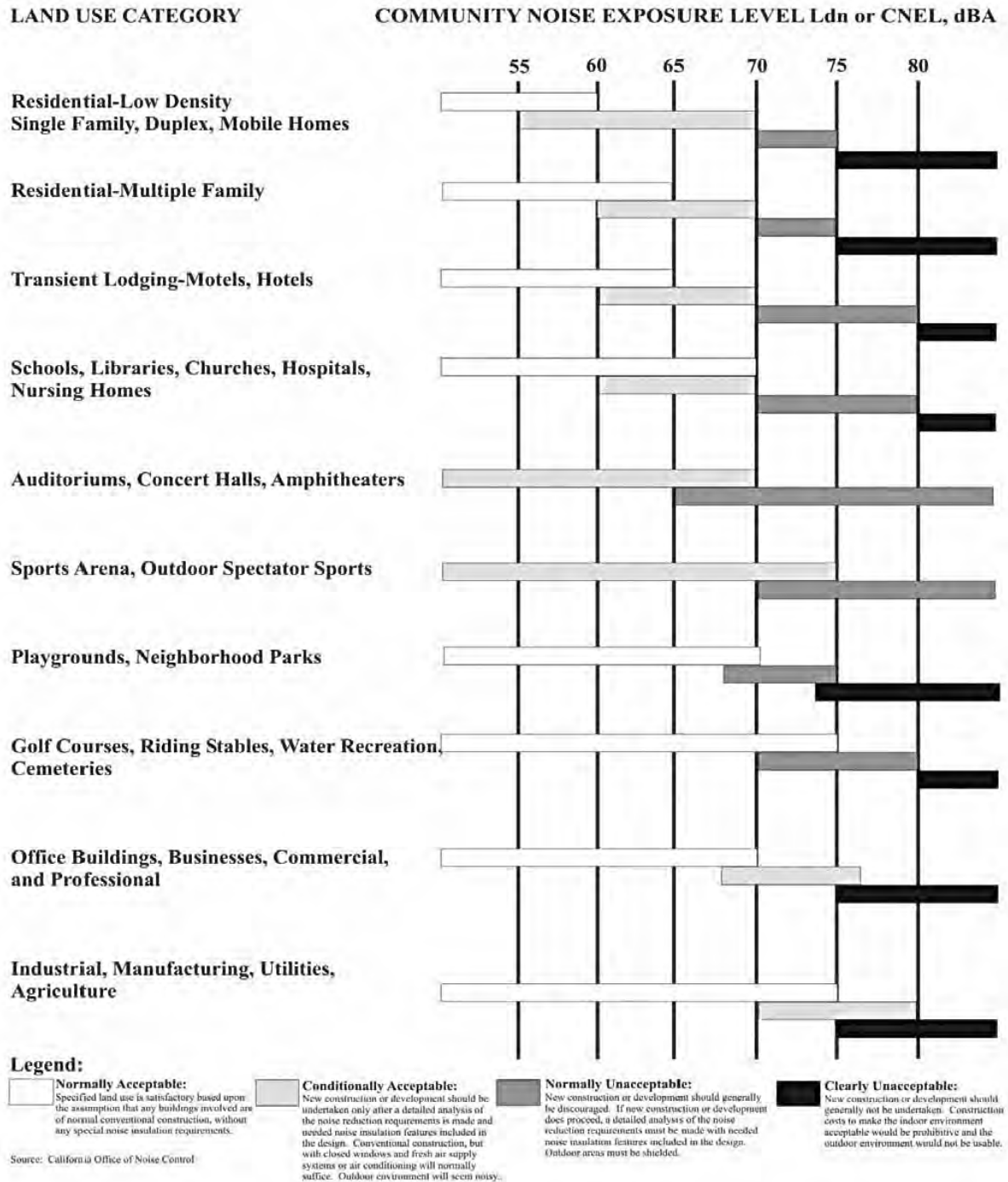
The noise policies specified in the City of San Bernardino Noise Element provide the guidelines necessary to satisfy these goals. To ensure that residents are not exposed to excessive noise levels (Goal 14.1), Policies 14.1.1 to 14.1.4 indicate that sensitive land uses such as housing, health care facilities, schools, libraries, and religious facilities should not experience exterior noise levels greater than 65 dBA LDN for exterior areas and 45 dBA LDN for interior areas. As discussed in Section 2.2 the more conservative CNEL descriptor is used in this analysis, and therefore, the exterior noise level criteria of 65 dBA CNEL and interior noise level criteria of 45 dBA CNEL shall apply to sensitive land uses. Policies 14.2.1 to 14.2.19 outline the transportation-related guidelines and mitigation strategies the City uses to satisfy Goal 14.2. To protect residents from sources of operational and construction noise (Goal 14.3), the Noise Element includes Policies 14.3.1 to 14.3.8 to adopt a Noise Ordinance and ensure noise issues between land uses are reduced. (13)

Land Use Compatibility

The noise criteria identified in the City of San Bernardino Noise Element (Figure N-1) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown in Exhibit 3-B, provide the city with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The *Land Use Compatibility for Community Noise Exposure* guidelines indicate that manufacturing/business park land uses, such as the Project, are considered *normally acceptable* with noise levels below 75 dBA CNEL and *conditionally acceptable* with noise levels of less than 80 dBA CNEL.

Transportation Noise Standards

To encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations, and railroad movements (Goal 14.2), Table N-3 of the City of San Bernardino General Plan Noise Element, shown in Exhibit 3-C, identifies a maximum allowable exterior noise level of 65 dBA CNEL and an interior noise level limit of 45 dBA CNEL for new residential developments. While the City specifically identifies an exterior noise level limit for noise-sensitive residential land uses such as hotels, hospitals, schools, and parks, the City of San Bernardino does not maintain exterior noise standards for non-noise-sensitive land uses such as manufacturing, warehousing, wholesale, and utilities.

EXHIBIT 3-B: LAND USE COMPATIBILITY FOR COMMUNITY NOISE EXPOSURE

Source: City of San Bernardino General Plan Noise Element, Figure N-1.

EXHIBIT 3-C: INTERIOR AND EXTERIOR NOISE STANDARDS

<i>Land Use</i>		<i>CNEL (dBA)</i>	
<i>Categories</i>	<i>Uses</i>	<i>Interior</i> ¹	<i>Exterior</i> ²
Residential	Single and multi-family, duplex	45 ³	65
	Mobile homes	----	65 ⁴
Commercial	Hotel, motel, transient housing	45	---
	Commercial retail, bank, restaurant	55	---
	Office building, research and development, professional offices	50	---
	Amphitheater, concert hall, auditorium, movie theater	45	---
	Gymnasium (Multipurpose)	50	---
	Sports Club	55	---
	Manufacturing, warehousing, wholesale, utilities	65	---
	Movie Theaters	45	---
Institutional/ Public	Hospital, school classrooms/playgrounds	45	65
	Church, library	45	---
Open Space	Parks	---	65

¹ Indoor environment excluding: bathrooms, kitchens, toilets, closets, and corridors

² Outdoor environment limited to:

- Private yard of single-family dwellings
- Multi-family private patios or balconies accessed from within the dwelling (Balconies 6 feet deep or less are exempt)
- Mobile home parks
- Park picnic areas
- School playgrounds
- Hospital patios

³ Noise level requirement with closed windows, mechanical ventilation or other means of natural ventilation shall be provided as per Chapter 12, Section 1205 of the Uniform Building Code.

⁴ Exterior noise levels should be such that interior noise levels will not exceed 45 dBA CNEL.

Source: City of San Bernardino General Plan Noise Element, Table N-3.

3.2.2 MUNICIPAL CODE

Operational Noise Standards

To analyze noise impacts originating from a designated fixed location or private property such as the Inland Valley Infrastructure Corridor Project, operational source noise is typically evaluated against standards established under a City's Municipal Code. While the City of San Bernardino maintains several policies in the Municipal Code Noise Control Ordinance to control the negative effects of nuisance noise, it does not identify specific exterior noise level limits. However, the policies in the Municipal Code Development Code, Chapter 19.20, *Property Development Standards* contain the exterior and interior noise level standards for residential land uses. Therefore, the stationary noise sources such as loading dock activity, roof-top air conditioning units, parking lot vehicle activities, trash enclosure activity, and truck movements originating from a designated fixed location or private property, such as the commercial retail use within the Inland Valley Infrastructure Corridor site, are evaluated against the policies adopted in the City's Development Code. (14)

The Project's operational noise impacts are governed by the City of San Bernardino Municipal Code, Section 8.54, included in Appendix 3.2. Section 8.54.060 states when such noises are an accompaniment and effect of a lawful business, commercial, *or industrial enterprise carried on in an area zoned for that purpose...*these activities shall be exempt (Section 8.54.060(B)). (15) However, due to the Project's close proximity to residential land uses, located north of the Project site boundary, Development Code, Section 19.20.030.15(A), limits the operational stationary-source noise to an exterior noise level of 65 dBA for residential land uses. (14) The City of San Bernardino Development Code noise standards are shown in Table 3-2 and included in Appendix 3.2.

TABLE 3-2: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land Use	Exterior Noise Level Standard (dBA Leq) ¹
City of San Bernardino ¹	Residential	65

¹ Source: City of San Bernardino Development Code, Section 19.20.030.15(A) (Appendix 3.1).

Construction Noise Standards

To control noise impacts associated with the construction of the proposed Project, the City of San Bernardino Municipal Code has established limits to the hours of operation. Section 8.54.070 the City of San Bernardino Municipal Code, provided in Appendix 3.2, indicates that construction activity is restricted to the hours within 7:00 a.m. and 8:00 p.m.

3.3 CITY OF HIGHLAND

3.3.1 GENERAL PLAN NOISE ELEMENT

The City of Highland has adopted a Noise Element of the General Plan to provide goals and strategies to ensure a quiet noise environment for residents, employees, and visitors to Highland. (16) To ensure a quiet noise environment, the City of Highland General Plan Noise Element contains the following goals:

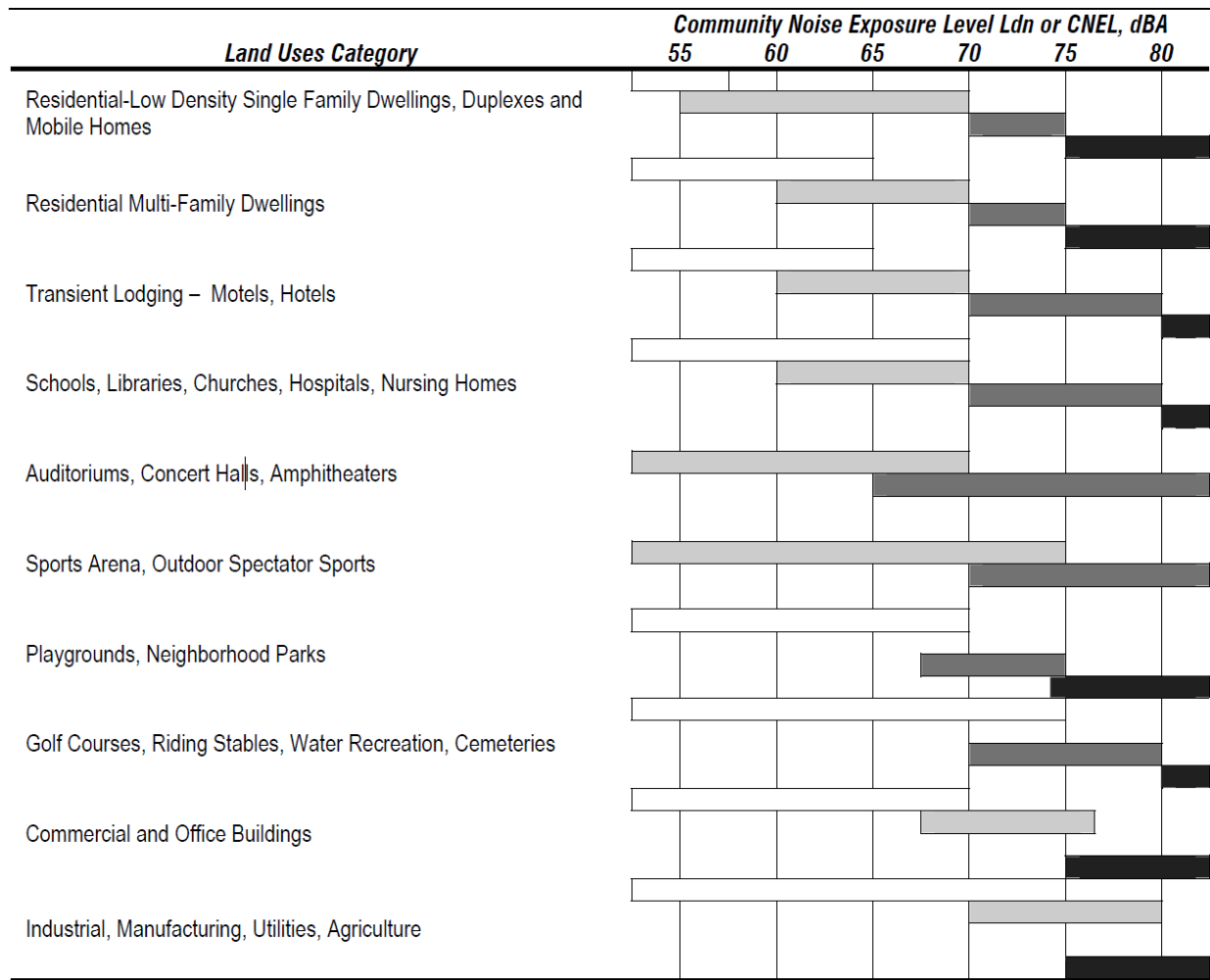
- 7.1 *Protect sensitive land uses and the citizens of Highland from annoying and excessive noise through diligent planning and regulation.*
- 7.2 *Encourage the reduction of noise from transportation-related noise sources such as automobile and truck traffic.*
- 7.3 *Protect residents from the effects of “spill over” or nuisance noise.*

The Policies and Actions specified in the City of Highland Noise Element provide the guidelines necessary to satisfy these goals. For example, Goal 7.3, Action 1 indicates that construction, as a condition of approval, shall be limited to daytime hours between 7:00 a.m. to 6:00 p.m. on weekdays. The City of Highland Noise Element (Table 7.3) identifies noise and land use guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown in Exhibit 3-D, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Community Noise and Land Use Compatibility* matrix describes categories of compatibility and not specific noise standards. The restaurant use of the Project is considered *normally acceptable* with unmitigated exterior noise levels of less than 70 dBA CNEL based on the *Commercial and Office Buildings* land use compatibility criteria shown in Exhibit 3-D. Residential designated land uses in the Project study area are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL and *conditionally acceptable* with exterior noise levels of up to 70 dBA CNEL. (16)

Construction Noise Standards

The City of Highland General Plan Noise Element, Goal 7.3, Action 1 indicates that construction, as a condition of approval, shall be limited to daylight hours between 7:00 a.m. to 6:00 p.m. (16)

EXHIBIT 3-D: COMMUNITY NOISE AND LAND USE COMPATIBILITY**Explanatory Notes****Normally Acceptable:**

Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

**Conditionally Acceptable:**

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply system or air conditioning will normally suffice. Outdoor environment will seem noisy.

**Normally Unacceptable:**

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.

**Clearly Unacceptable:**

New construction or development should generally not be undertaken. Construction cost to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

3.3.2 CITY OF HIGHLAND MUNICIPAL CODE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Project, stationary-source (operational) noise levels such as the expected loading dock activity, roof-top air conditioning units, parking lot vehicle activities, trash enclosure activity, and truck movements, as well as noise from construction activities are typically evaluated against

standards established under the City's Municipal Code. However, the currently adopted City of Highland Municipal Code included in Appendix 3.3 does not identify any quantifiable exterior noise level standards for non-transportation (stationary) noise sources. However, Table 7.2 in the City of Highland General Plan Noise Element provides exterior noise standards (16), as shown in Exhibit 3-E. While Exhibit 3-D indicates the noise levels are based on dBA CNEL, however, they are also provided based on the daytime and nighttime periods. Since CNEL levels are based on 24-hour noise levels, the noise level limits are assumed to be intended as hourly noise level limits, i.e., dBA L_{eq} .

EXHIBIT 3-E: CITY OF HIGHLAND EXTERIOR NOISE STANDARDS

<i>Type of Land Use</i>	<i>Time Interval</i>	<i>CNEL (dBA)</i>
Residential	10:00 p.m. – 7:00 a.m.	55
	7:00 a.m. – 10:00 p.m.	60
Agricultural/Equestrian	10:00 p.m. – 7:00 a.m.	60
	7:00 a.m. – 10:00 p.m.	65
Commercial	10:00 p.m. – 7:00 a.m.	65
	7:00 a.m. – 10:00 p.m.	70
Manufacturing or Industrial	Any Time	75
Open Space	Any Time	75

Source: Chapter 8.50, Noise Control, City of Highland Municipal Code.

City of Highland General Plan Noise Element.

3.4 SAN BERNARDINO INTERNATIONAL AIRPORT (SBIA)

The San Bernardino International Airport (SBIA) is located south of the Project site. This places the Project site within the SBIA Influence Area. The SBIA was initially built as Norton Air Force Base by the United States Air Force (USAF). Under the Base Realignment and Closure Act of 1990, Norton Air Force base was closed and disposed of by the USAF for a civilian aviation reuse in 1994 and transferred to the San Bernardino International Airport Authority (SBIAA). The SBIAA operates the facility as a public-use general aviation airport that accommodates aircraft ranging from piston-powered propeller aircraft to multi-engine jet aircraft including large air cargo aircraft (17). The latest aircraft noise contour boundaries for the SBIA were published by the SBIAA on July 2, 2019, as part of the Eastgate Air Cargo Facility Final Environmental Assessment (17). Figure 4-6 of the Final Environmental Assessment describes the Proposed Project CNEL Contours for the SBIA. The future SBIA noise level contours boundaries representing approximately 87,500 annual aircraft operations are shown on Exhibit 3-C.

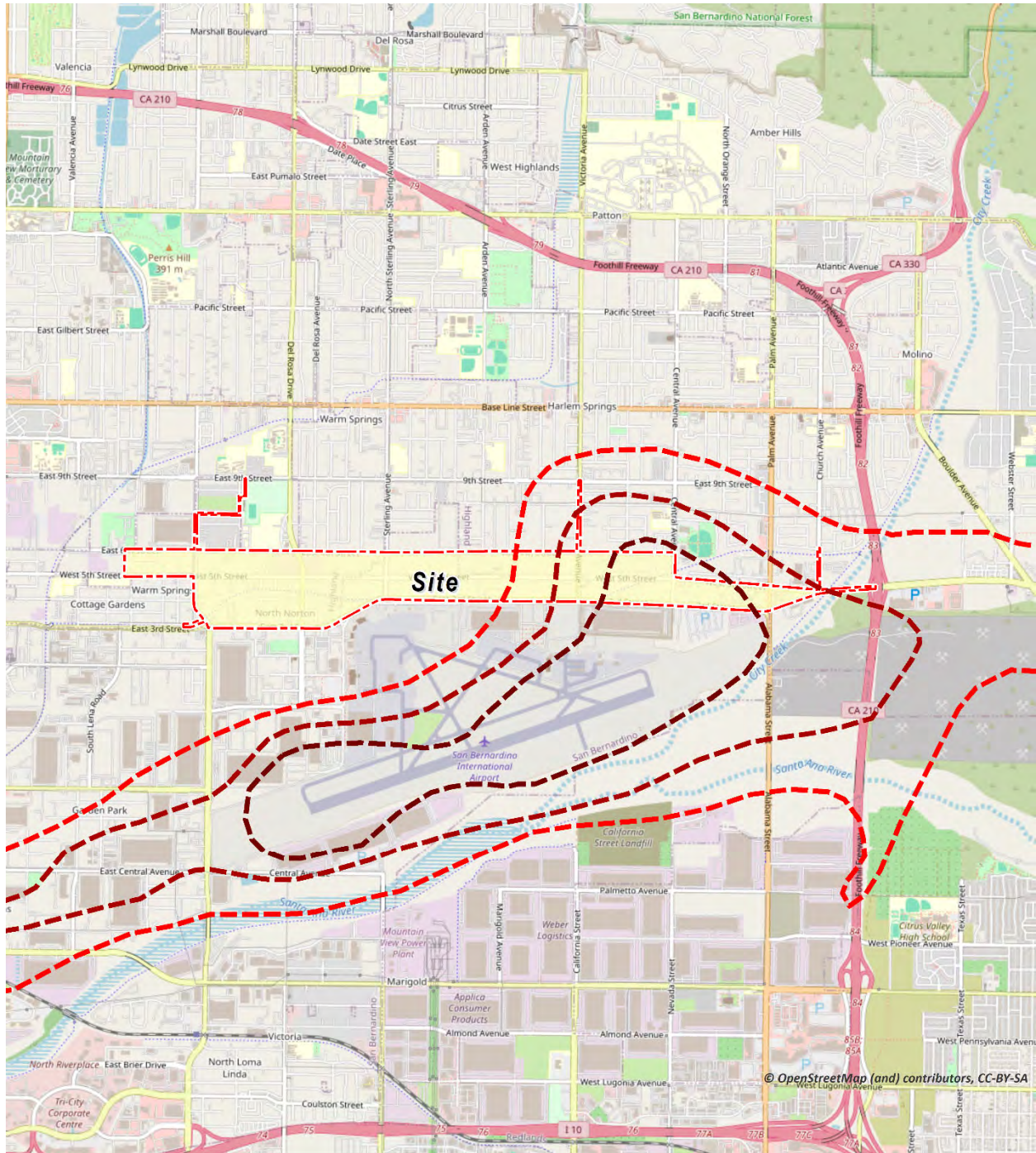
As shown on Exhibit 3-C the Project is located within the 75 dBA CNEL noise level contours of the SBIA.

3.5 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the City of San Bernardino, the City of High Land and the County of San Bernardino limit the hour's construction is allowed. However, none of the General Plans nor 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 (18 p. 179).

EXHIBIT 3-B: SAN BERNARDINO INTERNATIONAL AIRPORT NOISE CONTOURS



LEGEND:

 65 dBA CNEL noise level contour
  70 dBA CNEL noise level contour
  75 dBA CNEL noise level contour

3.6 VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures, and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment, such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration (19).

To analyze vibration impacts originating from the operation and construction of the Inland Valley Infrastructure Corridor, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code if such standards exist. While the County of San Bernardino identifies a maximum vibration limit of 0.2 PPV (in/sec), neither the City of San Bernardino nor Highland identify specific vibration level limits. Therefore, for analysis purposes and consistency, the County of San Bernardino vibration threshold of 0.2 PPV (in/sec) is used to evaluate vibration impacts in all jurisdictions.

4 SIGNIFICANCE CRITERIA

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

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- B. Generation of excessive ground-borne vibration or ground-borne noise levels?
- C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of 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* (20). This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged.

The Federal Interagency Committee on Noise (FICON) (21) 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* (20). For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if

the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (22 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of the Inland Valley Infrastructure Corridor, vibration-generating activities are appropriately evaluated using the County of San Bernardino threshold to assess potential temporary construction-related impacts at nearby receiver locations. The County of San Bernardino Municipal Code identifies an operational vibration level threshold of 0.2 in/sec PPV.

4.3 AIRPORT NOISE (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 located within two miles of an airport or airstrip. The closest airport is the San Bernardino International Airport, located immediately south of the Project site. As such, the Project site would be exposed to high noise levels from airport operations. However, since the Project is an infrastructure project and does not propose any occupied structures, the Project would not expose anyone to excessive noise associated with airport operations. Therefore, impacts are considered *less than significant*, and no further noise analysis is necessary to address Appendix G of 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 Project. 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	Noise-Sensitive ¹	If ambient is < 55 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 55 - 60 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 2 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1 dBA CNEL Project increase	
Operational	Residential	Exterior Noise Level Limit ²	55 dBA L _{eq}	45 dBA L _{eq}
	Noise-Sensitive ¹	If ambient is < 55 dBA L _{eq}	≥ 5 dBA L _{eq} Project increase	
		If ambient is 55 - 60 dBA L _{eq}	≥ 3 dBA L _{eq} Project increase	
		If ambient is 60 - 65 dBA L _{eq}	≥ 2 dBA L _{eq} Project increase	
		If ambient is < 65 dBA L _{eq}	≥ 1 dBA L _{eq} Project increase	
Construction	Noise-Sensitive	Permitted between 7:00 a.m. to 7:00 p.m.; except Sundays and Federal holidays. ³		
		Noise Level Threshold ¹	80 dBA L _{eq}	n/a
		Vibration Level Threshold ⁴	0.2 PPV in/sec	n/a

¹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.

² County of San Bernardino Development Code, Title 8, Section 83.01.080 (Appendix 3.1)

³ Section 83.01.080(g)(3) of the County of San Bernardino County Code.

⁴ 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.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at seven 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, long-term noise level measurements were collected by Urban Crossroads, Inc. on Tuesday, June 6, 2023. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels 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. (23)

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 equivalent 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 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 increase due to the Project's contribution to the ambient noise levels. This approach is necessary to calculate the temporary or permanent increase in *ambient* noise levels as required by the CEQA Guidelines Environmental Checklist.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the equivalent or the energy average hourly sound levels (L_{eq}) to describe the existing *ambient* conditions. 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: AMBIENT NOISE LEVEL MEASUREMENTS

Location ¹	Description	Energy Average Noise Level (dBA L_{eq}) ²	
		Daytime	Nighttime
L1	Located west of the site near the residence at 24974 5th St	66.0	61.1
L2	Located south of the site near the hotel at 25280 3rd St	73.4	70.6
L3	Located north of the site near the residence at 25416 6th St	62.9	60.4
L4	Located north of the site near the residence at 7888 Lankershim Ave	63.6	54.7
L5	Located east of the site near the residence at 26604 5th St	65.8	60.1
L6	Located north of the site near the residence at 7630 Victoria Ave	70.1	66.8
L7	Located east of the site near the commercial building at 7935 Central Ave	64.4	57.4

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

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

"Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.

Table 5-1 provides the equivalent noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each 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.

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6 OFF-SITE TRAFFIC NOISE ANALYSIS

The off-site noise impacts associated with the Project would be impacts to land uses adjacent to the alignments proposed for improvement. Since the Project does not generate traffic, the potential impacts are based primarily on the change in proximity of the lanes to nearby receivers.

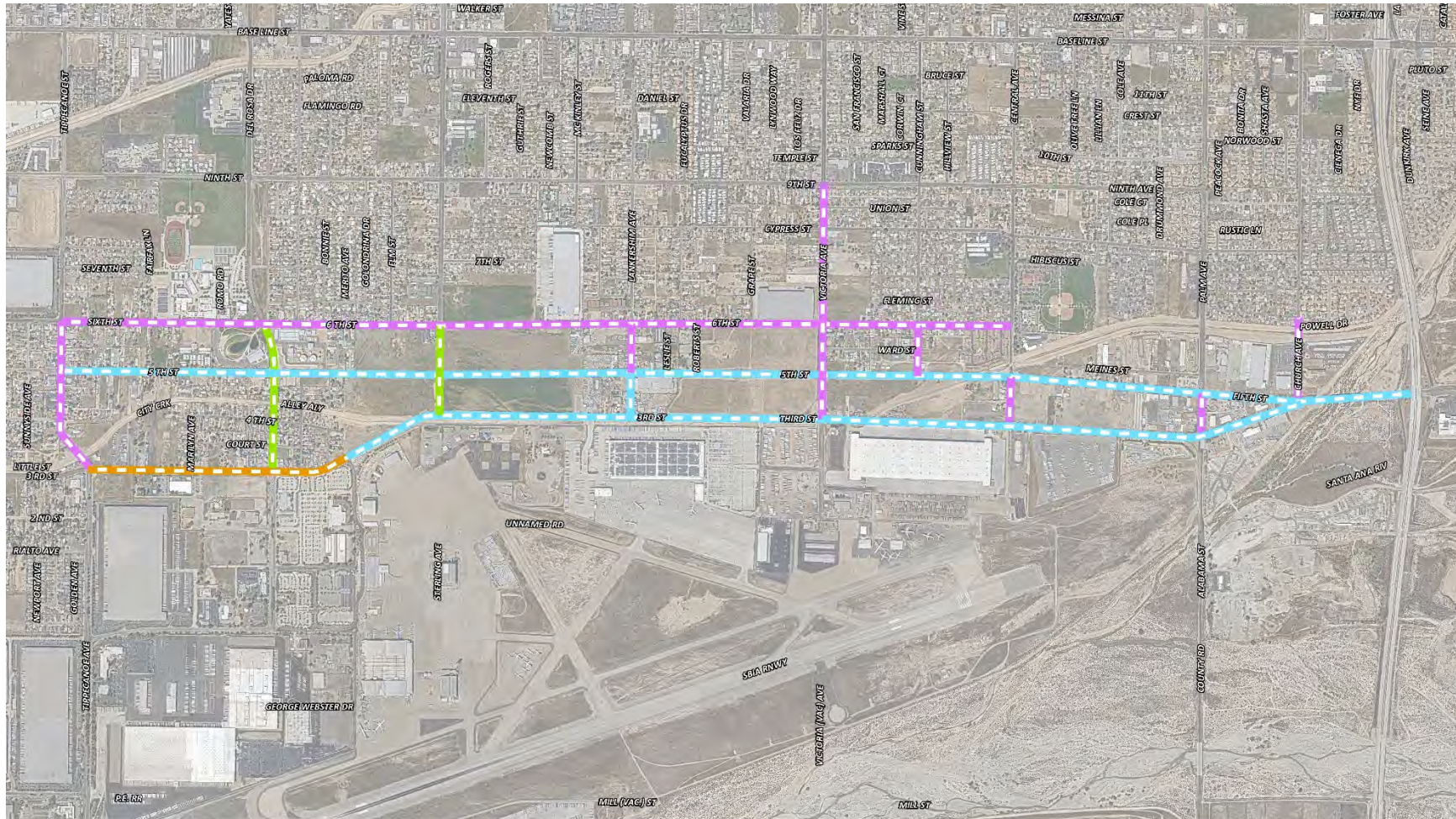
Exhibit 6-A shows the proposed changes in lanes associated with the Project. Based on the Proposed changes in lanes and roadway widths, traffic, regardless of any traffic volume increase, would potentially be located closer to existing noise-sensitive receivers, resulting in increases in noise levels. To determine the increase from the Project only effects, i.e. the roadway widening, multiple model runs were developed based on a static traffic volume and speed with only the width of the roadway increased to accommodate the additional lanes. Based on the evaluation, increasing a roadway from 2-4 lanes would result in an approximate 2 dBA increase at the receivers fronting these roadways. However, increasing the lanes by 4 or more lanes would result in noticeable increases of 3 to 5 dBA. Based on the increase in lanes shown in Exhibit 6-A, substantial increases would occur along 3rd Avenue between N Leland Norton Way and Victoria Avenue, Del Rosa Drive between 3rd Street and 6th Street, and Sterling Avenue between 5th Street and 6th Street.

