Bridge Point Rancho Cucamonga

NOISE IMPACT ANALYSIS

CITY OF RANCHO CUCAMONGA

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
L_w	Sound Power Level
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Bridge Point Rancho Cucamonga
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Bridge Point Rancho Cucamonga ("Project"). The Project site is located north of 4th Street and west of Etiwanda Avenue in the City of Rancho Cucamonga. The Project involves the construction and operation of two high-cube warehouse buildings (Building 1 and Building 2) with a combined building area of approximately 2,152,500 sf. For purposes of analysis, the Project is proposed to consist of 1,937,250 square feet of High-Cube Transload and Short-Term Storage Warehouse, and 215,250 square feet of High-Cube Cold Storage Warehouse.

The results of this Bridge Point Rancho Cucamonga Noise Impact Analysis are summarized below based on the significance criteria in Section 6 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. The summary of impacts shows that construction noise and concrete crushing may result in potentially significant impacts. However, these potential impacts will be reduced to less than significant with the recommended mitigation measures. All other impacts are considered less than significant without mitigation.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	9	*Less Than Significant*	-
Construction Noise	10	*Potentially Significant*	*Less Than Significant*
Construction Vibration		*Less Than Significant*	-
Nighttime Concrete Pour		*Less Than Significant*	-
Concrete Crushing		*Potentially Significant*	*Less Than Significant*

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1 INTRODUCTION

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

1.1 SITE LOCATION

The Project site is located north of 4th Street and west of Etiwanda Avenue at 12322 and 12434 4th Street in the City of Rancho Cucamonga. The Project site is located approximately 3 miles northeast of the Ontario International Airport (ONT) and roughly 0.5 miles east of Interstate 15. The Project location map is shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

Exhibit 1-B illustrates a preliminary site plan for the Project. The Project is anticipated to be developed within a single phase with an anticipated opening year of 2022. The proposed Project consists of the following uses:

- 1,957,500 square feet of High-Cube Fulfillment Center (Non-Sort) Warehouse (90% of the total square footage of Building 1 and Building 2)
- 217,500 square feet of High-Cube Cold Storage Warehouse (10% of the total square footage of Building 1 and Building 2)

The proposed Project will replace existing operational uses, which consists of 1,431,000 square feet of High-Cube Transload Short-Term Storage Warehouse (Without Cold Storage) use and 23,240 square feet of Free-Standing Discount Store use. The Project includes a planned 8-foot-high screen wall surrounding the northern and eastern loading dock areas.

The on-site Project-related noise sources are expected to include: outdoor loading dock activity, truck movements, roof-top air conditioning units, and trash enclosure activity. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site. This report assumes the Project will operate 24-hours daily for seven days per week. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown however any tenant would operate consistent with a high-cube warehouse.

EXHIBIT 1-A: LOCATION MAP

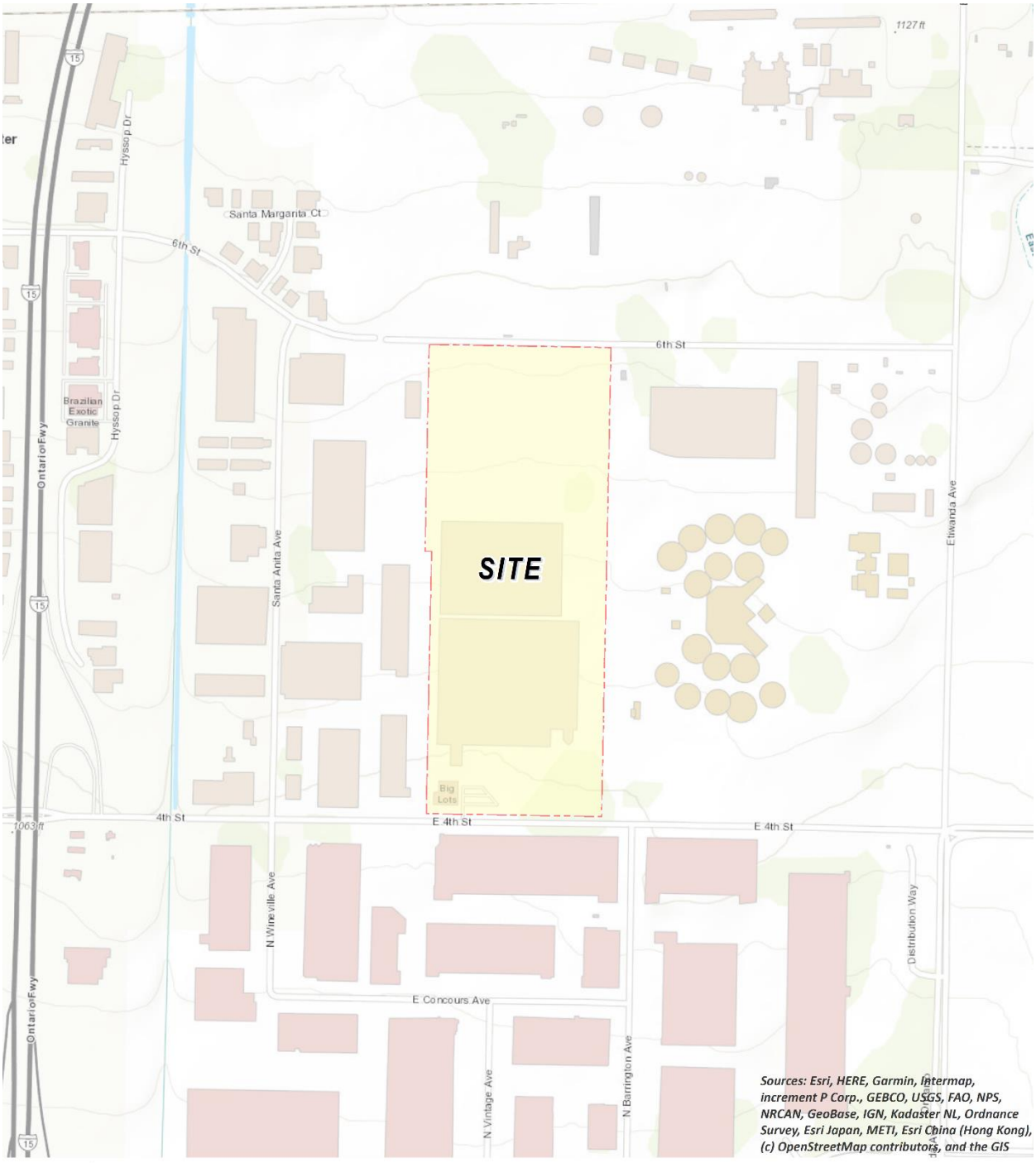