6.4 OFF-SITE TRAFFIC NOISE MITIGATION

The study area roadway segments that would exceed the established thresholds of significance criteria outlined on Table 4-1 are limited to Del Rosa Drive so between 3rd Street and 6th Street. All other roadway segments will experience off-site traffic noise level impacts that are considered *less than significant* either due to a lower noise level increase, or a lack of sensitive receivers along the affect roadway segment. The off-site Traffic Noise Analysis indicates that Project traffic noise level increases on these two study area roadway segments will exceed 3 dBA and may exceed 5 dBA.

To reduce the *potentially significant* Project traffic noise level increases on the study area roadway segments for the traffic conditions mentioned above, potential noise mitigation measures are identified in this analysis. Potential mitigation measures discussed below include rubberized asphalt hot mix pavement and off-site noise barriers for the existing noise sensitive residential land uses adjacent to impacted roadway segments.

EXHIBIT 6-A: PROPOSED CHANGES IN LANES



LEGEND:



--- No increase in lanes
 --- 2-lanes
 --- 4-lanes
 --- 6-lanes

7.4.1 RUBBERIZED ASPHALT

Due to the potential noise attenuation benefits, rubberized asphalt is considered as a mitigation measure for the off-site Project-related traffic noise level increases. To reduce traffic noise levels at the noise source, Caltrans research has shown that rubberized asphalt can provide noise attenuation of approximately 4 dBA for automobile traffic noise levels. (24) Changing the pavement type of a roadway has been shown to reduce the amount of tire/pavement noise produced at the source under both near-term and long-term conditions. Traffic noise is generated primarily by the interaction of the tires and pavement, the engine, and exhaust systems. For automobiles noise, as much as 75 to 90-percent of traffic noise is generated by the interaction of the tires and pavement, especially when traveling at higher and constant speeds. (2)

According to research conducted by Caltrans (24) and the Canadian Ministry of Transportation and Highways (4) a 4 dBA reduction in tire/pavement noise is attainable using rubberized asphalt under typical operating conditions.

The effectiveness of reducing traffic noise levels is higher on roadways with low percentages of heavy trucks, since the heavy truck engine and exhaust noise is not affected by rubberized alternative pavement due to the truck engine and exhaust stack height above the pavement itself. (24) Per Caltrans guidance a truck stack height is modeled using a height of 11.5 feet above the road. (4) (25) With the primary off-site traffic noise source consisting of heavy trucks with a stack height of 11.5 feet off the ground, the tire/pavement noise reduction benefits associated rubberized asphalt will be primarily limited to autos.

While the off-site Project-related traffic noise level increases would theoretically be reduced with the 4 dBA reduction provided by rubberized asphalt, the reduction would not provide reliable benefits for the noise levels generated by heavy truck traffic. This is, as previously stated, due to the noise source height difference between automobiles and trucks. Since the use of rubberized asphalt would not lower the off-site traffic noise levels below a level of significance, rubberized asphalt is not proposed as mitigation for the Project and the off-site Project-related traffic noise level increases at adjacent land uses under Existing Conditions would remain *significant*.

7.4.2 OFF-SITE NOISE BARRIERS

Since existing and future noise-sensitive receiving land uses are located adjacent to the impacted roadway segments in the Project study area, off-site noise barriers were considered in this analysis as a potential traffic noise mitigation measure to reduce the impacts. Off-site noise barriers are estimated to provide a *readily perceptible* 5 dBA reduction which, according to the FHWA, is *simple* to attain when blocking the line-of-sight from the noise source to the receiver. (4). As previously discussed, Caltrans guidance in the Highway Design Manual, Section 1102.3(3), indicates that for design purposes, *the noise barrier should intercept the line of sight from the exhaust stack of a truck to the receptor*, and an 11.5-foot-high truck stack height is assumed to represent the truck engine and exhaust noise source. (25) Therefore, any exterior noise barriers at receiving noise sensitive land uses experiencing Project-related traffic noise level increases would need to be high enough and long enough to block the line-of-sight from the noise source

(at 11.5 feet high per Caltrans) to the receiver (at 5 feet high per FHWA guidance) in order to provide a 5 dBA reduction per FHWA guidance. (25)

Based on the configuration of the majority of lots adjacent to Del Rosa Drive, barriers located along the improved road may be effective. Therefore, a noise abatement measure (N-1) has been included that recommends the Project evaluate barrier locations during the initial and final roadway design process to reduce noise levels to acceptable levels.

N-1: Noise Barriers

During the initial design phase for roadway improvements along Del Rosa Drive, the Project will conduct a noise study to identify noise levels and potential locations for barriers necessary to reduce noise impacts. The analysis should evaluate the effectiveness of different noise barrier locations, such as along the right-of-way, the parcel line of the receiving property, and any intervening high point. The initial noise analysis should be updated when plans are final and all noise reduction calculations should be checked with final grading and wall locations.

With the implementation of the N-2, noise levels would be reduced to comply with local daytime and nighttime noise level limits and impacts would be less than significant.

7 RECEIVER LOCATIONS

To assess the potential for short-term construction noise impacts, the following noise-sensitive receiver locations, as shown in Exhibit 7-A, were identified as representative locations for analysis. Noise-sensitive receivers were also included in all residential uses along the alignments and while a general assessment of the anticipated maximum noise levels is provided, the specific receiver locations are considered more representative of the actual noise impacts anticipated. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

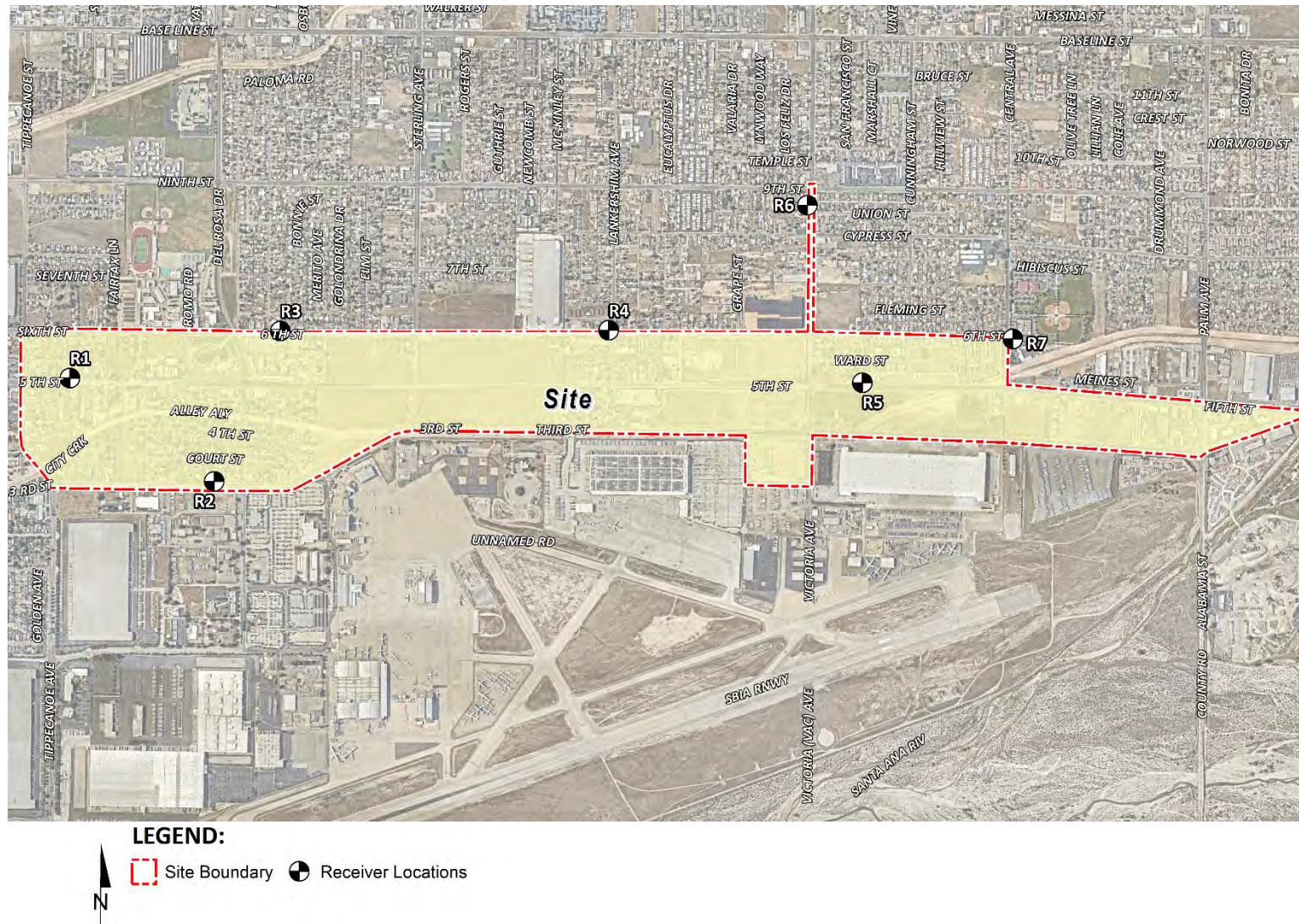
To describe the potential off-site Project noise levels, seven receiver locations in the vicinity of the Project site were identified. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Due to the additional attenuation from distance and the shielding of intervening structures, other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

- R1: Location R1 represents the existing noise-sensitive residence at 24992 E 5th St, approximately 65 feet north of 5th Street. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the building façade. 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 25300 Third Street, approximately 65 feet north of Third Street. Receiver R2 is placed in the private outdoor living areas (backyard) facing the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.
- R3: Location R3 represents the existing noise-sensitive residence at 25416 6th St, approximately 50 feet north of Sixth Street. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the building façade. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

- R4: Location R4 represents the existing noise sensitive residence at 7888 Lankershim Avenue, approximately 60 feet north of Sixth Street and 50 feet Lankershim Avenue. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R4 is placed at the building façade. 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 26604 Fifth Street, approximately 60 feet north of Fifth Street. Since there are no private outdoor living areas (backyards) facing the street, receiver R5 is placed at the building façade. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.
- R6: Location R6 represents the existing noise-sensitive residence at 7630 Victoria Avenue, approximately 50 feet west of Victoria Avenue. Since there are no private outdoor living areas (backyards) facing the street, receiver R6 is placed at the building façade. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.
- R7: Location R4 represents the existing noise-sensitive residence at 7888 Central Ave, approximately 30 feet west of Central Avenue. Since there are no private outdoor living areas (backyards) facing the street, receiver R7 is placed at the building façade. A 24-hour noise measurement was taken near this location, L7, to describe the existing ambient noise environment.

For purposes of this analysis, and based on a survey of project alignments, the majority of receivers (e.g., residential buildings) are approximately 50 feet from the centerline of the proposed improvement. Therefore, construction activity is evaluated as close as 30 feet from the centerline of the roadway construction activities.

EXHIBIT 7-A: RECEIVER LOCATIONS



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8 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the construction noise and vibration activities associated with the development of the Project.

8.1 CONSTRUCTION NOISE SOURCES

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The Project construction noise sources are expected to include a combination of loaders, cranes, welders, drill rigs, diesel generators, concrete pumps and mixture of other construction equipment.

As discussed under the Project description, Project construction activities are expected to occur in the following phases:

- **Project Category 1: Roadway Installation.** Construction of one mile of new roadway, lane-width assumed to be 12 feet with curb and gutter, up to 300 linear feet per day was assumed to be able to be constructed.
- **Project Category 2: Channel Improvement Installation.** Installation of one-third of the ultimate City Creek Bypass Channel design (length installed each anticipated up to 300 linear feet per day was assumed to be able to be constructed).
- **Project Category 3: Storage Reservoir.** Installation of a 3.5 MG storage reservoir
- **Project Category 4: Extraction Well.** Installation of a new extraction well
- **Project Category 5: Sewer Installation.** Installation of 2,500 feet of sewer, up to 300 linear feet per day, was assumed to be able to be constructed.

ROADWAYS INSTALLATIONS

Del Rosa Drive

Roadway Segment:	Within the IVIC area beginning at 3 rd Street (to the South), extending north to 6 th Street.
Current Configuration:	4 Lanes Undivided
General Plan Buildout Configuration:	Major Arterial (up to 8 lanes; may have raised medians)

6th Street

Roadway Segment:	Within the IVIC area beginning at Central Avenue (to the east), with the potential for improvements extending west to Tippecanoe Avenue.
Current Configuration:	2 Lanes Undivided
General Plan Buildout Configuration:	Collector Street (up to 2 lanes; 66-foot road right-of-way)

5th Street

Roadway Segment:	Within the IVIC area beginning at SR-210 (to the east), with the potential for improvements extending west to Tippecanoe Avenue.
Current Configuration:	2 Lanes Undivided (Waterman Avenue to Marilyn Avenue); 4 Lanes Divided (Marilyn Avenue to Sterling Avenue); 2 lanes (Sterling Avenue to Victoria Avenue), and, 4 lanes (Victoria to SR-210 Eastbound Ramps)
General Plan Buildout Configuration:	Major Highway Tippecanoe Avenue to Palm Avenue (4 Lane, 80-foot roadways; Primary Arterial Palm Avenue to SR-210 (up to 6 lanes; 96-foot roadways, curb-to-curb, within a minimum of 112-foot rights-of-way)

3rd Street

Roadway Segment:	Within the IVIC area beginning at SR-210 (to the east), with the potential for improvements extending west to Tippecanoe Avenue.
Current Configuration:	4 Lanes Undivided (Tippecanoe Avenue to Palm Avenue); 2 Lanes (Palm Avenue to Church Avenue/5 th Street)
General Plan Buildout Configuration:	Major Highway Victoria Avenue to Church Avenue (4 Lane, 80-foot roadways; Primary Arterial Tippecanoe to N Leland Norton Way (up to 6 lanes; 96-foot roadways, curb-to-curb, within a minimum of 112-foot rights-of-way); Major Arterial N Leland Norton Way to Victoria Avenue (up to 8 lanes; may have raised medians)

Tippecanoe Avenue

Roadway Segment:	Within the IVIC area beginning at 3 rd Street, with the potential for improvements extending north to 6 th Street.
Current Configuration:	4 Lanes Undivided
General Plan Buildout Configuration:	Secondary Highway 3 rd Street to 9 th Street (4 Lane roadway with a raised median and has a typical right-of-way width of 88 feet and a curb-to-curb pavement width of approximately 64 feet)

Sterling Avenue

Roadway Segment:	Within the IVIC area beginning at 3 rd Street, with the potential for improvements extending north to 6 th Street.
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Current Configuration:	4 Lanes Undivided
General Plan Buildout Configuration:	Major Arterial 3 rd Street to the City of San Bernardino's Boundary just south of 6 th Street (up to 8 lanes; may have raised medians); Major Highway City of Highland's boundary just south of 6 th Street (4 Lane, 80-foot roadways)

Lankershim Avenue

Roadway Segment:	Within the IVIC area beginning at 3 rd Street, with the potential for improvements extending to 6 th Street.
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Current Configuration:	2 Lanes Undivided
General Plan Buildout Configuration:	Secondary Arterial from 3 rd Street to 5 th Street (up to 4 lanes); Collector Street from 5 th Street north to the City of Highland's Boundary (up to 2 lanes; 66-foot road right-of-way)

Victoria Avenue

Roadway Segment:	Within the IVIC area beginning at 3 rd Street, with the potential for improvements extending north to 9 th Street.
------------------	--

Current Configuration:	4 Lanes Undivided
General Plan Buildout Configuration:	Major Highway 3 rd Street to Highland Avenue (4 Lane, 80-foot roadways (including a 12-foot median) curb-to-curb, within 104-foot rights-of-way)

Cunningham Street

Roadway Segment:	Within the IVIC area beginning at 5 th Street, with the potential for improvements extending north to 6 th Street.
------------------	--

Current Configuration:	2 Lanes Undivided
General Plan Buildout Configuration:	Collector Street (up to 2 lanes; 66-foot road right-of-way)

Central Avenue

Roadway Segment:	Within the IVIC area beginning at 5 th Street, with the potential for improvements extending north to 3 rd Street.
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Current Configuration:	2 Lanes Undivided
General Plan Buildout Configuration:	Collector Street (up to 2 lanes; 66-foot road right-of-way)

Palm Avenue

Roadway Segment:	Within the IVIC area beginning at 3 rd Street, with the potential for improvements extending north to 5 th Street.
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Current Configuration:	4 Lanes with a center queueing lane
General Plan Buildout Configuration:	Major Highway 3 rd Street to Base Line (4 Lane, 80-foot roadways (including a 12-foot median) curb-to-curb, within 104-foot rights-of-way)

Church Avenue

Roadway Segment:	Within the IVIC area beginning at 3 rd Street, with the potential for improvements extending north to 6 th Street.
------------------	--

Current Configuration:	2 Lanes Undivided
General Plan Buildout Configuration:	Collector Street (up to 2 lanes; 66-foot road right-of-way)

The existing roadway network is shown by number of lanes in Exhibit 8-B and the proposed roadway network is shown in Exhibit 8-C.

About 5,280 lineal feet of roadway (one mile) would be installed each year. Equipment will include one or more of the following: bull dozer, hydro-hammer, front-end loader, dump truck, chipper, water truck, and service truck. Major pieces of equipment to be engaged during construction will include one or more of the following: pavement grinder and saw cut machines, earth excavators, backhoe, boom truck, grader, water truck, front-end loader, compaction equipment, and service truck and delivery vehicles for deposit of aggregate base and asphalt concrete and Portland cement concrete. Up to 20 persons would be working the construction site per day, though the number of construction workers required will range from 10 to 20 persons per day.

CITY CREEK BYPASS CHANNEL IMPROVEMENT INSTALLATION

Construction is anticipated to require a maximum of 30 employees each day, though the number of construction workers required will range from 10 to 30 persons per day.

Installation of the City Creek Bypass Channel Improvements is anticipated to require one or more of the following equipment types: bulldozer, hydro-hammer, front-end loader, dump truck, chipper, water truck, and service truck. Major pieces of equipment to be engaged during construction will include one or more of the following: pavement grinder and saw cut machines, earth excavators, backhoe, boom truck, grader, water truck, front-end loader, compaction equipment, and service truck and delivery vehicles for deposit of aggregate base and asphalt concrete and Portland cement concrete.

For any constriction that would encroach within the roadway, the contractor(s) will maintain one lane open in each direction throughout the construction process, as well as access at all times for emergency vehicles and access to all driveways, mailboxes, and bus stop(s).

EXHIBIT 8-B: EXISTING ROADWAY LANES

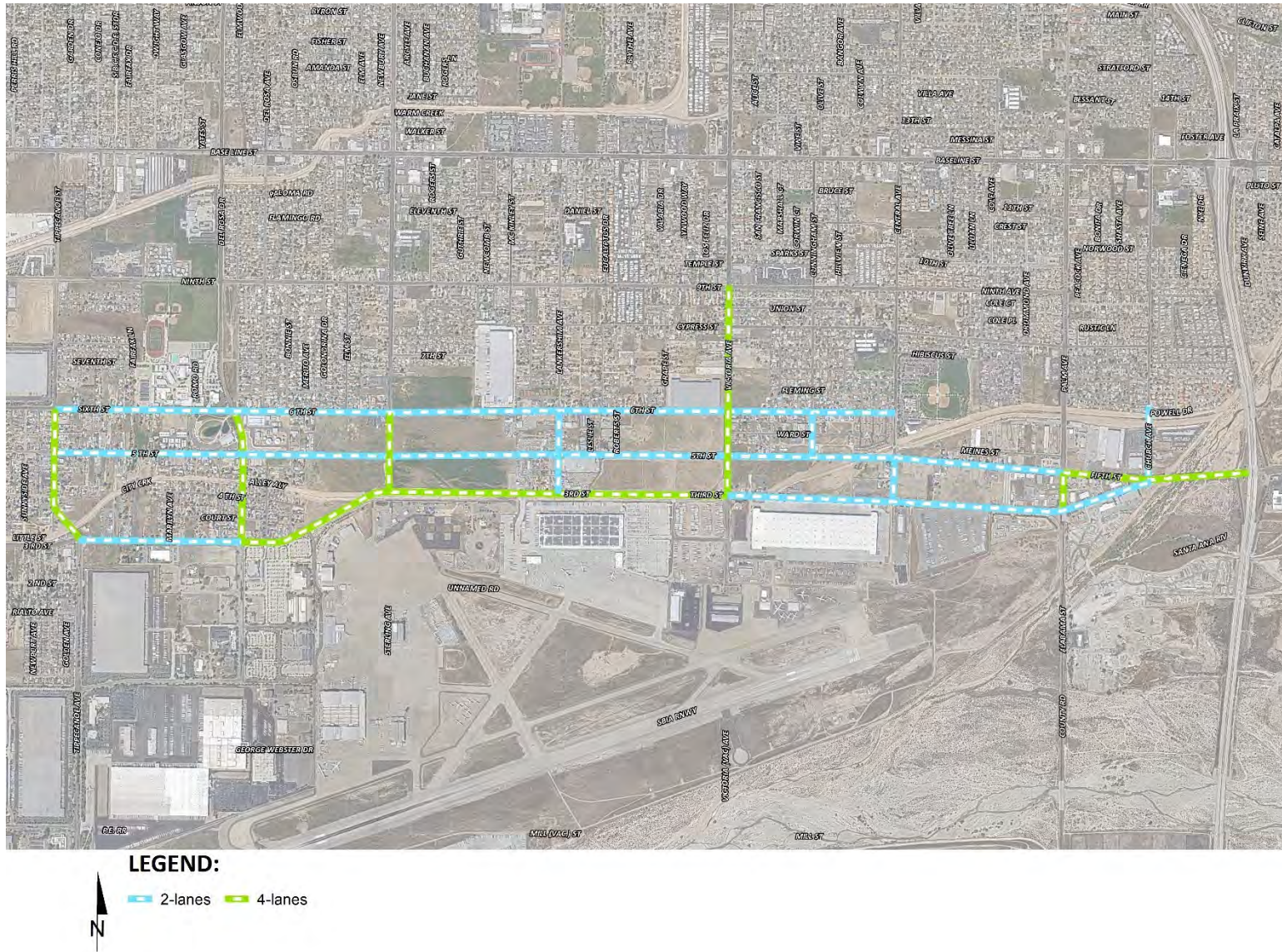
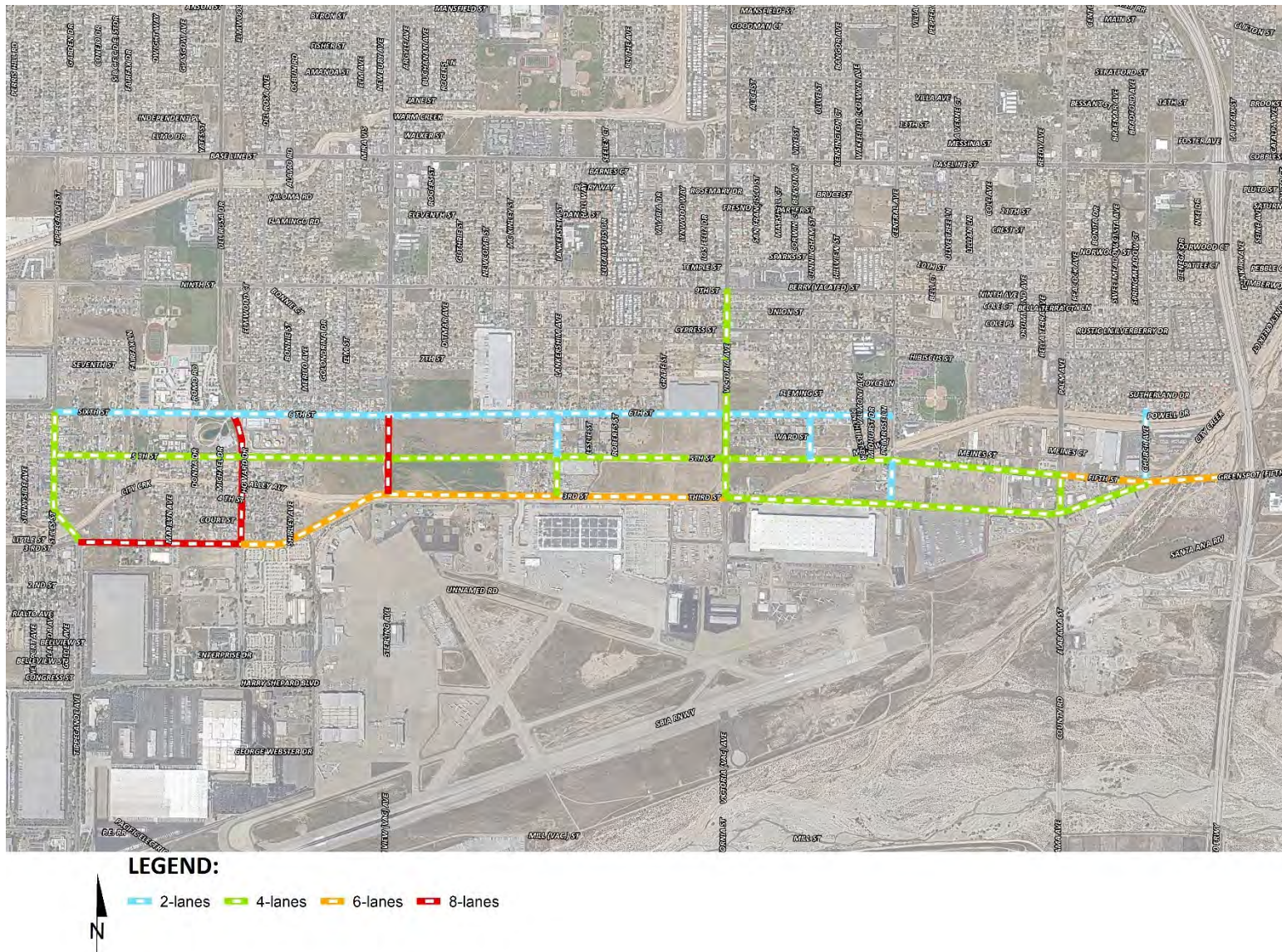


EXHIBIT 8-C: PROPOSED ROADWAY LANES



SEWER INSTALLATION

Construction is anticipated to require a maximum of 15 employees each day, though the number of construction workers required will range from 10 to 20 persons per day.

Installation of the sewer would be anticipated to require one or more of the following equipment types: bull dozer, hydro-hammer, front-end loader, dump truck, chipper, water truck, and service truck. Major pieces of equipment to be engaged during construction will include one or more of the following: pavement grinder and saw cut machines, earth excavators, backhoe, boom truck, grader, water truck, front-end loader, compaction equipment, and service truck and delivery vehicles for deposit of aggregate base and asphalt concrete and Portland cement concrete.

For any constriction that would encroach within the roadway, the contractor(s) will maintain one lane open in each direction throughout the construction process, as well as access at all times for emergency vehicles and access to all driveways, mailboxes, and bus stop(s).

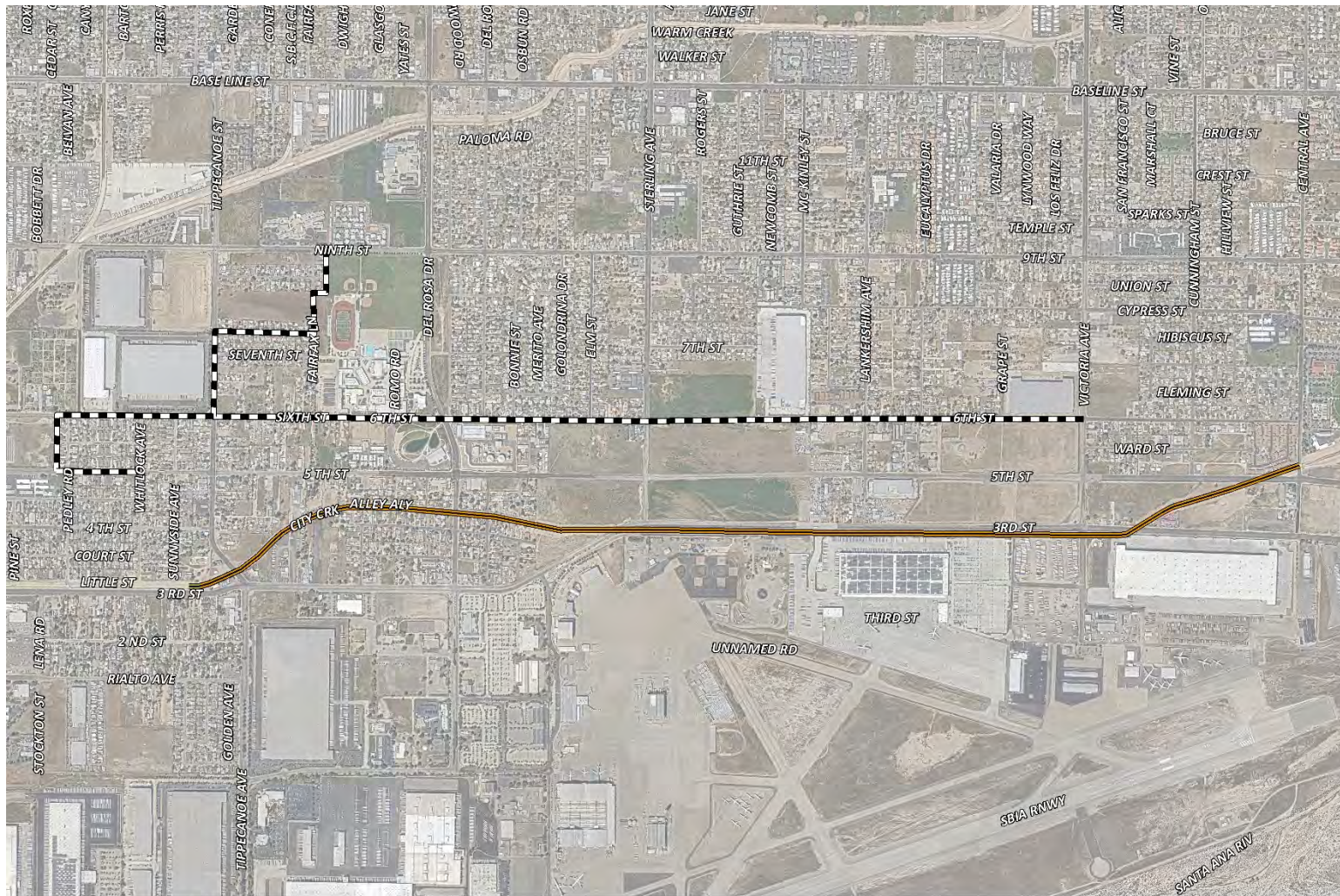
EXTRACTION WELL

It is assumed that the average pumping capacity for the new extraction well will be up to 2,500 gallons per minute (gpm). For analysis purposes it is assumed that the well would be drilled using the direct rotary or fluid reverse circulation rotary drilling methods. The average area of disturbance of each well site is estimated to be one-half an acre or less. Access to the drilling site for the drilling rig and support vehicles would be from adjacent roadways. Typically, well drilling requires only minimal earth movement and/or grading.

It is anticipated that about five persons will be on the well site at any one time to support drilling a well: three drillers, the hydrologist inspector, and a foreman. Daily trips to complete the well will average about 15 roundtrips per day. The types of trips including about 10 daily trips for employees plus, at various points of construction: two roundtrips for drill rigs (total for entirety of construction); between 6 and 12 roundtrips for cement trucks (total for the entirety of construction); and about 5 trips to deliver pipe (total for the entirety of construction).

The drilling and development of the well will require drilling up to 1,500 feet below ground surface (bgs). The proposed schedule for constructing the well would be as follows: drilling, construction, and testing of the well would require approximately six weeks to complete (about 45 days, of which 15 to 20 days would include 24-hour, 7-day a week drill activity). For planning purposes, a construction and testing schedule duration of 60 days for the well is assumed to account for unforeseen circumstances (e.g., extreme weather, equipment break downs, etc.) that could affect the drilling and testing schedule. The well casings are expected to be welded and it will be assumed that well development and installation will require a two-week use of a diesel generator.

EXHIBIT 8-C: SEWER LINE AND CITY CREEK BYPASS CHANNEL IMPROVEMENTS



LEGEND:

- City Creek Bypass Channel Improvements
- - - Sewer Improvements

The borehole for the well would be drilled using at least two separate drilling passes. The first pass, or pilot borehole, would be drilled using a 17.5-inch diameter bit to an estimated maximum depth below the ground surface, which would correspond to the top of the consolidated bedrock in the area, or a depth selected by the project hydrologist/hydrogeologist. Upon completion of the geophysical logs, the pilot borehole would be enlarged (reamed) to a diameter of 24 inches to approximately the same depth to accommodate the well casing, screen and filter pack.

Once the well is constructed it would immediately be developed through a process of swabbing and airlifting. During this process, drilling fluids and suspended sediment would be removed from the well. After the drilling fluids are removed along with most of the suspended sediment, the well would be further developed through pumping.

STORAGE RESERVOIR

A 3.5 MG water storage reservoir would be designed in accordance with the California Building Code (CBC), the Occupational Safety and Health Administration (OSHA), American Concrete Institute (ACI), and AWWA's design standards. AWWA's design standards require that water storage reservoirs be operated at fill levels below their maximum physical height in order to prevent roof damage, which may be caused by a "sloshing wave" during a seismic event. As a result, the usable capacity of the new water storage reservoirs will be reduced when compared to the water storage reservoir physical capacity by approximately 30% (the physical capacity would be about 4.55 MG).

Grading: The size of the water storage reservoir site is anticipated to be greater than one acre, with approximately one acre of disturbance required per water storage reservoir. Fine grading of the site will be completed after the water storage reservoir and piping are installed. It is assumed that a maximum of five to twelve workers will be on the site during grading, which would take place for about 10 days.

Foundation Construction: Following mass excavation, the reservoir foundation will be installed. The foundation will consist of concrete/steel/aggregate. It is assumed that a maximum of five to twelve workmen will be on the site during foundation construction for a maximum of about 25 days.

Reservoir Construction: The water storage reservoir will be constructed to be circular in the following fashion: floor; walls and columns; roof; prestressing; and appurtenances. It is assumed that a maximum of 12 employees will be on the site during water storage reservoir construction for a maximum of about 120 days. Additionally, as with the extraction well construction would require 24-hour construction since the reservoir would likely require several days of 24-hour concrete pouring. Overall, water storage reservoir construction is anticipated to require about six months from start to finish.

8.2 REFERENCE CONSTRUCTION NOISE LEVELS

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. (26) 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. The usage factor is a key input variable of the RCNM noise prediction model that is used to calculate the average L_{eq} noise levels using the reference L_{max} noise levels measured at 50 feet. Table 8-1 provides a summary of the reference average L_{eq} noise levels used to describe each stage of construction.

Because few details are known at this time regarding the construction of specific components of the Project, it is assumed that construction of any Project component may occur simultaneously. As a conservative measure, and in order to identify a reasonable worst-case scenario, this analysis assumes that the Project would construct roadway improvements, with sewer improvements, and channel improvements simultaneously. However, the extraction well and storage reservoir locations are not known at this time but are not anticipated to occur near active roadway, sewer, and channel improvements.

Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver. A default ground attenuation factor of 0.5 was used in the CadnaA noise prediction model to account for mixed hard and soft site conditions.

TABLE 8-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Equipmnet ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})	Composite Reference Noise Level (dBA L _{eq})	Reference Power Level (dBA L _w)
Pavement Removal/ Demolition	Concrete Saw	83	86.3	118.0
	Impact Hammer (hoe ram)	83		
	Front End Loader	75		
Grading/Site Preparation	Tractor	80	84.0	115.6
	Backhoe	74		
	Grader	81		
Road Base/Utilities	Scraper	80	83.3	114.9
	Excavator	77		
	Dozer	78		
Paving	Paver	74	78.8	110.5
	Concrete Mixer Truck	75		
	Roller	73		
Sewer Construction	Excavator	77	79.6	111.3
	Front End Loader	75		
	Welder/Torch	70		
Well Drilling	Drill Rig	82	86.2	117.8
	Generator	80		
	Compressor	82		

¹ FHWA Road Construction Noise Model.² Update of noise database for prediction of noise on construction and open site expressed in hourly average L_{eq} based on estimated usage factor.

8.3 CONSTRUCTION NOISE LEVELS

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 for the roadway, sewer, and channel improvements. The extraction well and storage reservoir locations are not known at this time; thus, these activities are evaluated separately.

Roadway, sewer, and channel activities were modeled, assuming activities would occur in segments of approximately 50 feet by 300 feet. Additionally, due to the distances associated with the improvements and the number of receiver locations, noise levels are predicted at a common distance of 30 feet from these activities assuming the Projects would maintain one-way traffic. To assess a reasonable worst-case construction scenario and account for the dynamic nature of construction activities, the Project construction noise analysis models the equipment combination with the highest reference level as multiple moving point sources within the construction area. Based on the average setback from roadways and the right-of-way, construction would occur within 30 feet of noise-sensitive residential receivers along most of the

roadway improvements, sewer line improvements, and the City Creek bypass channel improvements. At a distance of 30 feet, construction activity is estimated to generate noise levels up to 79.1 dBA L_{eq} for segments with paving and 75.6 dBA L_{eq} for the sewer segments without paving as well within the unfinished City Creek bypass channel west of Third Street. Appendix 8.1 includes the CadnaA construction noise model inputs. These noise levels would not exceed the applicable daytime noise level limit of 80 dBA L_{eq} . Therefore, no mitigation is required for daytime construction activities associated with roadway improvements, sewer improvements, and the City Creek bypass channel improvements.

The noise levels shown in Table 8-2 represent the highest construction noise levels that are expected at representative noise-sensitive receiver locations shown in Exhibit 7. The modeled results are based on a conservative model with simultaneous activities along all segments of the Project alignment. Thus, the results shown in Table 8-2 are based on the activities occurring in front of each receiver at the same time. As shown, with these assumptions, construction noise levels are anticipated to range from 67.8 to 72.1 dBA L_{eq} at the modeled representative receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs. These noise levels would not exceed the applicable daytime noise level limit of 80 dBA L_{eq} . Therefore, no mitigation is required for daytime construction activities.

TABLE 8-2: CONSTRUCTION EQUIPMENT NOISE LEVELS

Receiver Location ¹	Construction Noise Levels (dBA L _{max})					
	Pavement Removal/Demolition	Grading/Site Preparation	Road Base/Utilities	Paving	Sewer Construction	Highest Levels ²
R1	69.9	67.6	66.8	65.4	62.4	69.9
R2	69.4	67.1	66.3	64.9	61.9	69.4
R3	71.7	69.4	68.6	67.2	64.2	71.7
R4	72.1	69.8	69.0	67.6	64.6	72.1
R5	71.0	68.7	67.9	66.5	63.5	71.0
R6	69.4	67.1	66.3	64.9	61.9	69.4
R7	67.8	65.5	64.7	63.3	60.3	67.8

¹ Noise receiver locations are shown in Exhibit C.

² Construction noise level calculations are based on distance from the construction activity, measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 1.

8.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project roadway, sewer, and City Creek bypass channel improvements will generate potentially significant short-term noise level impacts at specific nearby receiver locations, a construction-related daytime noise level limit of 80 dBA L_{eq} is used to assess the impact. (8) The construction noise analysis shows that the nearby receiver locations will satisfy the daytime significance threshold during Project construction activities. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all receiver locations.

TABLE 8-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location ¹	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels ²	Threshold ³	Threshold Exceeded? ⁴
R1	69.9	80	No
R2	69.4	80	No
R3	71.7	80	No
R4	72.1	80	No
R5	71.0	80	No
R6	69.4	80	No
R7	67.8	80	No

¹ Noise receiver locations are shown on Exhibit 9-A.

² Highest construction noise level from the primary Project construction activity area to nearby receiver locations.

³ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.

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

WELL-DRILLING ACTIVITIES

Well-drilling activities noise levels are expected to exceed the daytime and nighttime noise level limit at the nearest receiver locations within 600 feet and 900 feet, respectively. Since the exact locations of these activities are unknown, and these activities would occur for 24-hours a day for up to two weeks, without mitigation, these activities may exceed the applicable noise level limit during the daytime or nighttime. This would be considered a significant impact. Therefore, mitigation is required for well-drilling activities.

To demonstrate compliance with the nighttime noise level limit, a scenario where well-drilling activities would occur within 300 feet of residences was developed. Assuming the residence is 150 feet from the well location, using the well drilling noise levels shown in Table 8-1, and assuming the drill rig has a height of 14 feet, a 20-foot-high barrier surrounding the drilling rig/well location, such that the construction activities, including the top of the drill rig, are completely shielded from the residences, the noise levels would be reduced to a maximum noise level of 55 dBA L_{eq} at the residence during the nighttime. Other effective measures could include erecting a taller barrier closer to the drill rig and a shorter barrier around all other activities,

covering or blocking the drill rig and other significant noise sources with sound blankets. Therefore, well drilling can be mitigated with proper design once the final locations are known. Noise abatement measure N-2 is recommended to reduce noise impacts to less than significant.

N-2 Monitoring Well Drilling:

To comply with the daytime and nighttime noise level limits, a focused technical noise analysis of the drilling activities would be prepared when drilling activity occurs within 2,000 feet of residences. The focused well-drilling noise analysis should, at a minimum:

- provide a detailed description of activities;
- identify ambient noise levels near the closest affected residences;
- determine predicted noise levels at local residences from drilling rig activities, including the drill top drive, compressors, generator sets, mud pumps, roll-off bins, pipe trailers, and field offices; and,
- evaluate and recommend various mitigation strategies, including temporary barriers, time restrictions for various activities, as well as equipment placement; to reduce noise levels to comply with local daytime and nighttime noise level limits.

With the implementation of the N-2, noise levels would be reduced to comply with local daytime and nighttime noise level limits and impacts would be less than significant.

STORAGE RESERVOIR

Storage reservoir construction noise levels are expected to exceed the daytime and nighttime noise level limit at the nearest receiver locations within 50 feet and 150 feet, respectively. Nighttime exceedances are primarily anticipated during concrete pours. Since the exact locations of these activities are unknown, and these activities would occur 24 hours a day for up to two weeks, without mitigation, these activities may exceed the applicable noise level limit during the daytime or nighttime. This would be considered a significant impact. Therefore, mitigation is required for the storage reservoir construction activities.

To demonstrate compliance with the nighttime noise level limit, a scenario where a nighttime concrete pour would occur within 100 feet of residences was developed. Assuming the residence is 100 feet from the location of trucks and pumps, using the paving noise levels shown in Table 8-1, and assuming the concrete pour activities have an average height of 8 feet, a 16-foot-high barrier shielding the location of trucks and pumps, such that the construction activities are completely shielded from the residences, the noise levels would be reduced to a maximum noise level of 55 dBA L_{eq} at the residence during the nighttime. Another effective measure could simply be locating equipment further away and using pump hoses. Therefore, construction on the reservoir, including nighttime concrete pours, can be mitigated with properly designed noise abatement measures once the final locations of the equipment are known. Noise abatement measure N-3 is recommended to reduce noise impacts to less than significant.

N-3 Storage Reservoir:

To comply with the nighttime noise level limit during the nighttime hours noise, a focused noise analysis of the drilling activities would be required surrounding the reservoir construction site locations when within 100 feet of residences. The focused well-drilling noise analysis should, at a minimum:

- provide a detailed description of activities;
- identify ambient noise levels near the closest affected residences;
- determine predicted noise levels at local residences from construction activities, including the excavation activities and nighttime concrete pours; and,
- evaluate and recommend various mitigation strategies, including temporary barriers, time restrictions for various activities, as well as equipment placement; to reduce noise levels to comply with local daytime and nighttime noise level limits.

With the implementation of the N-2, noise levels would be reduced to comply with local daytime and nighttime noise level limits and impacts would be less than significant.

8.5 CONSTRUCTION VIBRATION ASSESSMENT

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 8-5. 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 Caltrans. To describe the vibration impacts Caltrans provides the following equation: $PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$

TABLE 8-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Caisson Drilling	0.089
Large bulldozer	0.089
Hoe Ram (Breaker)	0.089
Vibratory Roller	0.210

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

8.6 CONSTRUCTION VIBRATION LEVELS

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

- **Heavy Construction Equipment:** Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to building, the vibration is usually short-term (transient) and is not of enough magnitude to cause building damage.
- **Trucks:** Trucks hauling building materials to construction sites can be sources of transient vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

To assess the Project construction vibration levels, this analysis describes both the transient vibration levels associated with typical construction roadway equipment.

8.6.1 TYPICAL CONSTRUCTION ACTIVITY VIBRATION LEVELS

Based on the levels presented in Table 8-5, vibratory rollers would generate the greatest vibration levels and would occur as close as 20 feet from residents fronting roadway construction activities. At a distance of 20 feet from the highest vibration source, the construction vibration velocity levels are estimated to be 0.29 PPV (in/sec). Vibrations at receivers further away would be lower than those experienced at 20 feet. Based on the vibration standards outlined in Table 4-1, the typical Project construction vibration levels will satisfy the transient human annoyance and building damage thresholds. Therefore, the vibration impacts due to Project construction activities are considered *less than significant*.

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10 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the 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 (619) 788-1971.

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EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
APA – American Planning Association
AWMA – Air and Waste Management Association
INCE – Institute of Noise Control Engineers – Member

PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
CadnaA Basic and Advanced Training • January 2024
FHWA Traffic Noise Model of Training • November 2004

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APPENDIX 3.1:

COUNTY OF SAN BERNARDINO DEVELOPMENT CODE

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§ 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 § SI4 1979, Type 1 or Type 2);
- (3) Using the “A” weighted sound pressure level scale in decibels (ref. pressure = 20 micronewtons per meter squared). The unit of measure shall be designated as dB(A).

(b) *Noise Impacted Areas.* Areas within the County shall be designated as “noise-impacted” if exposed to existing or projected future exterior noise levels from mobile or stationary sources exceeding the standards listed in 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		
Affected Land Uses (Receiving Noise)	7:00 a.m. - 10:00 p.m. Leq	10:00 p.m. - 7:00 a.m. Leq
Table 83-2		
Noise Standards for Stationary Noise Sources		
Affected Land Uses (Receiving Noise)	7:00 a.m. - 10:00 p.m. Leq	10:00 p.m. - 7:00 a.m. Leq
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)
Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically 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⁾
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 3.2:

CITY OF SAN BERNARDINO MUNICIPAL CODE

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Chapter 8.54

NOISE CONTROL

Sections:

- 8.54.010 Purpose and Intent
- 8.54.020 Prohibited Acts
- 8.54.030 Issuance of Written Notice and Impoundment
- 8.54.040 Cost Recovery for Second Response
- 8.54.050 Controlled Hours of Operation
- 8.54.060 Exemptions
- 8.54.070 Disturbances From Construction Activity
- 8.54.080 Violation - Penalty
- 8.54.090 Severability

8.54.010 Purpose and Intent

A. It is the purpose and intent of these regulations to establish community-wide noise standards. It is further the purpose of these regulations to recognize that the existence of excessive noise within the City is a condition which 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 interest and necessity of the provisions and prohibitions hereinafter contained and enacted is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of, and for the purpose of, securing and promoting the public health, comfort, convenience, safety, general welfare and property, and the peace and quiet of the City and its inhabitants.

(Ord. MC-1246, 5-23-07; Ord. 1925, 11-06-51)

8.54.020 Prohibited Acts

It shall be unlawful for any person to engage in the following activities:

- A. 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 California Vehicle Code, or other laws, for an unnecessary or unreasonable period of time;
- B. 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.
- C. 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.
- D. Using, operating, or permitting to be played, used or operated any radio receiving set, musical instrument, phonograph, or other sound amplification or production equipment for producing or reproducing sound in such a manner as to disturb the peace, quiet, or comfort of neighboring persons, or at any time with louder volume than is necessary for the convenient hearing of the person or persons who are in the room, vehicle, or other enclosure in which such machine or device is operated, and who are voluntary listeners thereto and that is:
 1. Plainly audible across property boundaries;
 2. Plainly audible through partitions common to two residences within a building;
 3. Plainly audible at a distance of 50 feet in any direction from the source of the music or sound between the hours of 8:00 a.m. and 10:00 p.m.; or
 4. Plainly audible at a distance of 25 feet in any direction from the source of the music or sound between the hours of 10:00 p.m. and 8:00 a.m.
- E. 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.
- F. Yelling, shouting, whistling, or singing in a loud and boisterous manner on the public streets so as to disturb the quiet, comfort, or repose of persons in any office, dwelling, hotel, or other type of residence, or neighborhood.
- G. The keeping of any animal, fowl, or bird which by causing frequent or long continued noise disturbs the comfort, quiet, or repose of any person or neighborhood.
- H. The unnecessary or excessive blowing of whistles, sounding of horns, ringing of bells, or use of signaling devices by operators of trains, motor trucks, and other transportation equipment.
- I. The creation of loud and excessive noise in connection with the loading or unloading of motor trucks and other vehicles.
- J. The shouting and crying of peddlers, hawkers, and vendors which disturbs the peace and quiet of any considerable number of persons or neighborhood.
- K. The doing of automobile, automotive body or fender repair work, or other work on metal objects and metal parts in a residential district so as to cause loud and excessive noise which disturbs the peace, quiet, and repose of any person occupying adjoining or closely situated property or neighborhood.
- L. The operation or use between the hours of 10:00 p.m. and 8:00 a.m. of any pile driver, steam shovel, pneumatic hammers, derrick, steam or electric hoist, power driven saw, or any other tool or apparatus, the use of which is attended by loud and excessive noise, except with the approval of the City.
- M. 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, provided conspicuous signs are displayed in such streets indicating the presence of a school, institution of learning, church, court, or hospital.
- N. 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:
 1. The level of noise;
 2. The level of background noise;
 3. The proximity of the noise to sleeping facilities;
 4. The nature and zoning of the areas within which the noise emanates;
 5. The density of the inhabitation of the area within which the noise emanates;
 6. The time of day or night the noise occurs;
 7. The duration of the noise;
 8. Whether the noise is recurrent, intermittent, or constant; and
 9. Whether the noise is produced by a commercial or noncommercial activity.

(Ord. MC-1246, 5-23-07; Ord. 2102, 4-03-56; Ord. 1925, 11-06-51)

8.54.030 Issuance of Written Notice and Impoundment

A. Any officer who encounters a violation of this section may issue a written notice to the Responsible Person demanding immediate abatement of the violation. The written notice shall inform the recipient that a second violation of the same provision within a seventy two (72) hour period may result in the issuance of a criminal citation, the imposition of criminal and civil penalties, and confiscation and impoundment, as evidence, of the components that are amplifying or transmitting the prohibited noise.

1. Responsible Person means (a) any person who owns, leases, or is lawfully in charge of the property or motor vehicle where the noise violation takes place, or (b) 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.

B. Any officer who encounters a second violation of this chapter within a seventy two (72) hour period following the issuance of a written notice is empowered to confiscate and impound, as evidence, any or all of the components amplifying or transmitting the sound. The immediate confiscation of a motor vehicle to which a component is attached may be made if the same may not be removed without causing harm to the vehicle or component.

C. Any person claiming legal ownership of the items confiscated and impounded under this chapter may request the return of the item by filing a written request with the police department within seven (7) calendar days of the confiscation. Such requests shall be processed in accordance with the procedures adopted by the department.

(Ord. MC-1246, 5-23-07; Ord. MC-649, 1-04-89; Ord. 1925, 11-06-51)

8.54.040 Cost Recovery for Second Response

- A. Whenever any officer issues a written notice 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 (72) hours of the issuance of the written warning.
- B. The bill for the response charge shall be served upon the Responsible Person within thirty (30) 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.
- C. The response charge shall be deemed to be a civil debt to the City.

(Ord. MC-1246, 5-23-07; Ord. MC-460, 5-15-85; Ord. 1925, 11-06-51)

8.54.050 Controlled Hours of Operation

- It shall be unlawful for any person to engage in the following activities other than between the hours of 8:00 a.m. and 8:00 p.m. in residential zones and other than between the hours of 7:00 a.m. and 8:00 p.m. in all other 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 (1,000) 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 electrically operated compressor, fan, and other similar devices.
 - G. Operate or permit the use of any motor vehicle with a gross vehicle weight rating in excess of ten thousand (10,000) 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 (15) minutes in any hour while the vehicle is stationary and on a public right-of-way or public space except when movement of said vehicle is restricted by other traffic.
 - H. 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. MC-1246, 5-23-07)

8.54.060 Exemptions

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

- A. The use of horns, sirens, or other signaling or warning devices by persons vested with legal authority to use the same, and in pursuit of their lawful duties, such as on ambulances, fire, police, or other governmental or official equipment.
- B. Such noises as are an accompaniment and effect of a lawful business, commercial or industrial enterprise carried on in an area zoned for that purpose, except where there is evidence that such noise is a nuisance and that such a nuisance is a result of the employment of unnecessary and injurious methods of operation.
- C. Activities conducted on the grounds of any public or private school during regular hours of operation.
- D. Outdoor gatherings, public dances, shows, and sporting and entertainment events provided said events are authorized by the City.
- E. Activities conducted at public spaces during regular hours of operation.
- F. Any mechanical devices, apparatus, or equipment used, related to, or connected with emergency machinery, vehicle, or work.
- G. Construction, repair, or excavation necessary for the immediate preservation of life or property.
- H. 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, but not limited to, trash collection and those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission.
- I. Construction, repair, or excavation work performed pursuant to a valid written agreement with the City, or any of its political subdivisions, which provides for noise mitigation measures.
- J. Any activity to the extent that regulation thereof has been preempted by State or Federal law.
- K. Sounds generated in connection with speech or communication protected by the United States Constitution or the California Constitution, except to the extent such sounds are subject to permissible time, place, and manner restrictions.

(Ord. MC-1246, 5-23-07)

8.54.070 Disturbances from Construction Activity

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 of 7:00 a.m. and 8:00 p.m.

(Ord. MC-1246, 5-23-07)

8.54.080 Violation - Penalty

Any person violating any of the provisions of this Chapter is guilty of an infraction or a misdemeanor, which upon conviction thereof is punishable in accordance with the provisions of Section 1.12.010 of this code.

(Ord. MC-1246, 5-23-07)

8.54.090 Severability

The provisions of this Chapter are severable, and, if any sentence, section or other part of this Chapter should be found to be invalid, such invalidity shall not affect the remaining provisions, and the remaining provisions shall continue in full force and effect.

(Ord. MC-1246, 5-23-07)

ARTICLE III - GENERAL REGULATIONS

Chapter 19.20

PROPERTY DEVELOPMENT STANDARDS

Sections:

- 19.20.010 Purpose
- 19.20.020 Applicability
- 19.20.030 General Standards

Tables:

- 20.01 Fences and Walls Height and Type Limits

19.20.010 Purpose

These standards shall ensure that new or modified uses and development will produce an urban environment of stable, desirable character which is harmonious with the existing and future development, consistent with the General Plan.

19.20.020 Applicability

Any permit which authorizes new construction or modifications to an existing structure in excess of 25% of the structure floor area shall be subject to the standards set forth in this Chapter.

19.20.030 General Standards

No permit shall be approved unless it conforms to all of the following standards set forth in this Chapter:

1. Access
2. Additional Height Restrictions
3. Antennae, Satellite Dishes and Telecommunications Facilities
4. Design Considerations
5. Dust and Dirt
6. Environmental Resources/Constraints
7. Exterior Building/Structure Walls
8. Fences and Walls
9. Fire Protection
10. Fumes, Vapor, Gases
11. Glare
12. Hazardous Materials
13. Height Determination (Buildings and Structures)
14. Lighting
15. Noise
16. Odor
17. Projections into Setbacks
18. Public Street Improvements
19. Radioactivity or Electric Disturbance
20. Refuse Storage/Disposal
21. Screening
22. Signs, Off-Street Parking, Off-Street Loading and Landscaping
23. Solar Energy Design Standards
24. Storage
25. Toxic Substances and Wastes
26. Traffic Safety Sight Area
27. Transportation Control Measures (TCM)
28. Undergrounding of Utilities
29. Vibration

(Ord. MC-1531, 6-03-20; Ord. MC-1056, 9-09-99; Ord. MC-890, 12-22-93)

These standards apply to more than one zone, and therefore, are combined in this Chapter. Also, these standards are to be considered in conjunction with those standards and design guidelines located in the specific land use district chapters.

1. ACCESS

Every structure or use shall have frontage upon a public street or permanent means of access to a public street by way of a public or private easement, or recorded reciprocal access agreement.

2. ADDITIONAL HEIGHT RESTRICTIONS

Where the maximum permitted height of a new structure exceeds 35 feet, the following provisions shall apply:

- A. Enhanced buffering to surround properties and the appropriateness of understructure parking shall be evaluated.
- B. A visual analysis relating structure proportions, massing, height and setback shall be conducted to preserve and enhance the scenic viewshed.
- C. The need and appropriateness of the additional height shall be demonstrated.
- D. Compatibility and harmony with surrounding development, and land use designations shall be demonstrated.
- E. Above 35 feet, additional structural setbacks (step back) may be required.

3. ANTENNAS, SATELLITE DISHES AND TELECOMMUNICATIONS FACILITIES

All antennas, telecommunications facilities, (monopoles) and satellite dishes shall be installed in the following manner, subject to the appropriate entitlement:

(Ord. MC-1237, 1-11-07; Ord. MC-1090, 11-20-00)

A. EXEMPTIONS

The following installations in residential districts are exempt from the provisions of this section:

1. The installation of one (1) ground mounted satellite dish antenna in the rear yard which is less than 10.5 feet in diameter and less than 12 feet in height;
2. One (1) satellite dish antenna which is less than 24 inches in diameter may be installed on a building provided that such antenna does not extend above the eaveline of said building;
3. Residential single-pole or tower roof or ground mounted television, or amateur radio antennas where the boom of any active element of the array is 30 feet or less and the height does not exceed 75 feet.

The following installations in all areas of the City are exempt from the provisions of this section:

1. Wireless facilities in public rights-of-way, which are defined in and regulated by Chapter 12.05 (Ord. MC-1650, 6-16-21)

B. DIRECTOR REVIEW

The following shall be reviewed by the Director, subject to a Development Permit:

1. Antennas up to a maximum of 15 feet in height that are mounted on a building or rooftop and that are screened from view from all adjacent public rights-of-way.
2. Antennas that are architecturally integrated with a building or structure so as not to be recognized as an antenna, such as clock towers, carillon towers and signs.
3. Antennas mounted on other existing structures including, but not limited to, water tanks, pump stations, utility poles, ball field lighting where antenna height does not exceed structure height.
4. Co-location of existing equipment on an existing City-approved support structure.
5. Modification of existing telecommunications facilities where the physical area of the reconfigured or altered antenna shall not exceed 15 percent of the original approval:
 - a. Three (3) or more additional whip antenna (15 feet maximum height);
 - b. The reconfiguration or alteration of existing antenna on a single support structure;
 - c. Additional dishes up to 4 feet in diameter;
 - d. Increased height of an existing antenna up to 75 feet.
6. Stand-alone monopoles camouflaged as palm trees, pine trees or other natural objects, within a grouping of similar natural objects.

C. PLANNING COMMISSION REVIEW

The following shall be reviewed by the Planning Commission, subject to a Conditional Use Permit:

1. Increased height of an existing, approved antenna that exceeds 75 feet in height.
2. New stand-alone monopoles that exceed 75 feet in height.

3. New ground mounted, uncamouflaged monopoles up to 75 feet in height.
4. All other wireless communication facilities, including lattice towers.
5. Placement of an antenna on any building not screened from public view.
6. On residentially designated property that is developed with a legal non-residential use (e.g., school, church, etc.).
7. Placement of a monopole or antenna (except as provided above) located within 75 feet from a property designated residential, or within 75 feet from an existing residence.

(Ord. MC-1237, 1-08-07)

D. DEVELOPMENT AND DESIGN STANDARDS

1. The antenna, support structure and associated equipment shall not be located within any residential land use district except as provided by Section 19.20.030(3)(A) and 19.20.030(3)(C)(6).
2. A maximum of one (1) satellite dish antenna shall be permitted per lot except retail locations selling and displaying satellite dish antennas and/ or televisions may have more than one (1) such antenna.
3. No part of any satellite dish antenna shall be located within a required front yard, side yard, or on the street side of a corner lot.
4. No part of any satellite dish antenna shall be located within three (3) feet of any property line.
5. No part of any monopole shall be located within ten (10) feet of any property line.

(Ord. MC-1237, 1-08-07)

6. Associated equipment shall be located within a completely enclosed structure or otherwise screened from view. Equipment shelter buildings shall be architecturally compatible with existing buildings on the site, as well as the surrounding properties, and shall be subject to the architectural Design Guidelines of the Development Code. Design features include, but are not limited to, split-face concrete block, slump stone, faux roof with pitch, etc.

(Ord. MC-1237, 1-08-07)

7. Fencing shall be wrought iron or similar decorative material and shall be consistent with the provisions of Section 19.20.030(8). Prohibited fencing includes chain link, razor wire and barbed wire.

(Ord. MC-1237, 1-08-07)

8. The antennae shall be sited to assure compatibility with surrounding development and not adversely impact the neighborhood.
9. Antennas and support equipment shall be sited to minimize views from the public rights-of-way. Landscaping may be required to screen the tower, equipment buildings or support structures from view.

(Ord. MC-1237, 1-08-07)

10. If an antenna is attached or integrated into a building, it shall be painted to match the color of the building and/or covered with similar materials, subject to approval of the Director.
11. If not camouflaged, antenna and monopoles shall be a single, non-glossy color (e.g., off-white, cream, beige, green, black, or gray).
12. Antenna structures shall conform to Federal Aviation Administration regulation AC70/7460 latest edition. This may include beacons, sidelights and/or strobes.
13. The operation of the antennae shall not cause interference with any electrical equipment in the surrounding neighborhoods (e.g., television, radio, telephone, computer, inclusive of the City's trunked 800MHz public safety radio system, etc.) unless exempted by Federal regulation.
14. A support structure may be required to be adequately designed for a co-location on another company's equipment, of no more than two companies. If co-location is proposed, the application shall be reviewed by the Director, subject to a Development Permit.
15. Camouflaged monopoles shall have heavy-density branch coverage per the manufacturer's specifications (e.g., a minimum of 60 palm fronds or a minimum of 100 pine branches). Antennae shall be painted to match the structure or camouflaged with an approved concealment. A minimum of one-half of the length of the monopole shall be covered with a simulated bark cladding.

(Ord. MC-1237, 1-08-07)

4. DESIGN CONSIDERATIONS

The following standards are in addition to the specific design guidelines contained in the individual zones:

- A. The proposed development shall be of a quality and character which is consistent with the community design goals and policies including but not limited to scale, height, bulk, materials, cohesiveness, colors, roof pitch, roof eaves and the preservation of privacy.
- B. The design shall improve community appearance by avoiding excessive variety and monotonous repetition.
- C. Proposed signage and landscaping shall be an integral architectural feature which does not overwhelm or dominate the structure or property.
- D. Lighting shall be stationary and deflected away from all adjacent properties and public streets and rights-of-way.
- E. Mechanical equipment, storage, trash areas, and utilities shall be architecturally screened from public view.
- F. With the intent of protecting sensitive land uses, the proposed design shall promote a harmonious and compatible transition in terms of scale and character between areas of different land uses.
- G. Parking structures shall be architecturally compatible with the primary and surrounding structures.
- H. Nearly vertical roofs (A-frames) and piecemeal mansard roofs (used on a portion of the structure perimeter only) are prohibited. Mansard roofs, if utilized on commercial structures, shall wrap around the entire structure perimeter.

5. DUST AND DIRT

In addition to the provisions of Section 19.30.040 (Grading), all land use activities (e.g. construction, grading, and agriculture) shall be conducted so as not to create any measurable amount of dust or dirt emission beyond any boundary line of the parcel. To ensure a dust free environment, appropriate grading procedures shall include, but are not limited to, the following:

- A. Schedule all grading activities to ensure that repeated grading will not be required, and that implementation of the desired land use (e.g. planting, paving or construction) will occur as soon as possible after grading.
- B. Disturb as little native vegetation as possible.
- C. Water graded areas as often as necessary to prevent blowing dust or dirt, hydroseeding with temporary irrigation, adding a dust palliative, and/or building wind fences.
- D. Revegetate graded areas as soon as possible.
- E. Construct appropriate walls or fences to contain the dust and dirt within the parcel subject to the approval of the City Engineer.

6. ENVIRONMENTAL RESOURCES/CONSTRAINTS

All development proposals shall be evaluated in compliance with the California Environmental Quality Act (CEQA) and all General Plan environmental policies including, but not limited to, biological resource management areas, riparian corridors; rare, threatened and/or endangered species; air quality; mineral resources; archaeological resources; high wind areas; and, geologic hazards. Development within 50 feet of a riparian corridor may be prohibited or restricted, and structures within 50 feet of an active or potentially active fault shall be prohibited. Development within these areas shall be subject to the submittal of appropriate report(s) prepared by qualified professionals which address the impacts of the proposed project; the identification of mitigation measures necessary to eliminate the significant adverse impacts; and, the provision of a program for monitoring, evaluating the effectiveness of, and insuring the adequacy of the specified mitigation measures.

7. EXTERIOR BUILDING/STRUCTURE WALLS

The following standards shall apply to all exterior building/structure wall construction:

- A. Since walls will always be a main architectural and visual feature in any major development, restraint must be exercised in the number of permissible finish materials. The harmony of materials and particularly color treatment is essential to achieve unity in the project.
- B. The following designs are deemed unacceptable in any development and therefore shall be prohibited:
 1. Nonanodized and unpainted aluminum finished window frames.
 2. Metal grills and facades. However, grills and facades of unique design and in keeping with the general decor of the development and neighborhood may be permitted subject to prior approval by the Director.
 3. Aluminum or other metal panels are not permitted on the street elevation, unless it can be demonstrated that they are consistent with a structure's overall design character, and do not adversely effect the pedestrian environment.

8. FENCES AND WALLS

The following standards shall apply to the installation of all fences and walls:

A. HEIGHT AND TYPE LIMITS

Fences and walls shall conform to the limitations outlined in Table 20.01.

(Ord. MC-1056, 9-09-99)

B. PROHIBITED FENCE MATERIALS/CHAIN LINK FENCING

1. The use of barbed wire, razor wire, or concertina wire fencing in conjunction with any other fence, wall, roof, or by itself within any land use district, is prohibited except as shown in Table 20.01, or unless required by any law or regulation of the City, the State of California, Federal Government, or agency thereof.

(Ord. MC-1531, 6-03-20; Ord. MC-1056, 9-09-99)

TABLE 20.01		
FENCES AND WALLS		
HEIGHT AND TYPE LIMITS		
Zones	Maximum Permitted Height ¹	
TABLE 20.01		
FENCES AND WALLS		
HEIGHT AND TYPE LIMITS		
Zones	Maximum Permitted Height ¹	
1. Residential		
Front yard or side of street yard (not including the rear yard) ^{2&3}	3'	Solid Structures
	4'	Open work structures (must permit the passage of a minimum of 90% of light)
Other yard area	6'	
Outside of required yard area	8'	
Abutting a non-residential district	6'	Solid, decorative masonry wall
2. Commercial, Industrial and Institutional		
Front yard or side of street yard	2' 6"	Solid structures
	6'	Open work structures
Abutting residential zone	8'	Solid, decorative masonry wall
Other yard area	8'	
Outdoor storage areas visible from public rights-of-way (located behind required yards)	10'	Commercial
	16'	Industrial
Electric fences		
(located behind a primary fence)		
Within a setback area	10'	Commercial/Industrial
Outside the setback area	16'	Industrial
3. All Zones-Traffic Safety Site Area	2' 6"	
4. Public Right-of-Way	8	
5. Hillside Management Overlay - Retaining Wall		
Uphill slope	8'	
Down slope	3' 6"	
Lots sloping with the street	3' 6"	
Adjacent to driveways	8'	
Facings streets	5'	Constructed with natural, indigenous materials
6. Foothill Fire Zone Overlay - Fences and Walls		Constructed with non-combustible materials only
1 The limitations shall not apply in the following instances: • Where a greater height is required by any other provision of the Municipal Code; or • Where a greater height or type of fence or wall is required by a condition of approval. 2 Rear yard defined for the purposes of this section shall be from the rear property line to the rear plane(s) of the structure. Ord. MC-888, 12-07-93 3 Except for school uses (including pre-schools) which were legally established prior to November 1, 2004, which may have a 6' decorative security fence (wrought iron) in the front yard area and street-side side yard areas. Ord. MC-1212, 8-17-05		

- B. PROHIBITED FENCE MATERIALS/CHAIN LINK FENCING - cont'd)
1. Six-foot high chain link fencing is permitted at all property lines for vacant commercial/industrial lots or buildings. The chain link fence shall be removed from the front yard and any other location adjacent to a public street by the owner/applicant at the time of development or occupancy.
2. Chain link fencing with neutral colored slats may be used for outdoor storage areas located in the CH, IL, IH, and IE zones within required yards, if the fence would not be adjacent to a public street. Landscaped planting of sufficient density and height may be used to screen the fence from public view. Additionally, chain link fencing may be used with tennis courts, private and commercial, temporarily at construction sites, and where it is required by any law or regulation of the City, the State of California, Federal Government, or agency thereof.
3. The above limitations shall not apply where the prohibited fence material is required as a condition of approval.

(Ord. MC-1384, 1-16-13; Ord. MC-889, 12-07-93)

C. WALL DESIGN STANDARDS *

Perimeter tract or commercial/industrial development walls which are adjacent to a public street shall have articulated planes by providing at a minimum for every 100 feet of continuous wall an 18-inch deep by eight-foot long landscaped recession.

(Ord. MC-888, 12-07-93)

Walls shall be constructed with pilasters provided at every change in direction, every five feet difference in elevation and at a minimum of every 25 feet of continuous wall.

D. RESIDENTIAL FENCING/WALL REQUIREMENT

Fencing or walls are required between individual residential units, and residential developments if adjacent to parks, open spaces, and/or major rights-of-way. All fencing and walls are to be provided by each developer at the time of construction.

E. ELECTRIC FENCES

1. Permit Required. No electric fences shall be installed or used unless a Fence Permit has been applied for and obtained from the Department of Community Development and Housing.
2. Type of Electric Fences Allowed. The construction and use of electric fences shall be allowed in the City only as provided in this section and subject to the following standards:
- a. IEC Standards 60335-2-76: Unless otherwise specified herein, electric fences shall be constructed or installed in conformance with the specifications set forth in International Electrotechnical Commission (IEC) Standard No. 60335-2-76.
- b. Electrification:
- (1) The energizer for electric fences must be driven by a commercial storage battery not to exceed 12 volts DC.
- (2) The electric charge produced by the fence upon contact shall not exceed energizer characteristics set forth in paragraph 22.108 and depicted in Figure 102 of IEC Standard No. 60335-2-76.
3. Conditions for Installation.

- a. Perimeter Fence or Wall: No electric fence shall be installed or used unless it is completely surrounded by a non-electrical fence or wall that is not less than six feet high.
- b. Location: Electric fences shall be permitted only in non-residential zones and only in locations approved by the Department of Community Development and Housing.
- c. Height: Electric fences shall not have a height in excess of 10 feet in commercial and industrial setback areas and shall not have a height in excess of 16 feet outside of the setback areas on industrial properties.
- d. Warning Signs: Electric fences shall be clearly identified with warning signs prepared in English and Spanish that read: "Warning-Electric Fence" at intervals of not less than 60 feet.
- e. "Knox Box": A "Knox Box Electrical Shunt Switch" and a "Knox Box" or other similar approved device shall be installed for emergency access of Police and Fire Departments.

4. Indemnification. All applicants issued permits to install or use an electric fence as provided in this Chapter shall agree, as a condition of permit issuance, to defend, indemnify and hold harmless the City of San Bernardino and its agents, officers, consultants, independent contractors and employees from any and all claims, actions or proceedings arising out of any personal injury, including death, or property damage caused by the electric fence.

5. Emergency Access. In the event that access by the City of San Bernardino Fire Department and/or Police Department personnel to a property where a permitted electric fence has been installed and is operating required due to an emergency or urgent circumstances, and the Knox Box or other similar approved device referred to in this Chapter is absent or non-functional, and an owner, manager, employee, custodian or any other person with control over the property is not present to disable the electric fence, the fire or police personnel shall be authorized to disable the electric fence in order to gain access to the property. As a condition of permit issuance, all applicants issued permits to install or use an electric fence as provided in this Chapter will agree to waive any and all claims for damages to the electric fence against the City of San Bernardino and/ or its personnel under such circumstances.

6. Violation; Misdemeanor. It shall be unlawful, and a misdemeanor, for any person to install, maintain or operate an electric fence in violation of this section.

F. BARBED WIRE, RAZOR WIRE AND CONCERTINA WIRE FENCES

1. Permit Required. No barbed wire, razor wire, or concertina wire fences shall be installed or used unless a Fence Permit has been applied for and obtained from the Department of Community Development and Housing.
2. Conditions for Installation.
 - a. Location: Barbed wire, razor wire, or concertina wire fences shall be permitted only in non-residential zones and only in locations approved by the Department of Community Development and Housing.
 - b. Height: Barbed wire, razor wire, or concertina wire fences shall not have a height in excess of 10 feet in commercial and industrial setback areas and shall not have a height in excess of 16 feet outside of the setback areas on industrial properties.

(Ord. MC-1531, 6-03-20)

9. FIRE PROTECTION

All structures shall meet the requirements of the City Fire Department.

10. FUMES, VAPOR, GASES

No emission which can cause damage to human health, animals, vegetation or other forms of property shall be discharged into the atmosphere. No other forms of emission shall be measurable at any point beyond the boundary line of the parcel. Emissions shall be in compliance with Air Quality Management District and Regional Water Quality Control Board permits.

(Ord. MC-1531, 6-03-20)

11. GLARE

No glare incidental to any use shall be visible beyond any boundary line of the parcel.

12. HAZARDOUS MATERIALS

The following standards are intended to ensure that the use, handling, storage and transportation of hazardous materials comply with all applicable requirements of Government Code 65850.2 and Health and Safety Code 25505, Article 80- Uniform Fire Code, et. al. It is not the intent of these regulations to impose additional restrictions on the management of hazardous wastes, which would be contrary to State Law, but only to require reporting of information to the City that must be provided to other public agencies.

For the purposes of this Section, hazardous materials shall include all substances on the comprehensive master list of hazardous materials compiled and maintained by the California Department of Health Services.

A. A Conditional Use Permit shall be required for any new commercial, industrial, or institutional or accessory use, or major addition to an existing use, that involves the manufacture, storage, handling, or processing of hazardous materials in sufficient quantities that would require permits as hazardous chemicals under the Uniform Fire Code, with the following exceptions:

1. Underground storage of bulk flammable and combustible liquids; and
2. Hazardous materials in container sizes of 10 gallons or less that are stored or maintained for the purposes of retail or wholesale sales.

B. All businesses required by Chapter 6.95 of the California Health and Safety Code to prepare hazardous materials release response plans shall submit copies of these plans, including revisions to the Director at the same time these plans are submitted to the administrating agency which is responsible for administering these provisions.

C. Underground storage of hazardous materials shall comply with all applicable requirements of Chapter 6.7 of the California Health and Safety Code, and Article 79 of the Uniform Fire Code. Any business that uses underground storage tanks shall comply with the following:

1. Notify the City Fire Department of any unauthorized release of hazardous materials immediately, after the release has been detected and the steps taken to control the release; and
2. Notify the City Fire Department and the Director of any proposed abandoning, closing or ceasing operation of an underground storage tank and the actions to be taken to dispose of any hazardous substances.

D. Above-ground storage tanks for any flammable liquids shall meet all standards of the City Fire Department.

E. All structures subject to the provisions of this Development Code and all newly created lots shall be designed to accommodate a setback of at least 100 feet from a pipeline. This setback may be reduced, where the Director finds that:

1. The structure would be protected from the radiant heat of an explosion by berming or other physical barriers;
2. A 100-foot setback would be impractical or unnecessary because of existing topography, streets, lot lines, or easements; and,

3. There shall be construction of hazardous liquid containment system or other mitigating facility where the City Engineer finds that a leak would accumulate within the reduced setback area. The design shall be approved by the City Engineer and a surety instrument shall be approved by the City Attorney to ensure the construction of the system.

A proposed structure (including a residence) on an undeveloped existing lot of record that cannot be constructed only because of this restriction, shall be allowed to be constructed if the structure is located so as to comply with the setback regulation as closely as possible. The Director may require a hazardous liquid containment system, to be approved by the City Engineer.

A pipeline is defined as follows:

1. A pipe with a nominal diameter of 6 inches or more, that is used to transport hazardous liquids, but does not include a pipe used to transport a hazardous liquid by gravity and a pipe used to transport or store a hazardous liquid within a refinery, storage, or manufacturing facility; or,
2. A pipe with a nominal diameter of six inches or more operated at a pressure of more than 275 pounds per square inch that carries gas.

A subdivider of a development within 500 feet of a pipeline shall notify a new owner at the time of purchase agreement and at the close of escrow of the location, size, and type of pipeline.

13. HEIGHT DETERMINATION (BUILDINGS AND STRUCTURES)

(Ord. MC-1531, 6-03-20)

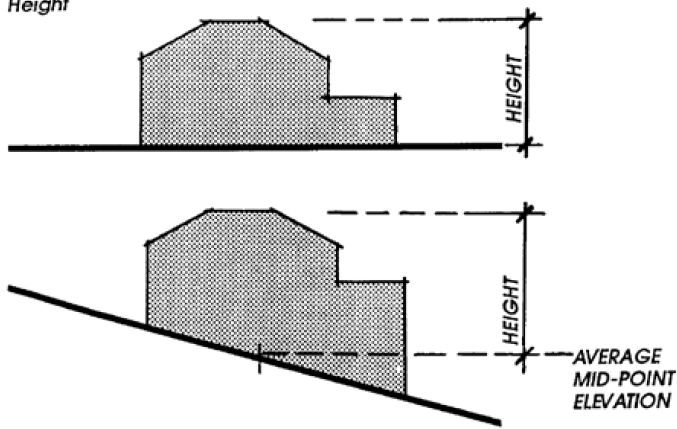
All structures shall meet the following standards relating to height:

A. The structure's height shall not exceed the standard for the land use district in which it is located. The structure height shall be determined from the finished grade to the highest point of the structure, excluding chimneys and vents.

B. Pad elevations shall be determined by the Director and the City Engineer based on the following criteria.

1. Flood control;
2. Site drainage;
3. Viewshed protection from both public and private property;
4. Protection of privacy of surrounding properties including consideration of the location of windows, doors, balconies, and decks;
5. Structure setback in relationship to structure height and property lines;
6. Sightline and structure envelope analysis;
7. Sewer line grade and location; and
8. Necessary slopes and retaining walls.

Height



- C. Perimeter fences, or walls, shall not exceed six feet in height, unless as otherwise provided in this Development Code. The height shall be measured from the finished grade of the property.
- D. Architectural walls integral to the structure design, attached to the structure may exceed 6 feet in height, subject to review by the Director.
- E. To protect safety sight-distance for vehicular movement, sight obscuring fences, or walls, or other obstructions shall not exceed 36 inches in height when located in a front setback.

(Ord. MC-888, 12-07-93)

- F. Free-standing flagpoles and radio and television antennas may not exceed the structure height restrictions of the land use district in which they are located, except as otherwise provided in this Development Code.

14. LIGHTING

Exterior lighting shall be energy-efficient and shielded or recessed so that direct glare and reflections are contained within the boundaries of the parcel, and shall be directed downward and away from adjoining properties and public rights-of-way. No lighting shall blink, flash, or be of unusually high intensity or brightness. All lighting fixtures shall be appropriate in scale, intensity, and height to the use it is serving. Security lighting shall be provided at all entrances/exits.

15. NOISE

No loudspeaker, bells, gongs, buzzers, mechanical equipment or other sounds, attention-attracting, or communication device associated with any use shall be discernible beyond any boundary line of the parcel, except fire protection devices, burglar alarms and church bells. The following provisions shall apply:

- A. In residential areas, no exterior noise level shall exceed 65dBA and no interior noise level shall exceed 45dBA.
- B. All residential developments shall incorporate the following standards to mitigate noise levels:
 - 1. Increase the distance between the noise source and receiver.
 - 2. Locate land uses not sensitive to noise (i.e., parking lots, garages, maintenance facilities, utility areas, etc.) between the noise source and the receiver.
 - 3. Bedrooms should be located on the side of the structure away from major rights-of-way.
 - 4. Quiet outdoor spaces may be provided next to a noisy right-of-way by creating a U-shaped development which faces away from the right-of-way.
- C. The minimum acceptable surface weight for a noise barrier is four pounds per square foot (equivalent to ¾-inch plywood). The barrier shall be of a continuous material which is resistant to sound including:
 - 1. Masonry block
 - 2. Precast concrete
 - 3. Earth berm or a combination of earth berm with block concrete.
- D. Noise barriers shall interrupt the line-of-sight between noise source

and receiver.

16. ODOR

No use shall emit any obnoxious odor or fumes.

17. PROJECTIONS INTO SETBACKS

(Ord. MC-1531, 6-03-20)

The following list represents the only projections, construction, or equipment that shall be permitted within the required setbacks:

- A. Front Setback: Roof overhangs, fireplace chimney, awnings & canopies
- B. Rear Setback: Roof overhangs, pools, patio covers, tennis courts, gazebos, and awnings & canopies, provided there is no projection within 10 feet of the property line. Accessory structures may be built to the interior side or rear property lines provided that such structures are not closer than 10 feet to any other structures.

(Ord. MC-876, 6-09-93)

- C. Side Setback: Roof overhangs, fireplace chimney, awnings & canopies

Building Code requirements may further restrict the distance required to be maintained from the property lines and other structures.

18. PUBLIC STREET IMPROVEMENTS

A. Any new construction or construction of 2,500 square feet or more of the structure floor area of the primary structure shall require the dedication of public right-of-way for public street purposes. In addition, the property owner shall be required to irrevocably agree to participate in any future assessment district that may be formed to construct public street improvements in accordance with the policies, procedures and standards of the Director of Public Works/City Engineer.

B. Whenever street improvements are required along a parcel as a condition of approval, and the off-site drainage pattern requires it, the entire street section may be required to be improved in accordance with the policies, procedures and standards of the Director of Public Works/City Engineer.

C. Special Fee areas may be designated by the Mayor and Common Council to provide funding for required improvements or to refund monies advanced by the City for designated improvements. Whenever such fee areas are established by Resolution of the Mayor and Common Council, all new construction or construction of 2,500 square feet or more of structure floor area of the primary structures shall pay such fees.

(Ord. MC-1373, 5-24-12; Ord. MC-816, 1-07-92)

19. RADIOACTIVITY OR ELECTRIC DISTURBANCE

No activity shall be permitted which emits radioactivity or electrical disturbance.

20. REFUSE STORAGE/DISPOSAL

Every parcel with a multi-family, commercial or industrial structure shall have a trash receptacle on the premises. The trash receptacle shall be of sufficient size to accommodate the trash generated. The receptacle shall be screened from public view on at least three sides by a solid wall six feet in height and on the fourth side by a solid gate not less than five feet in height, in compliance with adopted Public Works Department Standards. The gate shall be maintained in good working order and shall remain closed except when in use. The wall and gate shall be architecturally compatible with the surrounding structures. Trash receptacles for single family homes should be stored within the enclosed garage or behind a fence.

21. SCREENING

Any equipment, whether on the roof, side of structure, or ground, shall be screened. The method of screening shall be architecturally compatible in terms of materials, color, shape, and size. The screening design shall blend with the building design and include landscaping when on the ground.

22. SIGNS, OFF-STREET PARKING, OFF-STREET LOADING AND LANDSCAPING

All development shall comply with the provisions of Chapter 19.22 (Sign Standards); Chapter 19.24 (Off-Street Parking Standards); Chapter 19.26 (Off-Street Loading Standards) and Chapter 19.28 (Landscaping).

23. SOLAR ENERGY DESIGN STANDARDS

(Ord. MC-1381, 12-19-12)

Passive heating and cooling opportunities shall be incorporated in all developments in the following manner:

- A. Future structures should be oriented to maximize solar access opportunities.
- B. Streets, lot sizes, and lot configurations should be designed to maximize the number of structures oriented so that the south wall and roof area face within 45 of due south.
- C. The proposed lot size and configuration should permit structures to receive cooling benefits from both prevailing breezes and existing and proposed shading.
- D. Any pool or spa facilities owned and maintained by a homeowners association shall be equipped with a solar cover and solar water heating system.
- E. No structure (building, wall or fence) shall be constructed or vegetation placed so as to obstruct solar access on an adjoining parcel.

24. STORAGE

There shall be no visible storage of motor vehicles, trailers, airplanes, boats, or their composite parts; loose rubbish, garbage, junk, or their receptacles; tents; or building or manufacturing materials in any portion of a lot, except as allowed under the provisions of this Development Code. No storage shall occur on any vacant parcel.

No vehicles may be stored or displayed for sale on any vacant lot or at any vacant business location.

Building materials for use on the same premises may be stored on the parcel during the time that a valid building permit is in effect for construction.

25. TOXIC SUBSTANCES AND WASTES

No use may operate that utilizes toxic substances or produces toxic waste without the approval of a Conditional Use Permit pursuant to the provisions of Chapter 19.36 (Conditional Use Permits). Prior to consideration of a Conditional Use Permit, the operator must prepare a toxic substance and waste management plan which will provide for the safe use and disposal of these substances.

26. TRAFFIC SAFETY SIGHT AREA

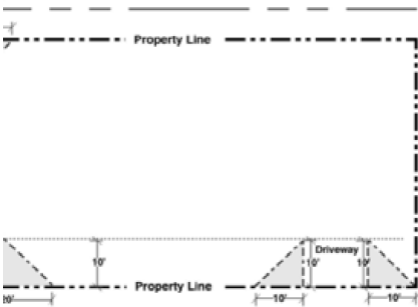
(Ord. MC-1531, 6-03-20)

No fence, wall, hedge, sign or other structure, shrubbery, mounds of earth or other visual obstruction over 36 inches in height above the nearest street curb elevation shall be rected or placed within a Traffic Safety Sight Area. A Traffic Safety Sight Area is a triangular portion of a lot formed by three distances measured along and/ or perpendicular to property lines at the intersection of two street rights-of-way or at intersections of driveways, parking entrances, and alleys with a street right-of-way.

A. Distances Used to Measure Traffic Safety Sight Areas

The following distances, as seen in Figure 19.20 (29)-A (Traffic Safety Sight Area Distances) shall be used to measure Traffic Safety Sight Areas, Upon review by the City Traffic Engineer, the distances specified in this Section may be increases if he/she determines that a greater distance is required to maintain public health and safety or reduced if he/she determines that the reduced distance would not create a public health and safety/hazard.

- 1. For Traffic Safety Sight Areas at the intersection of two street rights-of- way, two sides of the triangle extend along the intersecting property lines for 20 feet and the third side is a diagonal line that connects the two other sides.
- 2. For Traffic Safety Sight Areas at the intersection of a street right-of-way and alley, two sides of the triangle extend along the intersecting property lines for 10 feet and the third side is a diagonal line that connects the two other sides.
- 3. For Traffic Safety Sight Areas at the intersection of a street right-of-way and driveway or parking entrance, one side of the triangle extends from the intersection of the street right-of-way and the driveway or parking entrance for 10 feet along the property line. The second side extends from the intersection of the stret right-of-way and driveway or parking entrance for 1- feet perpendicular to the property line. The third side of the triangle connects the two other sides.



B. Exemptions

Traffic Safety Sight Areas shall not apply to the following:

- 1. Public utility poles;
- 2. Trees trimmed (to the trunk) to a line at least six feet above the level of the intersection
- 3. Supporting members of appurtenances to permanent structures existing on the date this Development Code becomes effective; or
- 4. Official warning signs or signals.

27. TRANSPORTATION CONTROL MEASURES (TCM)

(Ord. MC-1531, 6-03-20)

The purpose of this section is to reduce vehicle trips thereby reducing air pollutants and improving air quality, to comply with State Law, and to promote an improved quality of life. All new development is subject to the following Transportation Control Measures:

- A. Bicycle parking facilities or secured bicycle lockers shall be provided for all new non-residential developments and multi-family (of 10 or more units) developments when discretionary review is required. Parking racks or secured lockers shall be provided at a rate of 1 per 30 parking spaces with a minimum of a three-bike rack.
- B. All new non-residential developments, meeting CMP thresholds of 250 or more peak hour trips, shall provide a minimum of one shower for persons bicycling or walking to work. The shower shall be made so as to be accessible to both men and women.
- C. On-site pedestrian walkways and bicycle facilities shall be provided connecting each building in a development to public streets for all new non-residential and multi-family (of 10 or more units).
- D. Passenger loading areas, suitable to the proposed land use shall be provided for all new non-residential and multi-family (of 10 or more units) developments (of 100 or more parking spaces). The loading areas shall be placed in locations close to building entrances but so as not to interfere with vehicle circulation.
- E. Preferred parking facilities shall be provided for vanpools at a rate of 1 van parking space per 100 standard parking spaces for all new non-residential development. A minimum of one such space shall be required. A vertical clearance of no less than 9 feet shall be provided.
- F. Transit improvements such as bus pullouts, bus pads, and bus shelters shall be provided for new residential and non-residential development along existing or planned transit routes. The need for and nature of those improvements shall be defined in cooperation with Omnitrans.
- G. New non-residential developments exceeding the following thresholds may be required to designate on-site parking areas to be used by commuters as park- and-ride lots or contribute exaction fees to develop off-site park-and-ride lots:

Retail	250,000 Square Feet GFA
Industrial	325,000 Square Feet GFA
Office	125,000 Square Feet GFA

The determination of whether an on-site park-and-ride facility or contribution of exaction fees is required will be based upon a Traffic Impact Analysis Report (TIA Report), prepared by a qualified traffic engineer in a manner consistent with the Congestion Management Program (CMP) for San Bernardino County.

- H. Parking space requirements for new non-residential development shall be reduced when linked to other actions that reduce trips to account for increased ridesharing and other modes of transportation. Analysis shall be provided estimating the trip reductions. The City Traffic Engineer shall review the analysis and make a recommendation to the Planning Division on the number of parking spaces that may be eliminated.
- I. A telecommuting center or contributions toward such a center shall be required for all new residential developments of 500 units or more.
- J. On-site video conferencing facilities shall be provided for all office park developments with 1,000 or more employees.

27. UNDERGROUNDING OF UTILITIES

Utilities shall be placed underground pursuant to Section 19.30.110. In the event an above ground electrical transformer is located outdoors on any site, it shall be screened from view with a solid wall and landscaping and not located in any setback area. If it cannot be screened, it shall be located in an underground vault. Exceptions to the undergrounding of utilities requirements are as follows:

- A. Transformers, pedestal-mounted terminal boxes, meter cabinets and concealed ducts may be placed above ground, if they are used solely in connection with the underground transmission or distribution lines;
- B. Poles supporting street lights, and the electrical lines within the poles, may be situated above the surface of the ground;
- C. The Council may waive any requirement of this section if topographical, soil or similar physical conditions make such underground installation unreasonable or impractical;
- D. Any Parcel Map with a maximum of four residential parcels, no parcel of which has previously been exempted from this section; and where at least 50% of the surrounding area within a radius of 500 feet has been previously developed without undergrounding utilities;
- E. That portion of a previously developed non-residential Parcel Map;
- F. The requirement to underground shall apply to all utility lines traversing a subdivision, or installed along either side of the streets and alleys adjoining the subdivision, except for electrical lines of 33 KVA or more. Where one line is exempt, all parcel lines on that same pole shall be exempt;
- G. Any single lot development on a Residential Estate, Low, Suburban, or Urban (RE, RL, RS, and RU) designated parcel; or any single lot development of one net acre or less in any land use district, shall be exempt from this requirement. This exemption shall not apply where the requirement to underground utilities is imposed as a condition of approval of a subdivision map; and
- H. The remodeling of existing structures where the cost of remodeling is less than 50% of the replacement cost of the existing structure as determined for building permit fees shall be exempt.

28. VIBRATION

No vibration associated with any use shall be permitted which is discernible beyond the boundary line of the property.

Notes

- * Ord. MC-1531, 6-03-20 caused the renumbering of items in this subsection, but contained a typo that created two different items to be numbered "B." The items after the first "B" have all been adjusted to correct that, and no other changes have been made.

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APPENDIX 3.3:

CITY OF HIGHLAND MUNICIPAL CODE

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Chapter 8.50 NOISE CONTROL

Sections:

- 8.50.010 Findings and purpose.**
- 8.50.020 Definitions.**
- 8.50.030 Prohibited acts.**
- 8.50.040 Excessive noise and vibration emanating from a motor vehicle.**
- 8.50.050 Controlled hours of operation.**
- 8.50.060 Exemptions.**
- 8.50.070 Enforcement and administration.**
- 8.50.080 Enforcement – Interference.**
- 8.50.090 Violations – Notices – Abatement.**
- 8.50.100 Repealed.**
- 8.50.110 Violations – Notices – Service – Effect.**
- 8.50.120 Immediate threats to health and welfare.**
- 8.50.130 Administrative citations and costs of second and subsequent responses.**
- 8.50.140 Modification, suspension and/or revocation of validly issued city permit and/or city license.**

8.50.010 Findings and purpose.

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 which is detrimental to the health, safety, welfare and quality of life of the citizens which should be regulated in the public interest.

B. In furtherance of the foregoing purpose, the city council finds and declares as follows:

1. The making, creation or maintenance of such loud, unnecessary, unnatural or unusual noises or vibrations that are prolonged, unusual, annoying, disturbing and unnatural in their time, place and use are a detriment to the public health, comfort, convenience, safety, general welfare and the peace and quiet of the city and its inhabitants; and
2. The public interest necessity for the provisions and prohibitions hereinafter contained and enacted is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuit 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. 324 § 2, 2008)

8.50.020 Definitions.

For the purposes of this chapter, the following terms shall have the meanings given:

"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 the 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 HMC [8.50.070](#).

"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 any music, specific words, or the artist performing the music. 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 structure(s) 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. 324 § 2, 2008)

8.50.030 Prohibited acts.

A. It shall be 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 circumstance(s) or for any other purpose than required or permitted by the Vehicle Code or other state 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 50 feet in any direction from the source of music or sound, between the hours of 7:00 a.m. and 10:00 p.m.; or
 - d. Plainly audible at a distance of 25 feet in any direction from the source of music or sound, between the hours of 10:00 p.m. and 7:00 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 15 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, provided conspicuous signs are displayed, clearly visible to the motoring public, 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 area(s) 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; and
- j. Whether the noise is produced by a commercial or noncommercial activity.

B. A violation of this section is a public nuisance.

C. A violation of this section may result in the following:

1. Issuance of an administrative citation, where the fines and penalties shall be assessed as infractions in accordance with HMC [2.56.110](#);
2. Issuance of a notice of public nuisance and abatement pursuant to Chapter [8.28](#) HMC;
3. Imposition of criminal and civil penalties, including those in Chapter [1.24](#) HMC; 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 72-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 72-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 police department. (Ord. 370 § 27, 2012; Ord. 324 § 2, 2008)

8.50.040 Excessive noise and vibration emanating from a motor vehicle.

A. No person shall operate 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 50 feet from such vehicle, or in the case of a motor vehicle on private property, beyond the property line.

B. A violation of this section is a public nuisance.

C. A violation of this section may result in the following:

1. Issuance of an administrative citation, where the fines and penalties shall be assessed as infractions in accordance with HMC [2.56.110](#);
2. Issuance of a notice of public nuisance and abatement pursuant to Chapter [8.28](#) HMC;
3. Imposition of criminal and civil penalties, including those in Chapter [1.24](#) HMC; and
4. Immediate confiscation and impoundment as evidence of the components that are amplifying or transmitting the prohibited noises 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 procedures adopted by the police 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 procedures adopted by the police department. (Ord. 370 § 28, 2012; Ord. 324 § 2, 2008)

8.50.050 Controlled hours of operation.

It shall be unlawful for any person to engage in the following activities at a time other than between the hours of 5:00 a.m. and 10:00 p.m. on any day in the industrial (I) zone, and between the hours of 7:00 a.m. and 10:00 p.m. on any day in all other 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 1,000 feet of a residence.
- C. Operate or permit the use of domestic power tools, 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 code enforcement officer.
- F. Operate or permit the use of electrically operated compressor(s), fan(s) and other similar device(s).
- G. Operate or permit the use of pile driver(s), steam or gasoline shovel(s), pneumatic hammer(s), steam or electric hoist(s) or other similar device(s).
- 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 10,000 pounds, or of any auxiliary equipment attached to such a vehicle, including but not limited to refrigerated truck compressors, for a period longer than 15 minutes in any hour while the vehicle is stationary and on a public right-of-way or public space, except when movement of said vehicle is restricted by other traffic.

J. Repair, rebuild, reconstruct or dismantle any motor vehicle or other mechanical equipment or device(s) in a manner so as to be plainly audible across property lines.

K. Load, unload, open, close or otherwise handle garbage cans, recycling bins or other similar objects between the hours of 10:00 p.m. and 7:00 a.m. the following morning, except city-permitted trash collection. (Ord. 352 § 1, 2010; Ord. 324 § 2, 2008)

8.50.060 Exemptions.

The following activities and noise sources shall not be subject to 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 said events are authorized by the city.

D. Legally permitted activities conducted at public places 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 10:00 p.m. and 7:00 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 repair of equipment, apparatus or facilities of the park and recreation department, public work projects or essential public services and facilities, including trash collection and those of public utilities subject to the regulatory jurisdiction of the 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 specific activity or noise source governed elsewhere in this code. Such activities include, but are not limited to:

1. Security alarm systems (Chapter [8.04](#) HMC);
2. Animal noise (Chapter [6.04](#) HMC);
3. Loud, unruly or disorderly private parties or assemblies (Chapter [9.17](#) HMC). (Ord. 324 § 2, 2008)

8.50.070 Enforcement and administration.

The city manager, chief of police and/or their designees shall be responsible for administering and enforcing the provisions of this chapter. (Ord. 324 § 2, 2008)

8.50.080 Enforcement – Interference.

No person shall interfere with, oppose, or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his duty. (Ord. 324 § 3, 2008; Ord. 283 § 4, 2002. Formerly 8.50.140)

8.50.090 Violations – Notices – Abatement.

Violations of this chapter shall be prosecuted in the same manner as other violations of this code; provided, however, in the event of an initial violation of the provisions of this chapter, a written notice shall be given the alleged violator which specifies the time by which the condition shall be corrected or, where applicable, an application for a permit shall be received by the planning division. No complaint or further action shall be taken in the event the cause of the violation has been removed or the condition abated or fully corrected within the time period specified in the written notice. (Ord. 370 § 29, 2012; Ord. 324 § 3, 2008; Ord. 283 § 4, 2002. Formerly 8.50.150)

8.50.100 Violations – Penalties.

Repealed by Ord. 370. (Ord. 324 § 3, 2008; Ord. 283 § 4, 2002. Formerly 8.50.160)

8.50.110 Violations – Notices – Service – Effect.

In the event the alleged violator cannot be located in order to serve the violation of intention to prosecute, such notice shall be deemed to be given upon mailing such notice by registered or certified mail to the alleged violator at his last known address or at the place where the violation occurred, in which event the specified time period for abating the violation or applying for a variance shall commence on the date of the day following the mailing of such notice. Subsequent violations of the same offense shall result in the immediate filing of a complaint. (Ord. 370 § 30, 2012; Ord. 324 § 3, 2008; Ord. 283 § 4, 2002. Formerly 8.50.170)

8.50.120 Immediate threats to health and welfare.

A. The city manager may order an immediate halt to any sound which exposes any person, except those excluded pursuant to HMC [8.50.060](#), to continuous sound levels in excess of those described herein. Within two days following the issuance of any such order, the city shall apply to the appropriate court for an injunction to replace the order.

B. No order pursuant to subsection A of this section shall be issued if the only persons exposed to sound levels in excess of those contained herein are exposed as a result of (1) trespassing; (2) an invitation upon private property by the person causing or permitting the sound; or (3) employment by the person or contractor of the person causing or permitting the sound.

C. Any person subject to an order issued pursuant to subsection A of this section shall comply with such order until (1) the sound is brought into compliance with the order, as determined by the city manager; or (2) a judicial order has superseded the order of the city manager. (Ord. 324 § 3, 2008; Ord. 283 § 4, 2002. Formerly 8.50.180)

8.50.130 Administrative citations and costs of second and subsequent responses.

The city manager or his designee, in his/her sole discretion, may prosecute violations of this chapter through the administrative citation process set forth in Chapter [2.56](#) HMC, in lieu of the criminal or nuisance abatement process. In the case of second and subsequent violations of this chapter, the city may assess a second response service fee in compliance with HMC [9.17.030](#) through [9.17.060](#), inclusive. (Ord. 324 § 4, 2008)

8.50.140 Modification, suspension and/or revocation of validly issued city permit and/or city license.

The violation of this chapter by any city permittee or licensee more than twice in any six-calendar-month period, in the course of operating pursuant to a validly issued city permit and/or license, may be grounds for the modification, suspension or revocation of such license subject to normal city processes, in the discretion of the city manager. (Ord. 324 § 4, 2008)

The Highland Municipal Code is current through Ordinance 462, passed November 14, 2023.

Disclaimer: The city clerk’s office has the official version of the Highland Municipal Code. Users should contact the city clerk’s office for ordinances passed subsequent to the ordinance cited above.

City Website: <https://www.cityofhighland.org/>

City Telephone: (909) 864-6861

[General Code](#)

APPENDIX 5.1:

STUDY AREA PHOTOS

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15935 - Inland Valley Infrastructure Corridor Project

15935_L1_H 1.North

34, 6' 29.790000"117, 15' 31.310000"



15935_L1_H 2.South

34, 6' 29.750000"117, 15' 31.260000"



15935_L1_H 3.East

34, 6' 29.850000"117, 15' 30.950000"



15935_L1_H 4.West

34, 6' 29.790000"117, 15' 31.090000"



15935 - Inland Valley Infrastructure Corridor Project

15935_L2_G 1.North

34, 6' 16.980000"117, 15' 8.650000"



15935_L2_G 2.South

34, 6' 16.860000"117, 15' 8.680000"



15935_L2_G 3.East

34, 6' 16.860000"117, 15' 8.650000"



15935_L2_G 4.West

34, 6' 16.870000"117, 15' 8.650000"



15935 - Inland Valley Infrastructure Corridor Project

15935_L3_J 1.North
34, 6' 36.580000"117, 14' 59.010000"



15935_L3_J 2.South
34, 6' 36.580000"117, 14' 58.980000"



15935_L3_J 3.East
34, 6' 36.580000"117, 14' 58.900000"



15935_L3_J 4.West
34, 6' 36.580000"117, 14' 59.010000"



15935 - Inland Valley Infrastructure Corridor Project

15935_L4_L 1.North
34, 6' 37.110000"117, 14' 6.610000"



15935_L4_L 2.South
34, 6' 37.110000"117, 14' 6.580000"



15935_L4_L 3.East
34, 6' 37.200000"117, 14' 6.360000"



15935_L4_L 4.West
34, 6' 37.160000"117, 14' 6.520000"



15935 - Inland Valley Infrastructure Corridor Project

15935_L5_M 1.North

34, 6' 30.810000"117, 13' 26.450000"



15935_L5_M 2.South

34, 6' 30.780000"117, 13' 26.450000"



15935_L5_M 3.East

34, 6' 30.770000"117, 13' 26.400000"



15935_L5_M 4.West

34, 6' 30.690000"117, 13' 26.560000"



15935 - Inland Valley Infrastructure Corridor Project

15935_L6_N 1.North

34, 6' 55.270000"117, 13' 33.590000"



15935_L6_N 2.South

34, 6' 54.950000"117, 13' 33.760000"



15935_L6_N 3.East

34, 6' 53.770000"117, 13' 34.800000"



15935_L6_N 4.West

34, 6' 53.720000"117, 13' 34.750000"



15935 - Inland Valley Infrastructure Corridor Project

15935_L7_O 1.North

34, 6' 36.100000"117, 13' 2.890000"



15935_L7_O 2.South

34, 6' 36.060000"117, 13' 2.910000"



15935_L7_O 3.East

34, 6' 35.960000"117, 13' 2.860000"



15935_L7_O 4.West

34, 6' 36.040000"117, 13' 2.970000"



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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

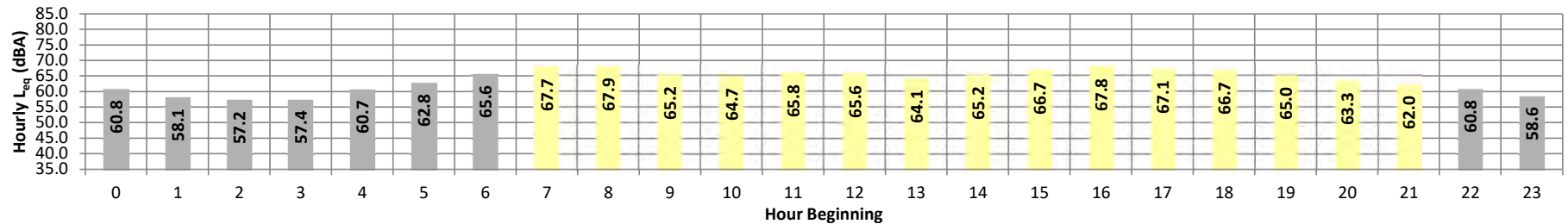
Date: Wednesday, April 24, 2024
Project: Inland Valley Infrastructure Corridor

Location: L1 - Located west of the site near the residence at 24974 5th St
Source:

Meter: Piccolo II

JN: 15935
Analyst: Z. Ibrahim

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	60.8	73.6	38.2	73.1	72.3	68.6	65.4	57.1	47.3	39.7	39.1	38.4	60.8	10.0	70.8
	1	58.1	69.7	35.2	69.4	69.0	66.5	64.1	53.5	44.5	36.3	35.8	35.3	58.1	10.0	68.1
	2	57.2	69.5	34.8	69.2	68.7	65.8	62.8	50.9	41.3	35.7	35.3	34.9	57.2	10.0	67.2
	3	57.4	69.6	35.7	69.3	68.6	65.5	63.1	52.9	43.3	36.5	36.1	35.7	57.4	10.0	67.4
	4	60.7	72.3	37.9	71.9	71.2	68.5	66.6	58.4	49.0	39.6	38.7	38.0	60.7	10.0	70.7
	5	62.8	73.1	42.5	72.9	72.3	70.5	68.9	61.9	53.9	44.3	43.7	42.8	62.8	10.0	72.8
	6	65.6	75.3	45.4	75.0	74.4	72.6	71.4	66.2	57.9	48.0	47.1	45.9	65.6	10.0	75.6
Day	7	67.7	75.6	50.1	75.3	74.7	73.5	72.7	69.4	63.7	53.2	51.6	50.3	67.7	0.0	67.7
	8	67.9	76.6	51.5	76.2	75.6	73.6	72.5	69.3	64.6	55.2	53.4	51.8	67.9	0.0	67.9
	9	65.2	75.7	45.7	75.0	74.1	71.9	70.5	65.6	58.7	48.3	47.1	46.0	65.2	0.0	65.2
	10	64.7	73.6	46.5	73.3	72.8	71.1	70.0	66.0	59.4	48.6	47.7	46.8	64.7	0.0	64.7
	11	65.8	76.0	47.0	75.4	74.5	72.2	70.9	66.6	60.2	50.2	48.7	47.4	65.8	0.0	65.8
	12	65.6	75.4	46.5	75.1	74.4	72.1	70.5	66.6	60.5	49.1	47.8	46.7	65.6	0.0	65.6
	13	64.1	73.6	45.8	73.2	72.5	70.4	69.1	65.1	58.9	48.6	47.3	46.1	64.1	0.0	64.1
	14	65.2	73.3	47.6	73.0	72.4	71.1	70.1	66.6	61.8	50.9	49.3	47.9	65.2	0.0	65.2
	15	66.7	74.7	50.2	74.3	73.7	72.1	71.2	68.1	63.9	53.9	52.0	50.5	66.7	0.0	66.7
	16	67.8	77.4	50.9	76.8	75.8	73.3	71.8	69.0	65.1	55.0	52.8	51.1	67.8	0.0	67.8
	17	67.1	74.8	49.4	74.5	73.9	72.4	71.5	69.0	64.5	53.2	51.4	49.8	67.1	0.0	67.1
	18	66.7	76.6	48.7	76.2	75.4	73.1	71.6	67.5	61.7	51.7	50.3	48.9	66.7	0.0	66.7
	19	65.0	74.5	48.2	74.2	73.5	71.5	70.3	65.7	59.4	50.6	49.2	48.4	65.0	5.0	70.0
	20	63.3	72.8	45.2	72.5	72.0	70.1	69.0	63.8	56.5	46.9	46.2	45.4	63.3	5.0	68.3
	21	62.0	71.9	44.0	71.6	71.1	69.2	67.9	62.1	54.7	45.7	44.9	44.2	62.0	5.0	67.0
	Night	22	60.8	71.8	40.8	71.4	70.8	68.5	66.8	59.4	50.8	42.3	41.6	41.0	60.8	10.0
23		58.6	69.9	38.4	69.7	69.1	66.5	64.4	55.9	47.4	40.0	39.1	38.6	58.6	10.0	68.6
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	Leq (dBA)		
Day	Min	62.0	71.9	44.0	71.6	71.1	69.2	67.9	62.1	54.7	45.7	44.9	44.2	24-Hour CNEL	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	67.9	77.4	51.5	76.8	75.8	73.6	72.7	69.4	65.1	55.2	53.4	51.8			
Energy Average		66.0	Average:		74.4	73.8	71.8	70.6	66.7	60.9	50.7	49.3	48.1			
Night	Min	57.2	69.5	34.8	69.2	68.6	65.5	62.8	50.9	41.3	35.7	35.3	34.9	69.0	66.0	61.1
	Max	65.6	75.3	45.4	75.0	74.4	72.6	71.4	66.2	57.9	48.0	47.1	45.9			
Energy Average		61.1	Average:		71.3	70.7	68.1	66.0	57.3	48.4	40.3	39.6	39.0			

24-Hour Noise Level Measurement Summary

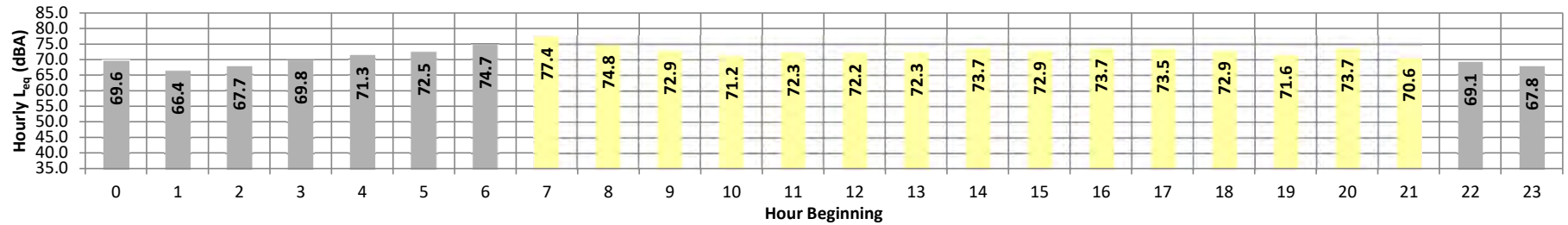
Date: Wednesday, April 24, 2024
Project: Inland Valley Infrastructure Corridor

Location: L2 - Located south of the site near the hotel at 25280 3rd St
Source:

Meter: Piccolo II

JN: 15935
Analyst: Z. Ibrahim

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	69.6	83.5	49.0	82.7	81.5	75.7	72.8	65.6	58.3	50.5	49.8	49.2	69.6	10.0	79.6
	1	66.4	76.8	47.5	76.4	75.8	73.6	72.2	66.2	57.4	48.9	48.2	47.6	66.4	10.0	76.4
	2	67.7	78.5	42.7	78.3	77.7	75.5	73.7	66.4	56.6	44.9	43.6	42.9	67.7	10.0	77.7
	3	69.8	79.8	49.2	79.4	78.6	76.8	75.5	69.7	63.4	52.4	50.7	49.5	69.8	10.0	79.8
	4	71.3	80.5	52.4	80.2	79.5	77.8	76.7	72.2	65.9	55.2	54.0	52.7	71.3	10.0	81.3
	5	72.5	81.9	53.7	81.6	80.9	78.9	77.6	73.1	67.8	56.8	55.5	54.3	72.5	10.0	82.5
	6	74.7	82.9	58.2	82.6	81.9	80.5	79.5	75.9	71.5	62.0	59.9	58.5	74.7	10.0	84.7
Day	7	77.4	87.4	61.0	87.0	86.3	84.3	81.8	77.4	73.5	65.2	63.0	61.2	77.4	0.0	77.4
	8	74.8	82.8	60.3	82.4	81.7	80.3	79.4	76.2	72.2	63.6	61.8	60.5	74.8	0.0	74.8
	9	72.9	81.2	56.7	80.9	80.3	78.8	77.7	74.2	69.7	60.7	58.8	57.2	72.9	0.0	72.9
	10	71.2	80.1	54.6	79.7	79.0	77.0	76.0	72.3	67.7	58.7	56.2	54.8	71.2	0.0	71.2
	11	72.3	81.6	57.0	81.1	80.3	78.2	76.9	73.0	68.8	60.5	58.8	57.2	72.3	0.0	72.3
	12	72.2	81.7	55.7	81.3	80.5	78.2	76.9	72.9	68.6	59.8	57.7	56.0	72.2	0.0	72.2
	13	72.3	80.6	56.1	80.3	79.6	77.9	77.0	73.5	69.6	60.3	58.1	56.5	72.3	0.0	72.3
	14	73.7	83.4	57.3	83.0	82.3	79.7	78.3	74.3	70.2	60.9	58.8	57.5	73.7	0.0	73.7
	15	72.9	80.6	58.2	80.3	79.7	78.2	77.3	74.1	70.6	62.3	60.2	58.5	72.9	0.0	72.9
	16	73.7	82.0	60.6	81.7	81.1	79.0	77.8	74.7	71.3	63.8	62.3	60.8	73.7	0.0	73.7
	17	73.5	80.7	61.6	80.4	80.0	78.7	77.6	74.7	71.5	65.3	63.3	61.9	73.5	0.0	73.5
18	72.9	81.3	57.6	80.9	80.2	78.7	77.6	74.0	69.9	61.0	59.3	57.9	72.9	0.0	72.9	
	19	71.6	80.0	56.9	79.7	79.1	77.2	76.3	72.8	68.6	59.8	58.4	57.1	71.6	5.0	76.6
	20	73.7	84.9	56.0	84.5	84.0	81.3	78.8	72.5	67.9	59.0	57.4	56.2	73.7	5.0	78.7
	21	70.6	81.1	53.0	80.5	79.2	77.4	75.6	71.0	65.7	56.1	54.7	53.2	70.6	5.0	75.6
Night	22	69.1	78.7	51.5	78.4	77.9	75.9	74.7	69.6	63.3	53.8	52.8	51.7	69.1	10.0	79.1
	23	67.8	77.7	49.9	77.3	76.8	74.8	73.3	67.9	61.3	51.8	50.6	50.0	67.8	10.0	77.8
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	24-Hour CNEL		
Day	Min	70.6	80.0	53.0	79.7	79.0	77.0	75.6	71.0	65.7	56.1	54.7	53.2	77.9	73.4	70.6
	Max	77.4	87.4	61.6	87.0	86.3	84.3	81.8	77.4	73.5	65.3	63.3	61.9			
Energy Average		73.4	Average:		81.6	80.9	79.0	77.7	73.8	69.7	61.1	59.3	57.8			
Night	Min	66.4	76.8	42.7	76.4	75.8	73.6	72.2	65.6	56.6	44.9	43.6	42.9			
	Max	74.7	83.5	58.2	82.7	81.9	80.5	79.5	75.9	71.5	62.0	59.9	58.5			
Energy Average		70.6	Average:		79.6	79.0	76.6	75.1	69.6	62.8	52.9	51.7	50.7			

24-Hour Noise Level Measurement Summary

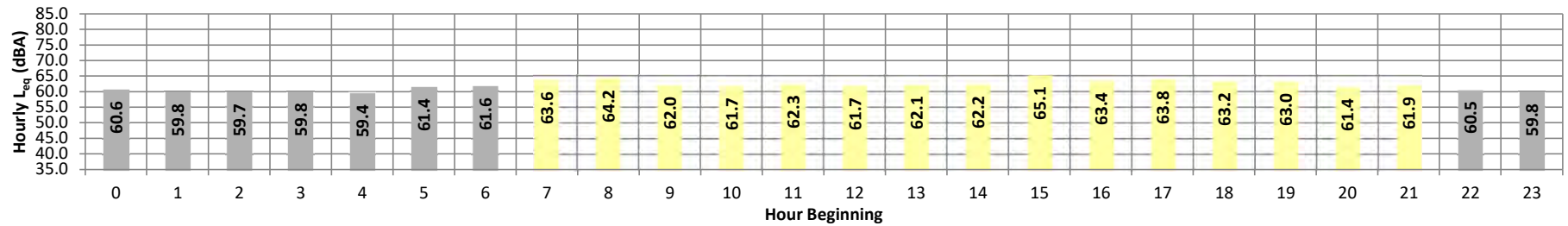
Date: Wednesday, April 24, 2024
Project: Inland Valley Infrastructure Corridor

Location: L3 - Located north of the site near the residence at 25416 6th
Source: St

Meter: Piccolo II

JN: 15935
Analyst: Z. Ibrahim

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	60.6	67.1	58.1	66.6	66.0	64.5	63.3	60.7	59.4	58.5	58.3	58.2	60.6	10.0	70.6
	1	59.8	64.8	58.0	64.5	64.1	62.9	61.8	59.6	59.1	58.4	58.3	58.1	59.8	10.0	69.8
	2	59.7	63.9	58.1	63.7	63.4	62.4	61.5	59.6	59.1	58.5	58.4	58.2	59.7	10.0	69.7
	3	59.8	64.8	58.1	64.6	64.3	63.1	61.8	59.7	59.2	58.6	58.4	58.2	59.8	10.0	69.8
	4	59.4	64.1	57.6	63.9	63.5	62.4	61.4	59.6	58.7	58.0	57.9	57.7	59.4	10.0	69.4
	5	61.4	69.7	57.7	69.3	68.8	66.9	65.2	60.6	59.2	58.2	58.0	57.8	61.4	10.0	71.4
	6	61.6	69.0	57.7	68.7	68.3	66.7	65.3	61.8	59.6	58.2	58.0	57.8	61.6	10.0	71.6
Day	7	63.6	72.8	57.6	72.4	71.7	69.9	68.1	63.2	60.3	58.3	58.0	57.8	63.6	0.0	63.6
	8	64.2	71.7	58.3	71.4	71.0	69.3	68.1	64.8	62.1	59.0	58.7	58.4	64.2	0.0	64.2
	9	62.0	69.2	57.7	68.9	68.6	67.3	66.0	61.8	59.7	58.3	58.1	57.8	62.0	0.0	62.0
	10	61.7	69.2	57.6	68.8	68.4	66.7	65.4	61.8	59.5	58.1	57.9	57.7	61.7	0.0	61.7
	11	62.3	70.9	57.2	70.5	70.0	68.3	66.6	62.2	59.3	57.7	57.5	57.3	62.3	0.0	62.3
	12	61.7	70.1	56.9	69.6	69.0	67.2	65.7	61.7	59.2	57.5	57.3	57.1	61.7	0.0	61.7
	13	62.1	70.0	57.3	69.6	69.1	67.6	66.2	62.0	59.7	58.0	57.7	57.4	62.1	0.0	62.1
	14	62.2	69.2	57.7	69.0	68.6	66.9	65.7	62.8	60.4	58.4	58.2	57.9	62.2	0.0	62.2
	15	65.1	74.9	58.2	74.5	73.9	72.3	69.8	64.0	61.5	59.0	58.7	58.4	65.1	0.0	65.1
	16	63.4	71.4	58.2	71.1	70.6	68.8	67.3	63.7	61.1	59.0	58.7	58.3	63.4	0.0	63.4
	17	63.8	72.4	58.8	71.9	71.3	69.0	67.5	63.9	61.5	59.5	59.2	58.9	63.8	0.0	63.8
18	63.2	71.3	58.8	71.0	70.5	68.4	66.8	63.1	61.0	59.4	59.2	58.9	63.2	0.0	63.2	
19	63.0	72.5	58.5	71.8	70.7	68.0	66.6	62.7	60.7	59.1	58.9	58.6	63.0	5.0	68.0	
20	61.4	68.0	58.4	67.7	67.3	65.7	64.4	61.5	60.1	58.9	58.7	58.5	61.4	5.0	66.4	
21	61.9	68.3	58.6	68.0	67.7	66.6	65.6	61.9	60.1	59.0	58.9	58.7	61.9	5.0	66.9	
Night	22	60.5	66.1	58.3	65.8	65.5	64.1	63.3	60.5	59.5	58.7	58.6	58.4	60.5	10.0	70.5
	23	59.8	64.5	58.1	64.2	63.9	62.8	61.8	59.9	59.1	58.5	58.3	58.2	59.8	10.0	69.8
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	24-Hour CNEL		
Day	Min	61.4	68.0	56.9	67.7	67.3	65.7	64.4	61.5	59.2	57.5	57.3	57.1	67.6	62.9	60.4
	Max	65.1	74.9	58.8	74.5	73.9	72.3	69.8	64.8	62.1	59.5	59.2	58.9			
Energy Average		62.9	Average:		70.4	69.9	68.1	66.7	62.7	60.4	58.6	58.4	58.1			
Night	Min	59.4	63.9	57.6	63.7	63.4	62.4	61.4	59.6	58.7	58.0	57.9	57.7	67.6	62.9	60.4
	Max	61.6	69.7	58.3	69.3	68.8	66.9	65.3	61.8	59.6	58.7	58.6	58.4			
Energy Average		60.4	Average:		65.7	65.3	64.0	62.8	60.2	59.2	58.4	58.3	58.1			

24-Hour Noise Level Measurement Summary

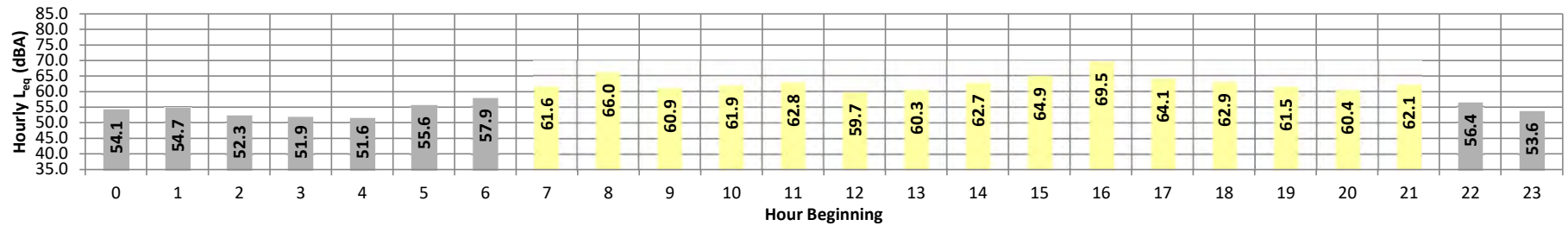
Date: Wednesday, April 24, 2024
Project: Inland Valley Infrastructure Corridor

Location: L4 - Located north of the site near the residence at 7888
Source: Lankershim Ave

Meter: Piccolo II

JN: 15935
Analyst: Z. Ibrahim

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	54.1	64.9	41.2	64.6	64.0	61.7	60.0	52.2	47.2	42.3	41.9	41.3	54.1	10.0	64.1
	1	54.7	66.9	40.1	66.4	65.8	63.1	60.5	50.0	44.3	40.8	40.5	40.2	54.7	10.0	64.7
	2	52.3	63.5	38.9	63.0	62.3	59.7	57.2	51.1	46.4	40.5	39.7	39.0	52.3	10.0	62.3
	3	51.9	63.5	39.6	63.1	62.6	60.6	57.9	47.2	43.1	40.3	40.0	39.7	51.9	10.0	61.9
	4	51.6	62.9	39.2	62.5	61.9	59.6	57.2	49.1	44.2	39.9	39.6	39.3	51.6	10.0	61.6
	5	55.6	67.4	43.2	67.0	66.3	63.4	60.7	52.6	48.0	44.4	43.9	43.4	55.6	10.0	65.6
	6	57.9	67.9	45.4	67.5	67.1	65.1	63.3	57.5	52.5	47.1	46.4	45.8	57.9	10.0	67.9
Day	7	61.6	72.0	44.9	71.6	71.1	69.3	67.7	60.6	54.7	47.3	46.2	45.2	61.6	0.0	61.6
	8	66.0	78.4	48.0	77.6	76.7	73.9	71.1	63.4	58.7	50.9	49.6	48.3	66.0	0.0	66.0
	9	60.9	71.7	47.9	71.4	70.9	68.3	66.2	59.5	54.4	49.3	48.7	48.1	60.9	0.0	60.9
	10	61.9	72.8	53.1	71.8	71.2	68.5	66.9	61.2	56.7	54.0	53.6	53.2	61.9	0.0	61.9
	11	62.8	74.9	47.5	74.4	73.6	70.0	67.6	60.3	56.1	50.1	48.7	47.7	62.8	0.0	62.8
	12	59.7	70.4	45.9	70.0	69.4	67.2	65.2	58.4	52.7	47.5	46.8	46.1	59.7	0.0	59.7
	13	60.3	70.4	46.2	70.0	69.5	67.6	65.7	60.2	54.6	48.3	47.4	46.5	60.3	0.0	60.3
	14	62.7	73.2	47.6	72.6	72.1	70.2	68.9	61.7	54.4	49.0	48.4	47.8	62.7	0.0	62.7
	15	64.9	77.6	49.5	76.8	75.6	72.8	69.8	62.2	57.0	51.0	50.2	49.7	64.9	0.0	64.9
	16	69.5	80.2	50.0	79.7	78.6	76.7	75.3	68.6	62.2	51.8	51.0	50.3	69.5	0.0	69.5
	17	64.1	77.0	49.6	76.3	75.2	71.2	68.5	61.1	56.2	51.1	50.5	49.8	64.1	0.0	64.1
	18	62.9	73.8	49.9	73.5	72.9	70.4	68.9	61.4	56.2	51.2	50.6	50.0	62.9	0.0	62.9
	19	61.5	71.6	49.2	71.3	70.9	68.4	66.4	61.0	56.5	50.9	50.2	49.4	61.5	5.0	66.5
	20	60.4	72.3	46.4	71.4	70.6	68.1	66.1	58.1	53.1	47.7	47.2	46.5	60.4	5.0	65.4
	21	62.1	74.6	45.5	73.8	72.9	70.6	67.3	58.2	54.0	47.4	46.5	45.8	62.1	5.0	67.1
Night	22	56.4	68.0	43.0	67.6	67.0	64.2	61.6	54.0	48.8	44.2	43.7	43.1	56.4	10.0	66.4
	23	53.6	64.2	41.0	63.9	63.5	61.5	59.5	51.5	46.3	42.2	41.7	41.2	53.6	10.0	63.6
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	Leq (dBA)		
Day	Min	59.7	70.4	44.9	70.0	69.4	67.2	65.2	58.1	52.7	47.3	46.2	45.2	24-Hour CNEL	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	69.5	80.2	53.1	79.7	78.6	76.7	75.3	68.6	62.2	54.0	53.6	53.2			
Energy Average		63.6	Average:		73.5	72.7	70.2	68.1	61.1	55.8	49.8	49.0	48.3			
Night	Min	51.6	62.9	38.9	62.5	61.9	59.6	57.2	47.2	43.1	39.9	39.6	39.0	64.7	63.6	54.7
	Max	57.9	68.0	45.4	67.6	67.1	65.1	63.3	57.5	52.5	47.1	46.4	45.8			
Energy Average		54.7	Average:		65.1	64.5	62.1	59.8	51.7	46.7	42.4	41.9	41.4			

24-Hour Noise Level Measurement Summary

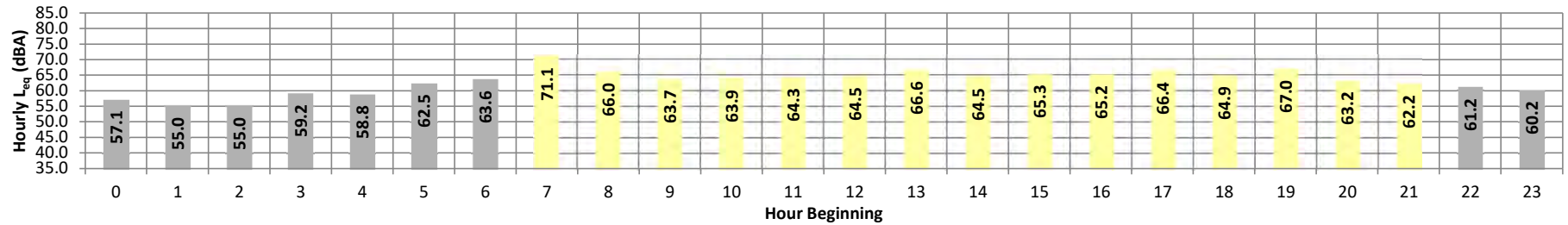
Date: Wednesday, April 24, 2024
Project: Inland Valley Infrastructure Corridor

Location: L5 - Located east of the site near the residence at 26604 5th St
Source:

Meter: Piccolo II

JN: 15935
Analyst: Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
Night	0	57.1	69.7	42.6	69.0	68.0	65.0	62.4	53.1	47.8	43.8	43.2	42.8	57.1	10.0	67.1
	1	55.0	67.5	40.1	67.1	66.2	63.0	60.8	49.6	43.7	41.2	40.7	40.2	55.0	10.0	65.0
	2	55.0	68.1	39.8	67.6	66.6	63.1	59.9	48.8	43.4	40.8	40.3	39.9	55.0	10.0	65.0
	3	59.2	74.5	41.7	73.5	72.2	64.5	61.3	52.6	47.1	42.7	42.3	41.8	59.2	10.0	69.2
	4	58.8	70.4	43.6	69.9	69.1	66.6	64.4	56.7	50.2	44.7	44.2	43.7	58.8	10.0	68.8
	5	62.5	74.4	46.7	73.8	72.9	69.8	67.9	60.2	54.3	48.4	47.7	47.0	62.5	10.0	72.5
Day	6	63.6	74.0	49.9	73.6	72.7	70.4	68.9	63.3	57.5	51.6	51.0	50.3	63.6	10.0	73.6
	7	71.1	83.0	49.7	82.4	81.9	78.8	76.3	67.6	61.7	51.9	50.9	49.9	71.1	0.0	71.1
	8	66.0	75.7	49.5	75.3	74.6	72.6	71.1	66.6	61.3	51.8	50.7	49.7	66.0	0.0	66.0
	9	63.7	74.3	49.7	73.7	72.8	70.2	68.7	63.8	58.2	51.3	50.6	49.9	63.7	0.0	63.7
	10	63.9	74.0	50.4	73.5	72.7	70.6	69.3	64.1	58.5	52.0	51.4	50.7	63.9	0.0	63.9
	11	64.3	74.1	48.1	73.7	72.9	71.0	69.7	64.6	58.6	50.0	49.2	48.3	64.3	0.0	64.3
	12	64.5	74.2	49.5	73.8	73.0	71.0	69.8	65.1	59.4	51.6	50.8	49.8	64.5	0.0	64.5
	13	66.6	78.4	48.7	78.0	77.3	74.2	71.0	64.9	59.5	51.0	49.9	48.9	66.6	0.0	66.6
	14	64.5	75.2	49.1	74.8	74.0	71.3	69.6	64.3	58.5	51.0	50.1	49.4	64.5	0.0	64.5
	15	65.3	74.1	51.7	73.7	73.1	71.8	70.6	65.9	61.3	53.7	52.7	51.9	65.3	0.0	65.3
	16	65.2	74.5	51.2	74.0	73.2	71.3	70.0	66.0	61.5	53.1	52.0	51.3	65.2	0.0	65.2
17	66.4	76.0	51.9	75.5	74.6	72.5	71.2	67.3	62.4	54.1	52.9	52.0	66.4	0.0	66.4	
Night	18	64.9	75.4	50.8	74.9	74.0	71.5	69.8	65.1	59.7	52.4	51.6	51.0	64.9	0.0	64.9
	19	67.0	79.0	49.8	78.5	77.8	74.2	71.7	65.0	58.8	51.4	50.7	50.0	67.0	5.0	72.0
	20	63.2	75.0	48.2	74.3	73.2	70.1	68.3	62.2	56.1	49.6	48.9	48.3	63.2	5.0	68.2
	21	62.2	73.7	47.1	73.2	72.4	70.1	67.9	59.8	54.2	48.4	47.8	47.3	62.2	5.0	67.2
Night	22	61.2	73.1	45.2	72.6	71.7	68.9	66.8	58.3	51.5	46.6	46.1	45.4	61.2	10.0	71.2
	23	60.2	72.2	42.8	71.8	71.0	68.3	65.8	56.9	49.9	44.0	43.5	42.9	60.2	10.0	70.2
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	Leq (dBA)		
Day	Min	62.2	73.7	47.1	73.2	72.4	70.1	67.9	59.8	54.2	48.4	47.8	47.3	24-Hour CNEL	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	71.1	83.0	51.9	82.4	81.9	78.8	76.3	67.6	62.4	54.1	52.9	52.0			
Energy Average		65.8	Average:		75.3	74.5	72.1	70.3	64.8	59.3	51.6	50.7	49.9			
Night	Min	55.0	67.5	39.8	67.1	66.2	63.0	59.9	48.8	43.4	40.8	40.3	39.9	68.4	65.8	60.1
	Max	63.6	74.5	49.9	73.8	72.9	70.4	68.9	63.3	57.5	51.6	51.0	50.3			
Energy Average		60.1	Average:		71.0	70.0	66.6	64.2	55.5	49.5	44.9	44.3	43.8			

24-Hour Noise Level Measurement Summary

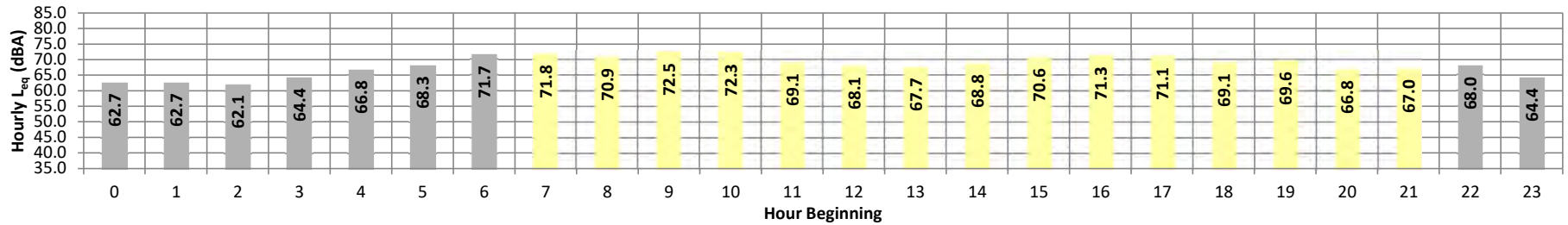
Date: Wednesday, April 24, 2024
Project: Inland Valley Infrastructure Corridor

Location: L6 - Located north of the site near the residence at 7630
Source: Victoria Ave

Meter: Piccolo II

JN: 15935
Analyst: Z. Ibrahim

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	62.7	74.0	42.4	73.5	72.8	70.2	68.5	61.0	52.8	43.8	43.1	42.5	62.7	10.0	72.7
	1	62.7	73.7	40.7	73.4	72.8	70.5	68.5	60.8	53.1	42.5	41.6	40.9	62.7	10.0	72.7
	2	62.1	73.4	40.6	73.1	72.5	70.3	68.0	59.6	49.6	41.5	40.9	40.6	62.1	10.0	72.1
	3	64.4	74.8	40.8	74.4	73.8	72.0	70.5	63.6	53.6	43.1	41.9	41.0	64.4	10.0	74.4
	4	66.8	76.5	45.7	76.2	75.6	73.9	72.5	66.9	60.2	48.6	47.1	45.9	66.8	10.0	76.8
	5	68.3	77.9	47.0	77.6	77.0	75.6	74.2	68.1	61.8	50.8	48.8	47.3	68.3	10.0	78.3
	6	71.7	83.5	49.7	83.1	82.2	79.1	76.7	70.1	63.2	52.5	51.1	50.0	71.7	10.0	81.7
Day	7	71.8	80.6	55.9	80.2	79.5	77.8	76.7	72.9	68.2	59.4	57.5	56.2	71.8	0.0	71.8
	8	70.9	78.5	55.9	78.2	77.7	76.3	75.4	72.6	67.9	58.9	57.4	56.1	70.9	0.0	70.9
	9	72.5	80.3	58.5	79.9	79.3	77.9	76.9	73.7	69.9	63.0	60.3	58.8	72.5	0.0	72.5
	10	72.3	79.2	50.5	78.9	78.4	77.3	76.5	72.7	70.9	53.4	52.2	50.8	72.3	0.0	72.3
	11	69.1	80.3	51.2	79.9	79.2	76.0	73.9	68.5	63.3	54.2	52.6	51.4	69.1	0.0	69.1
	12	68.1	78.6	49.0	78.1	77.3	74.7	73.2	68.3	63.0	52.6	50.5	49.2	68.1	0.0	68.1
	13	67.7	76.2	49.3	75.8	75.3	74.0	73.0	68.8	63.4	52.7	51.1	49.5	67.7	0.0	67.7
	14	68.8	77.9	52.2	77.5	76.9	74.9	73.5	69.6	65.4	54.9	53.4	52.4	68.8	0.0	68.8
	15	70.6	81.5	52.8	81.0	80.3	77.4	75.1	70.4	66.1	56.2	54.4	53.1	70.6	0.0	70.6
	16	71.3	80.3	53.8	80.0	79.5	78.1	76.8	71.3	66.2	57.5	55.7	54.1	71.3	0.0	71.3
	17	71.1	81.0	55.8	80.5	79.7	77.1	75.6	71.6	67.7	59.6	57.9	56.0	71.1	0.0	71.1
18	69.1	78.2	53.3	77.8	77.2	75.1	73.8	69.9	65.6	56.2	54.8	53.5	69.1	0.0	69.1	
19	69.6	80.4	53.3	79.6	78.5	76.4	75.0	69.6	64.2	55.5	54.6	53.5	69.6	5.0	74.6	
20	66.8	75.8	49.3	75.4	74.8	73.1	72.1	67.8	62.4	52.0	50.6	49.5	66.8	5.0	71.8	
21	67.0	76.9	49.2	76.5	76.0	74.3	72.6	66.8	61.2	51.5	50.3	49.4	67.0	5.0	72.0	
Night	22	68.0	81.6	44.7	80.5	79.0	74.7	71.9	66.1	59.6	48.0	46.2	44.9	68.0	10.0	78.0
	23	64.4	75.0	42.6	74.6	74.0	71.7	70.0	63.8	57.3	44.4	43.2	42.7	64.4	10.0	74.4
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	24-Hour CNEL		
Day	Min	66.8	75.8	49.0	75.4	74.8	73.1	72.1	66.8	61.2	51.5	50.3	49.2	74.2	70.1	66.8
	Max	72.5	81.5	58.5	81.0	80.3	78.1	76.9	73.7	70.9	63.0	60.3	58.8			
Energy Average		70.1	Average:		78.6	78.0	76.0	74.7	70.3	65.7	55.8	54.2	52.9			
Night	Min	62.1	73.4	40.6	73.1	72.5	70.2	68.0	59.6	49.6	41.5	40.9	40.6			
	Max	71.7	83.5	49.7	83.1	82.2	79.1	76.7	70.1	63.2	52.5	51.1	50.0			
Energy Average		66.8	Average:		76.3	75.5	73.1	71.2	64.4	56.8	46.1	44.9	44.0			

24-Hour Noise Level Measurement Summary

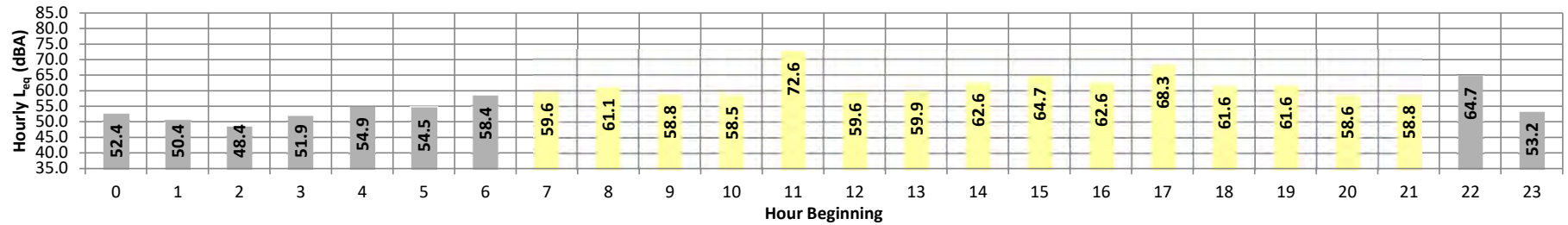
Date: Wednesday, April 24, 2024
Project: Inland Valley Infrastructure Corridor

Location: L7 - Located east of the site near the commercial building at
Source: 7935 Central Ave

Meter: Piccolo II

JN: 15935
Analyst: Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}	
Night	0	52.4	63.2	35.4	62.8	62.2	59.6	57.7	51.2	46.7	37.6	36.2	35.6	52.4	10.0	62.4	
	1	50.4	62.6	33.3	62.2	61.7	58.8	56.0	46.7	37.1	33.9	33.6	33.4	50.4	10.0	60.4	
	2	48.4	60.7	32.1	60.4	59.8	57.2	54.3	39.6	34.9	32.7	32.4	32.2	48.4	10.0	58.4	
	3	51.9	62.9	34.1	62.5	62.1	60.0	58.0	49.1	43.7	35.9	35.1	34.3	51.9	10.0	61.9	
	4	54.9	66.2	35.9	65.9	65.4	63.0	60.9	51.9	43.7	37.0	36.4	36.0	54.9	10.0	64.9	
	5	54.5	66.1	38.9	65.9	65.4	62.8	60.2	50.5	44.8	40.8	40.1	39.2	54.5	10.0	64.5	
Day	6	58.4	70.6	43.1	69.9	69.0	65.8	63.0	56.3	50.9	45.0	44.2	43.4	58.4	10.0	68.4	
	7	59.6	69.3	45.3	68.8	68.2	66.2	64.8	60.0	54.9	47.1	46.3	45.5	59.6	0.0	59.6	
	8	61.1	70.4	44.9	70.1	69.6	67.9	66.7	61.5	55.8	47.3	46.3	45.3	61.1	0.0	61.1	
	9	58.8	69.2	42.7	68.9	68.3	66.2	64.5	57.9	51.8	44.5	43.7	42.9	58.8	0.0	58.8	
	10	58.5	68.6	43.7	68.3	67.8	65.6	63.9	58.2	52.2	45.6	44.8	43.9	58.5	0.0	58.5	
	11	72.6	78.9	62.9	78.7	78.4	77.4	76.8	74.6	69.4	65.6	64.7	63.4	72.6	0.0	72.6	
	12	59.6	70.4	44.5	69.9	69.1	66.6	65.2	58.8	52.4	45.9	45.3	44.7	59.6	0.0	59.6	
	13	59.9	70.4	43.7	70.1	69.5	67.5	65.8	58.8	52.5	45.1	44.5	43.9	59.9	0.0	59.9	
	14	62.6	73.4	46.5	73.0	72.3	69.9	68.1	61.6	56.0	48.3	47.5	46.7	62.6	0.0	62.6	
	15	64.7	76.4	49.9	76.0	75.3	72.6	69.7	62.1	57.3	51.5	50.9	50.0	64.7	0.0	64.7	
	16	62.6	71.9	47.7	71.5	71.0	69.4	68.0	63.0	57.2	49.9	48.9	48.0	62.6	0.0	62.6	
17	68.3	81.1	47.3	80.8	79.9	76.4	73.7	62.7	56.5	49.2	48.1	47.5	68.3	0.0	68.3		
Night	18	61.6	71.8	46.3	71.4	70.9	68.9	67.0	61.3	55.5	48.2	47.3	46.5	61.6	0.0	61.6	
	19	61.6	72.3	45.9	71.8	71.1	68.9	67.3	60.8	55.8	47.8	47.0	46.2	61.6	5.0	66.6	
	20	58.6	68.0	45.0	67.5	67.0	65.2	63.9	58.6	54.6	48.2	47.2	45.4	58.6	5.0	63.6	
	21	58.8	68.9	45.1	68.5	67.9	65.8	64.1	58.4	54.1	47.7	46.6	45.4	58.8	5.0	63.8	
	22	64.7	78.4	41.4	78.0	77.1	73.0	69.3	54.7	49.5	44.0	42.6	41.7	64.7	10.0	74.7	
	23	53.2	64.5	36.7	64.1	63.6	61.1	58.7	51.1	46.0	39.0	38.0	36.9	53.2	10.0	63.2	
	Timeframe		Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	Leq (dBA)	
Day	Min	58.5	68.0	42.7	67.5	67.0	65.2	63.9	57.9	51.8	44.5	43.7	42.9	24-Hour CNEL	Daytime (7am-10pm)	Nighttime (10pm-7am)	
	Max	72.6	81.1	62.9	80.8	79.9	77.4	76.8	74.6	69.4	65.6	64.7	63.4				
Energy Average			64.4	Average:		71.7	71.1	69.0	67.3	61.2	55.7	48.8	47.9	47.0	66.1 64.4 57.4		
Night	Min	48.4	60.7	32.1	60.4	59.8	57.2	54.3	39.6	34.9	32.7	32.4	32.2				
	Max	64.7	78.4	43.1	78.0	77.1	73.0	69.3	56.3	50.9	45.0	44.2	43.4				
Energy Average			57.4	Average:		65.8	65.1	62.4	59.8	50.1	44.1	38.4	37.6	37.0			

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APPENDIX 6.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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15935 - Inland Valley Infrastructure Corridor

CadnaA Noise Prediction Model: 15935-02_Operation 2-Lane.cna

Date: 01.08.24

Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance 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)
R1		R1	64.3	63.1	70.0	0.0	0.0	0.0		x	Total	5.00 a	6256233.08	2348463.70	5.00
R2		R2	63.5	62.3	69.2	0.0	0.0	0.0		x	Total	5.00 a	6258166.62	2347079.11	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)		(dBA)		(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number		Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

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)		(dBA)		(min)	(min)	(min)	

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km/mph)

Sound Level Spectra

Name				ID	Type	Oktave Spectrum (dB)												Source	
						Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin		

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type	(%)	Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)			(dB)	(ft)	(ft)
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		7.3	0.0	1	0.0	0.0		

RoadsGeo

Name	Height			Coordinates				Dist	LSlope
	Begin	End		x	y	z	Ground	(ft)	(%)
	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)		
ROADWAY_IMPROVEMENTS	0.00	a		6258540.42	2347009.20	0.00	0.00		
				6258568.62	2348379.15	0.00	0.00		
				6258552.70	2348660.37	0.00	0.00		
				6258497.36	2348869.85	0.00	0.00		
				6258412.68	2349061.70	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a		6255618.16	2349091.88	0.00	0.00		
				6258415.15	2349062.95	0.00	0.00		

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
			6260182.75	2349043.56	0.00	0.00		
			6260864.48	2349035.22	0.00	0.00		
			6262849.69	2349059.37	0.00	0.00		
			6263514.45	2349066.22	0.00	0.00		
			6266163.60	2349057.53	0.00	0.00		
			6268784.11	2349028.21	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6271418.90	2348097.50	0.00	0.00		
			6268775.12	2348327.05	0.00	0.00		
			6266158.02	2348356.20	0.00	0.00		
			6264410.73	2348373.52	0.00	0.00		
			6263506.52	2348382.18	0.00	0.00		
			6260856.86	2348353.94	0.00	0.00		
			6258568.62	2348379.15	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6258568.62	2348379.15	0.00	0.00		
			6255609.17	2348411.75	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6259576.64	2347209.70	0.00	0.00		
			6260393.51	2347655.28	0.00	0.00		
			6260515.69	2347721.92	0.00	0.00		
			6260561.59	2347744.00	0.00	0.00		
			6260609.13	2347762.28	0.00	0.00		
			6260658.00	2347776.64	0.00	0.00		
			6260707.86	2347786.99	0.00	0.00		
			6260809.29	2347795.42	0.00	0.00		
			6260850.64	2347795.02	0.00	0.00		
			6262927.12	2347770.79	0.00	0.00		
			6265327.10	2347748.06	0.00	0.00		
			6266153.38	2347740.80	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6255985.70	2347041.70	0.00	0.00		
			6255986.27	2347100.17	0.00	0.00		
			6255939.98	2347153.01	0.00	0.00		
			6255860.55	2347243.67	0.00	0.00		
			6255791.45	2347322.54	0.00	0.00		
			6255726.02	2347397.22	0.00	0.00		
			6255685.77	2347443.17	0.00	0.00		
			6255647.46	2347486.90	0.00	0.00		
			6255629.59	2347510.20	0.00	0.00		
			6255611.41	2347545.76	0.00	0.00		
			6255600.09	2347590.93	0.00	0.00		
			6255598.93	2347636.48	0.00	0.00		
			6255599.74	2347698.25	0.00	0.00		
			6255600.42	2347749.02	0.00	0.00		
			6255603.43	2347977.47	0.00	0.00		
			6255609.17	2348411.75	0.00	0.00		
			6255620.33	2349093.61	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6260850.64	2347795.02	0.00	0.00		
			6260856.86	2348353.94	0.00	0.00		
			6260864.48	2349035.22	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6263506.52	2348382.18	0.00	0.00		
			6263514.45	2349066.22	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6266153.38	2347740.80	0.00	0.00		
			6266158.02	2348356.20	0.00	0.00		
			6266163.60	2349057.53	0.00	0.00		
			6266173.42	2350378.00	0.00	0.00		
			6266178.53	2351027.38	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6267477.82	2348341.72	0.00	0.00		
			6267483.16	2349042.56	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6268746.74	2347641.78	0.00	0.00		
			6268775.12	2348327.05	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6271410.51	2347503.49	0.00	0.00		
			6271418.90	2348097.50	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6272742.86	2347934.22	0.00	0.00		
			6272748.67	2347981.75	0.00	0.00		
			6272757.19	2349151.23	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6274317.90	2348092.42	0.00	0.00		
			6274072.91	2348075.06	0.00	0.00		
			6272748.67	2347981.75	0.00	0.00		
			6271418.90	2348097.50	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6266153.38	2347740.80	0.00	0.00		
			6268766.34	2347640.58	0.00	0.00		
			6271101.12	2347490.00	0.00	0.00		
			6271212.66	2347482.81	0.00	0.00		
			6271249.56	2347480.43	0.00	0.00		
			6271341.35	2347490.44	0.00	0.00		
			6271410.51	2347503.49	0.00	0.00		
			6271539.27	2347537.31	0.00	0.00		
			6271698.13	2347594.60	0.00	0.00		
			6272286.67	2347791.22	0.00	0.00		

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
			6272476.77	2347853.72	0.00	0.00		
			6272636.93	2347905.80	0.00	0.00		
			6272797.08	2347948.77	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6255985.70	2347041.70	0.00	0.00		
			6258540.42	2347009.20	0.00	0.00		
			6259032.54	2347002.94	0.00	0.00		
			6259118.95	2347007.07	0.00	0.00		
			6259188.60	2347019.20	0.00	0.00		
			6259256.71	2347041.21	0.00	0.00		
			6259310.16	2347065.02	0.00	0.00		
			6259576.64	2347209.70	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6263500.92	2347764.10	0.00	0.00		
			6263506.52	2348382.18	0.00	0.00		

15935 - Inland Valley Infrastructure Corridor

CadnaA Noise Prediction Model: 15935-02_Operation 4-Lane.cna

Date: 01.08.24

Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance 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)
R1		R1	66.2	64.9	71.9	0.0	0.0	0.0		x	Total	5.00 a	6256233.08	2348463.70	5.00
R2		R2	64.9	63.6	70.6	0.0	0.0	0.0		x	Total	5.00 a	6258166.62	2347079.11	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)		(dBA)		(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number		Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

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)		(dBA)		(min)	(min)	(min)	

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

Barrier(s)

Name	Sel.	M.	ID	Absorption	Z-Ext.	Cantilever		Height		Coordinates				
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(ft)	(ft)	(ft)	(ft)	(ft)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km/mph)

Sound Level Spectra

Name			ID	Type	Oktave Spectrum (dB)										Source	
					Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type	(%)	Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)			(dB)	(ft)	(ft)
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		14.6	0.0	1	0.0	0.0		

RoadsGeo

Name	Height			Coordinates				Dist	LSlope
	Begin	End		x	y	z	Ground	(ft)	(%)
	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)		
ROADWAY_IMPROVEMENTS	0.00	a		6258540.42	2347009.20	0.00	0.00		
				6258568.62	2348379.15	0.00	0.00		
				6258552.70	2348660.37	0.00	0.00		
				6258497.36	2348869.85	0.00	0.00		
				6258412.68	2349061.70	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a		6255618.16	2349091.88	0.00	0.00		
				6258415.15	2349062.95	0.00	0.00		

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
			6260182.75	2349043.56	0.00	0.00		
			6260864.48	2349035.22	0.00	0.00		
			6262849.69	2349059.37	0.00	0.00		
			6263514.45	2349066.22	0.00	0.00		
			6266163.60	2349057.53	0.00	0.00		
			6268784.11	2349028.21	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6271418.90	2348097.50	0.00	0.00		
			6268775.12	2348327.05	0.00	0.00		
			6266158.02	2348356.20	0.00	0.00		
			6264410.73	2348373.52	0.00	0.00		
			6263506.52	2348382.18	0.00	0.00		
			6260856.86	2348353.94	0.00	0.00		
			6258568.62	2348379.15	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6258568.62	2348379.15	0.00	0.00		
			6255609.17	2348411.75	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6259576.64	2347209.70	0.00	0.00		
			6260393.51	2347655.28	0.00	0.00		
			6260515.69	2347721.92	0.00	0.00		
			6260561.59	2347744.00	0.00	0.00		
			6260609.13	2347762.28	0.00	0.00		
			6260658.00	2347776.64	0.00	0.00		
			6260707.86	2347786.99	0.00	0.00		
			6260809.29	2347795.42	0.00	0.00		
			6260850.64	2347795.02	0.00	0.00		
			6262927.12	2347770.79	0.00	0.00		
			6265327.10	2347748.06	0.00	0.00		
			6266153.38	2347740.80	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6255985.70	2347041.70	0.00	0.00		
			6255986.27	2347100.17	0.00	0.00		
			6255939.98	2347153.01	0.00	0.00		
			6255860.55	2347243.67	0.00	0.00		
			6255791.45	2347322.54	0.00	0.00		
			6255726.02	2347397.22	0.00	0.00		
			6255685.77	2347443.17	0.00	0.00		
			6255647.46	2347486.90	0.00	0.00		
			6255629.59	2347510.20	0.00	0.00		
			6255611.41	2347545.76	0.00	0.00		
			6255600.09	2347590.93	0.00	0.00		
			6255598.93	2347636.48	0.00	0.00		
			6255599.74	2347698.25	0.00	0.00		
			6255600.42	2347749.02	0.00	0.00		
			6255603.43	2347977.47	0.00	0.00		
			6255609.17	2348411.75	0.00	0.00		
			6255620.33	2349093.61	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6260850.64	2347795.02	0.00	0.00		
			6260856.86	2348353.94	0.00	0.00		
			6260864.48	2349035.22	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6263506.52	2348382.18	0.00	0.00		
			6263514.45	2349066.22	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6266153.38	2347740.80	0.00	0.00		
			6266158.02	2348356.20	0.00	0.00		
			6266163.60	2349057.53	0.00	0.00		
			6266173.42	2350378.00	0.00	0.00		
			6266178.53	2351027.38	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6267477.82	2348341.72	0.00	0.00		
			6267483.16	2349042.56	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6268746.74	2347641.78	0.00	0.00		
			6268775.12	2348327.05	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6271410.51	2347503.49	0.00	0.00		
			6271418.90	2348097.50	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6272742.86	2347934.22	0.00	0.00		
			6272748.67	2347981.75	0.00	0.00		
			6272757.19	2349151.23	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6274317.90	2348092.42	0.00	0.00		
			6274072.91	2348075.06	0.00	0.00		
			6272748.67	2347981.75	0.00	0.00		
			6271418.90	2348097.50	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6266153.38	2347740.80	0.00	0.00		
			6268766.34	2347640.58	0.00	0.00		
			6271101.12	2347490.00	0.00	0.00		
			6271212.66	2347482.81	0.00	0.00		
			6271249.56	2347480.43	0.00	0.00		
			6271341.35	2347490.44	0.00	0.00		
			6271410.51	2347503.49	0.00	0.00		
			6271539.27	2347537.31	0.00	0.00		
			6271698.13	2347594.60	0.00	0.00		
			6272286.67	2347791.22	0.00	0.00		

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
			6272476.77	2347853.72	0.00	0.00		
			6272636.93	2347905.80	0.00	0.00		
			6272797.08	2347948.77	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6255985.70	2347041.70	0.00	0.00		
			6258540.42	2347009.20	0.00	0.00		
			6259032.54	2347002.94	0.00	0.00		
			6259118.95	2347007.07	0.00	0.00		
			6259188.60	2347019.20	0.00	0.00		
			6259256.71	2347041.21	0.00	0.00		
			6259310.16	2347065.02	0.00	0.00		
			6259576.64	2347209.70	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6263500.92	2347764.10	0.00	0.00		
			6263506.52	2348382.18	0.00	0.00		

15935 - Inland Valley Infrastructure Corridor

CadnaA Noise Prediction Model: 15935-02_Operation 6-Lane.cna

Date: 01.08.24

Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance 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)
R1		R1	68.2	66.9	73.9	0.0	0.0	0.0		x	Total	5.00 a	6256233.08	2348463.70	5.00
R2		R2	66.9	65.6	72.6	0.0	0.0	0.0		x	Total	5.00 a	6258166.62	2347079.11	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)		(dBA)		(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)

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)		(dBA)		(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

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)		(dBA)		(min)	(min)	(min)	

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(ft)	(ft)	(ft)	(ft)	(ft)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km/mph)

Sound Level Spectra

Name				ID	Type	Oktave Spectrum (dB)												Source	
						Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin		

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type	(%)	Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)			(dB)	(ft)	(ft)
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		
ROADWAY_IMPROVEMENTS			0	64.3	64.3	63.0			1000.0	1000.0	750.0	5.0	5.0	5.0	45		22	0.0	1	0.0	0.0		

RoadsGeo

Name	Height			Coordinates				Dist	LSlope
	Begin	End		x	y	z	Ground	(ft)	(%)
	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)		
ROADWAY_IMPROVEMENTS	0.00	a		6258540.42	2347009.20	0.00	0.00		
				6258568.62	2348379.15	0.00	0.00		
				6258552.70	2348660.37	0.00	0.00		
				6258497.36	2348869.85	0.00	0.00		
				6258412.68	2349061.70	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a		6255618.16	2349091.88	0.00	0.00		
				6258415.15	2349062.95	0.00	0.00		

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
			6260182.75	2349043.56	0.00	0.00		
			6260864.48	2349035.22	0.00	0.00		
			6262849.69	2349059.37	0.00	0.00		
			6263514.45	2349066.22	0.00	0.00		
			6266163.60	2349057.53	0.00	0.00		
			6268784.11	2349028.21	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6271418.90	2348097.50	0.00	0.00		
			6268775.12	2348327.05	0.00	0.00		
			6266158.02	2348356.20	0.00	0.00		
			6264410.73	2348373.52	0.00	0.00		
			6263506.52	2348382.18	0.00	0.00		
			6260856.86	2348353.94	0.00	0.00		
			6258568.62	2348379.15	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6258568.62	2348379.15	0.00	0.00		
			6255609.17	2348411.75	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6259576.64	2347209.70	0.00	0.00		
			6260393.51	2347655.28	0.00	0.00		
			6260515.69	2347721.92	0.00	0.00		
			6260561.59	2347744.00	0.00	0.00		
			6260609.13	2347762.28	0.00	0.00		
			6260658.00	2347776.64	0.00	0.00		
			6260707.86	2347786.99	0.00	0.00		
			6260809.29	2347795.42	0.00	0.00		
			6260850.64	2347795.02	0.00	0.00		
			6262927.12	2347770.79	0.00	0.00		
			6265327.10	2347748.06	0.00	0.00		
			6266153.38	2347740.80	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6255985.70	2347041.70	0.00	0.00		
			6255986.27	2347100.17	0.00	0.00		
			6255939.98	2347153.01	0.00	0.00		
			6255860.55	2347243.67	0.00	0.00		
			6255791.45	2347322.54	0.00	0.00		
			6255726.02	2347397.22	0.00	0.00		
			6255685.77	2347443.17	0.00	0.00		
			6255647.46	2347486.90	0.00	0.00		
			6255629.59	2347510.20	0.00	0.00		
			6255611.41	2347545.76	0.00	0.00		
			6255600.09	2347590.93	0.00	0.00		
			6255598.93	2347636.48	0.00	0.00		
			6255599.74	2347698.25	0.00	0.00		
			6255600.42	2347749.02	0.00	0.00		
			6255603.43	2347977.47	0.00	0.00		
			6255609.17	2348411.75	0.00	0.00		
			6255620.33	2349093.61	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6260850.64	2347795.02	0.00	0.00		
			6260856.86	2348353.94	0.00	0.00		
			6260864.48	2349035.22	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6263506.52	2348382.18	0.00	0.00		
			6263514.45	2349066.22	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6266153.38	2347740.80	0.00	0.00		
			6266158.02	2348356.20	0.00	0.00		
			6266163.60	2349057.53	0.00	0.00		
			6266173.42	2350378.00	0.00	0.00		
			6266178.53	2351027.38	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6267477.82	2348341.72	0.00	0.00		
			6267483.16	2349042.56	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6268746.74	2347641.78	0.00	0.00		
			6268775.12	2348327.05	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6271410.51	2347503.49	0.00	0.00		
			6271418.90	2348097.50	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6272742.86	2347934.22	0.00	0.00		
			6272748.67	2347981.75	0.00	0.00		
			6272757.19	2349151.23	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6274317.90	2348092.42	0.00	0.00		
			6274072.91	2348075.06	0.00	0.00		
			6272748.67	2347981.75	0.00	0.00		
			6271418.90	2348097.50	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6266153.38	2347740.80	0.00	0.00		
			6268766.34	2347640.58	0.00	0.00		
			6271101.12	2347490.00	0.00	0.00		
			6271212.66	2347482.81	0.00	0.00		
			6271249.56	2347480.43	0.00	0.00		
			6271341.35	2347490.44	0.00	0.00		
			6271410.51	2347503.49	0.00	0.00		
			6271539.27	2347537.31	0.00	0.00		
			6271698.13	2347594.60	0.00	0.00		
			6272286.67	2347791.22	0.00	0.00		

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
			6272476.77	2347853.72	0.00	0.00		
			6272636.93	2347905.80	0.00	0.00		
			6272797.08	2347948.77	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6255985.70	2347041.70	0.00	0.00		
			6258540.42	2347009.20	0.00	0.00		
			6259032.54	2347002.94	0.00	0.00		
			6259118.95	2347007.07	0.00	0.00		
			6259188.60	2347019.20	0.00	0.00		
			6259256.71	2347041.21	0.00	0.00		
			6259310.16	2347065.02	0.00	0.00		
			6259576.64	2347209.70	0.00	0.00		
ROADWAY_IMPROVEMENTS	0.00	a	6263500.92	2347764.10	0.00	0.00		
			6263506.52	2348382.18	0.00	0.00		

APPENDIX 8.1:

PROJECT CONSTRUCTION NOISE CALCULATIONS

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15935 - Inland Valley Infrastructure Corridor

CadnaA Noise Prediction Model: 15935-02_Construction.cna

Date: 01.08.24

Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance 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)
R1		R1	65.8	-37.2	62.8	0.0	0.0	0.0	x		Total	5.00	a 6256233.08	2348463.70	5.00
R2		R2	67.8	-35.2	64.8	0.0	0.0	0.0	x		Total	5.00	a 6258166.62	2347079.11	5.00
R3		R3	71.1	-34.7	68.1	0.0	0.0	0.0	x		Total	5.00	a 6259053.53	2349096.68	5.00
R4		R4	68.4	-34.6	65.4	0.0	0.0	0.0	x		Total	5.00	a 6263455.03	2349102.57	5.00
R5		R5	67.2	-35.8	64.2	0.0	0.0	0.0	x		Total	5.00	a 6266855.55	2348401.32	5.00
R6		R6	65.4	-37.6	62.4	0.0	0.0	0.0	x		Total	5.00	a 6266119.00	2350776.75	5.00
R7		R7	63.0	-40.0	60.0	0.0	0.0	0.0	x		Total	5.00	a 6268870.65	2348987.25	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)

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li		Operating Time			Moving Pt. Src			Height		
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number		Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)
ROADWORK_FT	0		107.6	1.6	1.6	88.0	-18.0	-18.0	PWL-Pt	118.8					4.0	0.0	0.0	3.0	8 a
ROADWORK_FT	0		107.6	1.6	1.6	88.0	-18.0	-18.0	PWL-Pt	118.8					4.0	0.0	0.0	3.0	8 a
ROADWORK_FT	0		107.6	1.6	1.6	88.0	-18.0	-18.0	PWL-Pt	118.8					4.0	0.0	0.0	3.0	8 a
ROADWORK_FT	0		107.6	1.6	1.6	88.0	-18.0	-18.0	PWL-Pt	118.8					4.0	0.0	0.0	3.0	8 a
ROADWORK_FT	0		107.6	1.6	1.6	88.0	-18.0	-18.0	PWL-Pt	118.8					4.0	0.0	0.0	3.0	8 a
ROADWORK_FT	0		107.6	1.6	1.6	88.0	-18.0	-18.0	PWL-Pt	118.8					4.0	0.0	0.0	3.0	8 a
ROADWORK_FT	0		107.6	1.6	1.6	88.0	-18.0	-18.0	PWL-Pt	118.8					4.0	0.0	0.0	3.0	8 a

Urban Crossroads, Inc.

Urban Crossroads, Inc.

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
ROADWORK_FT	0	8.00	a	6255306.73	2346952.29	8.00	0.00
				6255521.57	2346947.08	8.00	0.00
				6255606.21	2346949.68	8.00	0.00
				6255606.61	2346949.78	8.00	0.00
ROADWORK_FT	0	8.00	a	6255606.61	2346949.78	8.00	0.00
				6255693.45	2346970.52	8.00	0.00
				6255788.50	2347012.18	8.00	0.00
				6255849.70	2347033.02	8.00	0.00
				6255891.35	2347040.33	8.00	0.00
ROADWORK_FT	0	8.00	a	6255891.35	2347040.33	8.00	0.00
				6255923.91	2347046.04	8.00	0.00
				6255942.14	2347047.34	8.00	0.00
				6256047.61	2347048.64	8.00	0.00
				6256190.76	2347045.27	8.00	0.00
ROADWORK_FT	0	8.00	a	6256190.76	2347045.27	8.00	0.00
				6256434.33	2347039.53	8.00	0.00
				6256490.68	2347038.27	8.00	0.00
ROADWORK_FT	0	8.00	a	6256490.68	2347038.27	8.00	0.00
				6256790.61	2347031.55	8.00	0.00
ROADWORK_FT	0	8.00	a	6256790.61	2347031.55	8.00	0.00
				6257090.53	2347024.84	8.00	0.00
ROADWORK_FT	0	8.00	a	6257090.53	2347024.84	8.00	0.00
				6257190.41	2347022.60	8.00	0.00
				6257390.50	2347020.99	8.00	0.00
ROADWORK_FT	0	8.00	a	6257390.50	2347020.99	8.00	0.00
				6257690.49	2347018.57	8.00	0.00
ROADWORK_FT	0	8.00	a	6257690.49	2347018.57	8.00	0.00
				6257990.48	2347016.15	8.00	0.00
ROADWORK_FT	0	8.00	a	6257990.48	2347016.15	8.00	0.00
				6258290.47	2347013.73	8.00	0.00
ROADWORK_FT	0	8.00	a	6258290.47	2347013.73	8.00	0.00
				6258482.07	2347012.18	8.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6258590.41	2347008.90	8.00	0.00
ROADWORK_FT	0	8.00	a	6258590.41	2347008.90	8.00	0.00
				6258596.66	2347008.71	8.00	0.00
				6258890.28	2346999.90	8.00	0.00
ROADWORK_FT	0	8.00	a	6258890.28	2346999.90	8.00	0.00
				6258943.88	2346998.30	8.00	0.00
				6259110.55	2346998.30	8.00	0.00
				6259187.67	2347018.42	8.00	0.00
ROADWORK_FT	0	8.00	a	6259187.67	2347018.42	8.00	0.00
				6259190.41	2347019.13	8.00	0.00
				6259304.99	2347064.27	8.00	0.00
				6259457.18	2347148.66	8.00	0.00
ROADWORK_FT	0	8.00	a	6259457.18	2347148.66	8.00	0.00
				6259719.55	2347294.13	8.00	0.00
ROADWORK_FT	0	8.00	a	6259719.55	2347294.13	8.00	0.00
				6259981.91	2347439.61	8.00	0.00
ROADWORK_FT	0	8.00	a	6259981.91	2347439.61	8.00	0.00
				6260244.28	2347585.09	8.00	0.00
ROADWORK_FT	0	8.00	a	6260244.28	2347585.09	8.00	0.00
				6260388.32	2347664.96	8.00	0.00
				6260508.46	2347727.18	8.00	0.00
ROADWORK_FT	0	8.00	a	6260508.46	2347727.18	8.00	0.00
				6260582.77	2347765.66	8.00	0.00
				6260766.80	2347807.32	8.00	0.00
				6260794.40	2347805.98	8.00	0.00
ROADWORK_FT	0	8.00	a	6260794.40	2347805.98	8.00	0.00
				6260909.16	2347800.38	8.00	0.00
				6261094.24	2347797.54	8.00	0.00
ROADWORK_FT	0	8.00	a	6261094.24	2347797.54	8.00	0.00
				6261394.21	2347792.95	8.00	0.00
ROADWORK_FT	0	8.00	a	6261394.21	2347792.95	8.00	0.00
				6261694.17	2347788.36	8.00	0.00
ROADWORK_FT	0	8.00	a	6261694.17	2347788.36	8.00	0.00
				6261994.14	2347783.76	8.00	0.00
ROADWORK_FT	0	8.00	a	6261994.14	2347783.76	8.00	0.00
				6262294.10	2347779.17	8.00	0.00
ROADWORK_FT	0	8.00	a	6262294.10	2347779.17	8.00	0.00
				6262594.07	2347774.58	8.00	0.00
ROADWORK_FT	0	8.00	a	6262594.07	2347774.58	8.00	0.00
				6262894.03	2347769.98	8.00	0.00
ROADWORK_FT	0	8.00	a	6262894.03	2347769.98	8.00	0.00
				6263176.52	2347765.66	8.00	0.00
				6263194.00	2347765.57	8.00	0.00
ROADWORK_FT	0	8.00	a	6263194.00	2347765.57	8.00	0.00
				6263493.99	2347764.14	8.00	0.00
ROADWORK_FT	0	8.00	a	6263493.99	2347764.14	8.00	0.00
				6263793.99	2347762.71	8.00	0.00
ROADWORK_FT	0	8.00	a	6263793.99	2347762.71	8.00	0.00
				6264093.99	2347761.28	8.00	0.00
ROADWORK_FT	0	8.00	a	6264093.99	2347761.28	8.00	0.00
				6264393.98	2347759.85	8.00	0.00
ROADWORK_FT	0	8.00	a	6264393.98	2347759.85	8.00	0.00
				6264693.98	2347758.42	8.00	0.00
ROADWORK_FT	0	8.00	a	6264693.98	2347758.42	8.00	0.00
				6264993.98	2347756.99	8.00	0.00
ROADWORK_FT	0	8.00	a	6264993.98	2347756.99	8.00	0.00
				6265293.97	2347755.56	8.00	0.00
ROADWORK_FT	0	8.00	a	6265293.97	2347755.56	8.00	0.00
				6265593.97	2347754.13	8.00	0.00
ROADWORK_FT	0	8.00	a	6265593.97	2347754.13	8.00	0.00
				6265893.97	2347752.70	8.00	0.00
ROADWORK_FT	0	8.00	a	6265893.97	2347752.70	8.00	0.00
				6266089.71	2347751.77	8.00	0.00
				6266193.87	2347747.25	8.00	0.00
ROADWORK_FT	0	8.00	a	6266193.87	2347747.25	8.00	0.00
				6266493.59	2347734.25	8.00	0.00
ROADWORK_FT	0	8.00	a	6266493.59	2347734.25	8.00	0.00
				6266793.30	2347721.26	8.00	0.00
ROADWORK_FT	0	8.00	a	6266793.30	2347721.26	8.00	0.00
				6267093.02	2347708.26	8.00	0.00
ROADWORK_FT	0	8.00	a	6267093.02	2347708.26	8.00	0.00
				6267392.74	2347695.26	8.00	0.00
ROADWORK_FT	0	8.00	a	6267392.74	2347695.26	8.00	0.00
				6267692.46	2347682.27	8.00	0.00
ROADWORK_FT	0	8.00	a	6267692.46	2347682.27	8.00	0.00
				6267992.18	2347669.27	8.00	0.00
ROADWORK_FT	0	8.00	a	6267992.18	2347669.27	8.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6268291.90	2347656.27	8.00	0.00
ROADWORK_FT	0	8.00	a	6268291.90	2347656.27	8.00	0.00
				6268591.61	2347643.28	8.00	0.00
ROADWORK_FT	0	8.00	a	6268591.61	2347643.28	8.00	0.00
				6268732.07	2347637.18	8.00	0.00
				6268891.22	2347628.06	8.00	0.00
ROADWORK_FT	0	8.00	a	6268891.22	2347628.06	8.00	0.00
				6269190.73	2347610.89	8.00	0.00
ROADWORK_FT	0	8.00	a	6269190.73	2347610.89	8.00	0.00
				6269490.24	2347593.72	8.00	0.00
ROADWORK_FT	0	8.00	a	6269490.24	2347593.72	8.00	0.00
				6269789.75	2347576.54	8.00	0.00
ROADWORK_FT	0	8.00	a	6269789.75	2347576.54	8.00	0.00
				6270089.25	2347559.37	8.00	0.00
ROADWORK_FT	0	8.00	a	6270089.25	2347559.37	8.00	0.00
				6270388.76	2347542.20	8.00	0.00
ROADWORK_FT	0	8.00	a	6270388.76	2347542.20	8.00	0.00
				6270688.27	2347525.03	8.00	0.00
ROADWORK_FT	0	8.00	a	6270688.27	2347525.03	8.00	0.00
				6270987.78	2347507.86	8.00	0.00
ROADWORK_FT	0	8.00	a	6270987.78	2347507.86	8.00	0.00
				6271287.29	2347490.69	8.00	0.00
ROADWORK_FT	0	8.00	a	6271287.29	2347490.69	8.00	0.00
				6271336.24	2347487.88	8.00	0.00
				6271478.60	2347515.66	8.00	0.00
				6271578.11	2347551.94	8.00	0.00
ROADWORK_FT	0	8.00	a	6271578.11	2347551.94	8.00	0.00
				6271859.96	2347654.72	8.00	0.00
ROADWORK_FT	0	8.00	a	6271859.96	2347654.72	8.00	0.00
				6272141.81	2347757.49	8.00	0.00
ROADWORK_FT	0	8.00	a	6272141.81	2347757.49	8.00	0.00
				6272423.65	2347860.26	8.00	0.00
ROADWORK_FT	0	8.00	a	6272423.65	2347860.26	8.00	0.00
				6272705.50	2347963.03	8.00	0.00
ROADWORK_FT	0	8.00	a	6272705.50	2347963.03	8.00	0.00
				6272735.55	2347973.99	8.00	0.00
ROADWORK_FT	0	8.00	a	6268784.96	2349041.14	0.00	0.00
				6268779.60	2348741.19	0.00	0.00
ROADWORK_FT	0	8.00	a	6268779.60	2348741.19	0.00	0.00
				6268774.24	2348441.24	0.00	0.00
ROADWORK_FT	0	8.00	a	6268774.24	2348441.24	0.00	0.00
				6268772.35	2348335.34	0.00	0.00
ROADWORK_FT	0	8.00	a	6255613.15	2349097.25	0.00	0.00
				6255610.07	2348797.27	0.00	0.00
ROADWORK_FT	0	8.00	a	6255610.07	2348797.27	0.00	0.00
				6255607.00	2348497.29	0.00	0.00
ROADWORK_FT	0	8.00	a	6255607.00	2348497.29	0.00	0.00
				6255606.21	2348420.17	0.00	0.00
				6255606.49	2348197.29	0.00	0.00
ROADWORK_FT	0	8.00	a	6255606.49	2348197.29	0.00	0.00
				6255606.87	2347897.29	0.00	0.00
ROADWORK_FT	0	8.00	a	6255606.87	2347897.29	0.00	0.00
				6255607.18	2347656.33	0.00	0.00
				6255609.54	2347597.34	0.00	0.00
ROADWORK_FT	0	8.00	a	6255609.54	2347597.34	0.00	0.00
				6255609.78	2347591.23	0.00	0.00
				6255643.64	2347500.08	0.00	0.00
				6255774.77	2347353.53	0.00	0.00
ROADWORK_FT	0	8.00	a	6255774.77	2347353.53	0.00	0.00
				6255776.45	2347351.65	0.00	0.00
				6255935.30	2347161.54	0.00	0.00
				6255963.27	2347120.41	0.00	0.00
ROADWORK_FT	0	8.00	a	6255963.27	2347120.41	0.00	0.00
				6255979.57	2347096.44	0.00	0.00
				6255989.95	2347047.93	0.00	0.00
ROADWORK_FT	0	8.00	a	6255613.15	2349097.25	0.00	0.00
				6255913.12	2349093.28	0.00	0.00
ROADWORK_FT	0	8.00	a	6255913.12	2349093.28	0.00	0.00
				6256213.10	2349089.31	0.00	0.00
ROADWORK_FT	0	8.00	a	6256213.10	2349089.31	0.00	0.00
				6256513.07	2349085.34	0.00	0.00
ROADWORK_FT	0	8.00	a	6256513.07	2349085.34	0.00	0.00
				6256813.05	2349081.37	0.00	0.00
ROADWORK_FT	0	8.00	a	6256813.05	2349081.37	0.00	0.00
				6257113.02	2349077.40	0.00	0.00
ROADWORK_FT	0	8.00	a	6257113.02	2349077.40	0.00	0.00
				6257412.99	2349073.43	0.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
ROADWORK_FT	0	8.00	a	6257412.99	2349073.43	0.00	0.00
				6257712.97	2349069.46	0.00	0.00
ROADWORK_FT	0	8.00	a	6257712.97	2349069.46	0.00	0.00
				6258012.94	2349065.49	0.00	0.00
ROADWORK_FT	0	8.00	a	6258012.94	2349065.49	0.00	0.00
				6258312.91	2349061.52	0.00	0.00
ROADWORK_FT	0	8.00	a	6258312.91	2349061.52	0.00	0.00
				6258367.49	2349060.80	0.00	0.00
				6258468.19	2349064.27	0.00	0.00
				6258612.84	2349062.35	0.00	0.00
ROADWORK_FT	0	8.00	a	6258612.84	2349062.35	0.00	0.00
				6258912.81	2349058.37	0.00	0.00
ROADWORK_FT	0	8.00	a	6258912.81	2349058.37	8.00	0.00
				6259212.78	2349054.38	8.00	0.00
ROADWORK_FT	0	8.00	a	6259212.78	2349054.38	0.00	0.00
				6259512.76	2349050.40	0.00	0.00
ROADWORK_FT	0	8.00	a	6259512.76	2349050.40	0.00	0.00
				6259812.73	2349046.42	0.00	0.00
ROADWORK_FT	0	8.00	a	6259812.73	2349046.42	0.00	0.00
				6260112.70	2349042.44	0.00	0.00
ROADWORK_FT	0	8.00	a	6260112.70	2349042.44	0.00	0.00
				6260412.68	2349038.46	0.00	0.00
ROADWORK_FT	0	8.00	a	6260412.68	2349038.46	0.00	0.00
				6260712.65	2349034.47	0.00	0.00
ROADWORK_FT	0	8.00	a	6260712.65	2349034.47	0.00	0.00
				6260822.35	2349033.02	0.00	0.00
				6260902.21	2349022.60	0.00	0.00
				6261011.95	2349024.22	0.00	0.00
ROADWORK_FT	0	8.00	a	6261011.95	2349024.22	0.00	0.00
				6261311.92	2349028.66	0.00	0.00
ROADWORK_FT	0	8.00	a	6261311.92	2349028.66	0.00	0.00
				6261611.89	2349033.09	0.00	0.00
ROADWORK_FT	0	8.00	a	6261611.89	2349033.09	0.00	0.00
				6261911.86	2349037.53	0.00	0.00
ROADWORK_FT	0	8.00	a	6261911.86	2349037.53	0.00	0.00
				6262211.82	2349041.96	0.00	0.00
ROADWORK_FT	0	8.00	a	6262211.82	2349041.96	0.00	0.00
				6262511.79	2349046.40	0.00	0.00
ROADWORK_FT	0	8.00	a	6262511.79	2349046.40	0.00	0.00
				6262811.76	2349050.83	0.00	0.00
ROADWORK_FT	0	8.00	a	6262811.76	2349050.83	0.00	0.00
				6263111.72	2349055.27	0.00	0.00
ROADWORK_FT	0	8.00	a	6263111.72	2349055.27	0.00	0.00
				6263411.69	2349059.70	0.00	0.00
ROADWORK_FT	0	8.00	a	6263411.69	2349059.70	0.00	0.00
				6263485.55	2349060.80	0.00	0.00
				6263711.68	2349060.80	0.00	0.00
ROADWORK_FT	0	8.00	a	6263711.68	2349060.80	0.00	0.00
				6264011.68	2349060.80	0.00	0.00
ROADWORK_FT	0	8.00	a	6264011.68	2349060.80	0.00	0.00
				6264311.68	2349060.80	0.00	0.00
ROADWORK_FT	0	8.00	a	6264311.68	2349060.80	0.00	0.00
				6264611.68	2349060.80	0.00	0.00
ROADWORK_FT	0	8.00	a	6264611.68	2349060.80	0.00	0.00
				6264911.68	2349060.80	0.00	0.00
ROADWORK_FT	0	8.00	a	6264911.68	2349060.80	0.00	0.00
				6265152.21	2349060.80	0.00	0.00
				6265211.68	2349061.01	0.00	0.00
ROADWORK_FT	0	8.00	a	6265211.68	2349061.01	0.00	0.00
				6265511.68	2349062.10	0.00	0.00
ROADWORK_FT	0	8.00	a	6265511.68	2349062.10	0.00	0.00
				6265811.68	2349063.19	0.00	0.00
ROADWORK_FT	0	8.00	a	6265811.68	2349063.19	0.00	0.00
				6266110.55	2349064.27	0.00	0.00
				6266111.68	2349064.25	0.00	0.00
ROADWORK_FT	0	8.00	a	6266111.68	2349064.25	0.00	0.00
				6266411.65	2349060.34	0.00	0.00
ROADWORK_FT	0	8.00	a	6266411.65	2349060.34	0.00	0.00
				6266711.63	2349056.42	0.00	0.00
ROADWORK_FT	0	8.00	a	6266711.63	2349056.42	0.00	0.00
				6267011.60	2349052.50	0.00	0.00
ROADWORK_FT	0	8.00	a	6267011.60	2349052.50	0.00	0.00
				6267311.57	2349048.59	0.00	0.00
ROADWORK_FT	0	8.00	a	6267311.57	2349048.59	0.00	0.00
				6267440.41	2349046.91	0.00	0.00
				6267611.56	2349046.17	0.00	0.00
ROADWORK_FT	0	8.00	a	6267611.56	2349046.17	0.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6267911.56	2349044.89	0.00	0.00
ROADWORK_FT	0	8.00	a	6267911.56	2349044.89	0.00	0.00
				6268211.56	2349043.60	0.00	0.00
ROADWORK_FT	0	8.00	a	6268211.56	2349043.60	0.00	0.00
				6268511.55	2349042.32	0.00	0.00
ROADWORK_FT	0	8.00	a	6268511.55	2349042.32	0.00	0.00
				6268784.96	2349041.14	0.00	0.00
ROADWORK_FT	0	8.00	a	6272735.55	2347973.99	0.00	0.00
				6272436.50	2347997.91	0.00	0.00
ROADWORK_FT	0	8.00	a	6272436.50	2347997.91	0.00	0.00
				6272214.71	2348015.66	0.00	0.00
				6272137.59	2348023.34	0.00	0.00
ROADWORK_FT	0	8.00	a	6272137.59	2348023.34	0.00	0.00
				6271839.07	2348053.06	0.00	0.00
ROADWORK_FT	0	8.00	a	6271839.07	2348053.06	0.00	0.00
				6271540.54	2348082.78	0.00	0.00
ROADWORK_FT	0	8.00	a	6271540.54	2348082.78	0.00	0.00
				6271412.63	2348095.52	0.00	0.00
				6271241.89	2348111.16	0.00	0.00
ROADWORK_FT	0	8.00	a	6271241.89	2348111.16	0.00	0.00
				6270943.14	2348138.54	0.00	0.00
ROADWORK_FT	0	8.00	a	6270943.14	2348138.54	0.00	0.00
				6270644.39	2348165.91	0.00	0.00
ROADWORK_FT	0	8.00	a	6270644.39	2348165.91	0.00	0.00
				6270345.65	2348193.29	0.00	0.00
ROADWORK_FT	0	8.00	a	6270345.65	2348193.29	0.00	0.00
				6270046.90	2348220.66	0.00	0.00
ROADWORK_FT	0	8.00	a	6270046.90	2348220.66	0.00	0.00
				6269748.15	2348248.04	0.00	0.00
ROADWORK_FT	0	8.00	a	6269748.15	2348248.04	0.00	0.00
				6269449.40	2348275.42	0.00	0.00
ROADWORK_FT	0	8.00	a	6269449.40	2348275.42	0.00	0.00
				6269150.65	2348302.79	0.00	0.00
ROADWORK_FT	0	8.00	a	6269150.65	2348302.79	0.00	0.00
				6268851.90	2348330.17	0.00	0.00
ROADWORK_FT	0	8.00	a	6268851.90	2348330.17	0.00	0.00
				6268798.05	2348335.10	0.00	0.00
				6268552.14	2348337.38	0.00	0.00
ROADWORK_FT	0	8.00	a	6268552.14	2348337.38	0.00	0.00
				6268252.15	2348340.16	0.00	0.00
ROADWORK_FT	0	8.00	a	6268252.15	2348340.16	0.00	0.00
				6267952.17	2348342.94	0.00	0.00
ROADWORK_FT	0	8.00	a	6267952.17	2348342.94	0.00	0.00
				6267652.18	2348345.73	0.00	0.00
ROADWORK_FT	0	8.00	a	6267652.18	2348345.73	0.00	0.00
				6267352.19	2348348.51	0.00	0.00
ROADWORK_FT	0	8.00	a	6267352.19	2348348.51	0.00	0.00
				6267052.21	2348351.29	0.00	0.00
ROADWORK_FT	0	8.00	a	6267052.21	2348351.29	0.00	0.00
				6266752.22	2348354.07	0.00	0.00
ROADWORK_FT	0	8.00	a	6266752.22	2348354.07	0.00	0.00
				6266452.23	2348356.85	0.00	0.00
ROADWORK_FT	0	8.00	a	6266452.23	2348356.85	0.00	0.00
				6266176.52	2348359.41	0.00	0.00
				6266152.24	2348359.66	0.00	0.00
ROADWORK_FT	0	8.00	a	6266152.24	2348359.66	0.00	0.00
				6265852.26	2348362.76	0.00	0.00
ROADWORK_FT	0	8.00	a	6265852.26	2348362.76	0.00	0.00
				6265552.28	2348365.86	0.00	0.00
ROADWORK_FT	0	8.00	a	6265552.28	2348365.86	0.00	0.00
				6265252.29	2348368.96	0.00	0.00
ROADWORK_FT	0	8.00	a	6265252.29	2348368.96	0.00	0.00
				6264952.31	2348372.06	0.00	0.00
ROADWORK_FT	0	8.00	a	6264952.31	2348372.06	0.00	0.00
				6264652.32	2348375.16	0.00	0.00
ROADWORK_FT	0	8.00	a	6264652.32	2348375.16	0.00	0.00
				6264352.34	2348378.26	0.00	0.00
ROADWORK_FT	0	8.00	a	6264352.34	2348378.26	0.00	0.00
				6264052.36	2348381.36	0.00	0.00
ROADWORK_FT	0	8.00	a	6264052.36	2348381.36	0.00	0.00
				6263752.37	2348384.46	0.00	0.00
ROADWORK_FT	0	8.00	a	6263752.37	2348384.46	0.00	0.00
				6263489.02	2348387.18	0.00	0.00
				6263452.39	2348386.74	0.00	0.00
ROADWORK_FT	0	8.00	a	6263452.39	2348386.74	0.00	0.00
				6263152.41	2348383.13	0.00	0.00
ROADWORK_FT	0	8.00	a	6263152.41	2348383.13	0.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6262852.43	2348379.52	0.00	0.00
ROADWORK_FT	0	8.00	a	6262852.43	2348379.52	0.00	0.00
				6262552.45	2348375.90	0.00	0.00
ROADWORK_FT	0	8.00	a	6262552.45	2348375.90	0.00	0.00
				6262252.48	2348372.29	0.00	0.00
ROADWORK_FT	0	8.00	a	6262252.48	2348372.29	0.00	0.00
				6261952.50	2348368.67	0.00	0.00
ROADWORK_FT	0	8.00	a	6261952.50	2348368.67	0.00	0.00
				6261652.52	2348365.06	0.00	0.00
ROADWORK_FT	0	8.00	a	6261652.52	2348365.06	0.00	0.00
				6261352.54	2348361.44	0.00	0.00
ROADWORK_FT	0	8.00	a	6261352.54	2348361.44	0.00	0.00
				6261052.56	2348357.83	0.00	0.00
ROADWORK_FT	0	8.00	a	6261052.56	2348357.83	0.00	0.00
				6260895.27	2348355.93	0.00	0.00
				6260798.05	2348352.46	0.00	0.00
				6260752.64	2348353.11	0.00	0.00
ROADWORK_FT	0	8.00	a	6260752.64	2348353.11	0.00	0.00
				6260452.67	2348357.42	0.00	0.00
ROADWORK_FT	0	8.00	a	6260452.67	2348357.42	0.00	0.00
				6260152.70	2348361.73	0.00	0.00
ROADWORK_FT	0	8.00	a	6260152.70	2348361.73	0.00	0.00
				6259852.73	2348366.03	0.00	0.00
ROADWORK_FT	0	8.00	a	6259852.73	2348366.03	0.00	0.00
				6259552.76	2348370.34	0.00	0.00
ROADWORK_FT	0	8.00	a	6259552.76	2348370.34	0.00	0.00
				6259252.80	2348374.64	0.00	0.00
ROADWORK_FT	0	8.00	a	6259252.80	2348374.64	0.00	0.00
				6258952.83	2348378.95	0.00	0.00
ROADWORK_FT	0	8.00	a	6258952.83	2348378.95	0.00	0.00
				6258652.86	2348383.25	0.00	0.00
ROADWORK_FT	0	8.00	a	6258652.86	2348383.25	0.00	0.00
				6258620.96	2348383.71	0.00	0.00
				6258495.96	2348387.18	0.00	0.00
				6258352.91	2348388.31	0.00	0.00
ROADWORK_FT	0	8.00	a	6258352.91	2348388.31	0.00	0.00
				6258052.92	2348390.68	0.00	0.00
ROADWORK_FT	0	8.00	a	6258052.92	2348390.68	0.00	0.00
				6257752.93	2348393.04	0.00	0.00
ROADWORK_FT	0	8.00	a	6257752.93	2348393.04	0.00	0.00
				6257452.94	2348395.41	0.00	0.00
ROADWORK_FT	0	8.00	a	6257452.94	2348395.41	0.00	0.00
				6257152.95	2348397.78	0.00	0.00
ROADWORK_FT	0	8.00	a	6257152.95	2348397.78	0.00	0.00
				6256852.96	2348400.14	0.00	0.00
ROADWORK_FT	0	8.00	a	6256852.96	2348400.14	0.00	0.00
				6256552.97	2348402.51	0.00	0.00
ROADWORK_FT	0	8.00	a	6256552.97	2348402.51	0.00	0.00
				6256294.57	2348404.55	0.00	0.00
				6256252.99	2348405.49	0.00	0.00
ROADWORK_FT	0	8.00	a	6256252.99	2348405.49	0.00	0.00
				6255953.07	2348412.30	0.00	0.00
ROADWORK_FT	0	8.00	a	6255953.07	2348412.30	0.00	0.00
				6255653.14	2348419.11	0.00	0.00
ROADWORK_FT	0	8.00	a	6255653.14	2348419.11	0.00	0.00
				6255606.21	2348420.17	0.00	0.00
ROADWORK_FT	0	8.00	a	6258548.38	2347010.18	0.00	0.00
				6258550.81	2347310.17	0.00	0.00
ROADWORK_FT	0	8.00	a	6258550.81	2347310.17	0.00	0.00
				6258553.24	2347610.16	0.00	0.00
ROADWORK_FT	0	8.00	a	6258553.24	2347610.16	0.00	0.00
				6258555.66	2347910.15	0.00	0.00
ROADWORK_FT	0	8.00	a	6258555.66	2347910.15	0.00	0.00
				6258558.09	2348210.14	0.00	0.00
ROADWORK_FT	0	8.00	a	6258558.09	2348210.14	0.00	0.00
				6258559.51	2348385.42	0.00	0.00
				6258564.10	2348510.05	0.00	0.00
ROADWORK_FT	0	8.00	a	6258564.10	2348510.05	0.00	0.00
				6258565.60	2348550.52	0.00	0.00
				6258556.92	2348661.20	0.00	0.00
				6258515.02	2348803.64	0.00	0.00
ROADWORK_FT	0	8.00	a	6258515.02	2348803.64	0.00	0.00
				6258513.51	2348808.76	0.00	0.00
				6258424.39	2349062.76	0.00	0.00
ROADWORK_FT	0	8.00	a	6260844.43	2347803.54	0.00	0.00
				6260850.04	2348103.48	0.00	0.00
ROADWORK_FT	0	8.00	a	6260850.04	2348103.48	0.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6260854.73	2348354.49	0.00	0.00
				6260854.75	2348403.44	0.00	0.00
ROADWORK_FT	0	8.00	a	6260854.75	2348403.44	0.00	0.00
				6260854.83	2348703.44	0.00	0.00
ROADWORK_FT	0	8.00	a	6260854.83	2348703.44	0.00	0.00
				6260854.91	2349003.44	0.00	0.00
ROADWORK_FT	0	8.00	a	6260854.91	2349003.44	0.00	0.00
				6260854.92	2349028.77	0.00	0.00
ROADWORK_FT	0	8.00	a	6263500.92	2347764.10	0.00	0.00
				6263503.64	2348064.08	0.00	0.00
ROADWORK_FT	0	8.00	a	6263503.64	2348064.08	0.00	0.00
				6263506.36	2348364.07	0.00	0.00
ROADWORK_FT	0	8.00	a	6263506.36	2348364.07	0.00	0.00
				6263506.52	2348382.18	0.00	0.00
				6263509.79	2348664.05	0.00	0.00
ROADWORK_FT	0	8.00	a	6263509.79	2348664.05	0.00	0.00
				6263513.27	2348964.03	0.00	0.00
ROADWORK_FT	0	8.00	a	6263513.27	2348964.03	0.00	0.00
				6263514.45	2349066.22	0.00	0.00
ROADWORK_FT	0	8.00	a	6266153.38	2347740.80	0.00	0.00
				6266155.64	2348040.80	0.00	0.00
ROADWORK_FT	0	8.00	a	6266155.64	2348040.80	0.00	0.00
				6266157.90	2348340.79	0.00	0.00
ROADWORK_FT	0	8.00	a	6266157.90	2348340.79	0.00	0.00
				6266158.02	2348356.20	0.00	0.00
				6266160.28	2348640.78	0.00	0.00
ROADWORK_FT	0	8.00	a	6266160.28	2348640.78	0.00	0.00
				6266162.67	2348940.77	0.00	0.00
ROADWORK_FT	0	8.00	a	6266162.67	2348940.77	0.00	0.00
				6266163.60	2349057.53	0.00	0.00
				6266164.99	2349240.76	0.00	0.00
ROADWORK_FT	0	8.00	a	6266164.99	2349240.76	0.00	0.00
				6266167.26	2349540.75	0.00	0.00
ROADWORK_FT	0	8.00	a	6266167.26	2349540.75	0.00	0.00
				6266169.54	2349840.74	0.00	0.00
ROADWORK_FT	0	8.00	a	6266169.54	2349840.74	0.00	0.00
				6266171.81	2350140.73	0.00	0.00
ROADWORK_FT	0	8.00	a	6266171.81	2350140.73	0.00	0.00
				6266173.52	2350365.73	0.00	0.00
				6266174.09	2350440.72	0.00	0.00
ROADWORK_FT	0	8.00	a	6266174.09	2350440.72	0.00	0.00
				6266176.36	2350740.72	0.00	0.00
ROADWORK_FT	0	8.00	a	6266176.36	2350740.72	0.00	0.00
				6266178.31	2350997.38	0.00	0.00
ROADWORK_FT	0	8.00	a	6268775.12	2348327.05	0.00	0.00
				6268746.74	2347641.78	0.00	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)	

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Barrier(s)

Name	Sel.	M.	ID	Absorption	Z-Ext.	Cantilever	Height		Coordinates				
				left	right	horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(ft)	(ft)	(ft)	(ft)	(ft)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph)

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)

RoadsGeo

Name	Height		Coordinates				Dist	LSlope
	Begin	End	x	y	z	Ground	(ft)	(%)
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		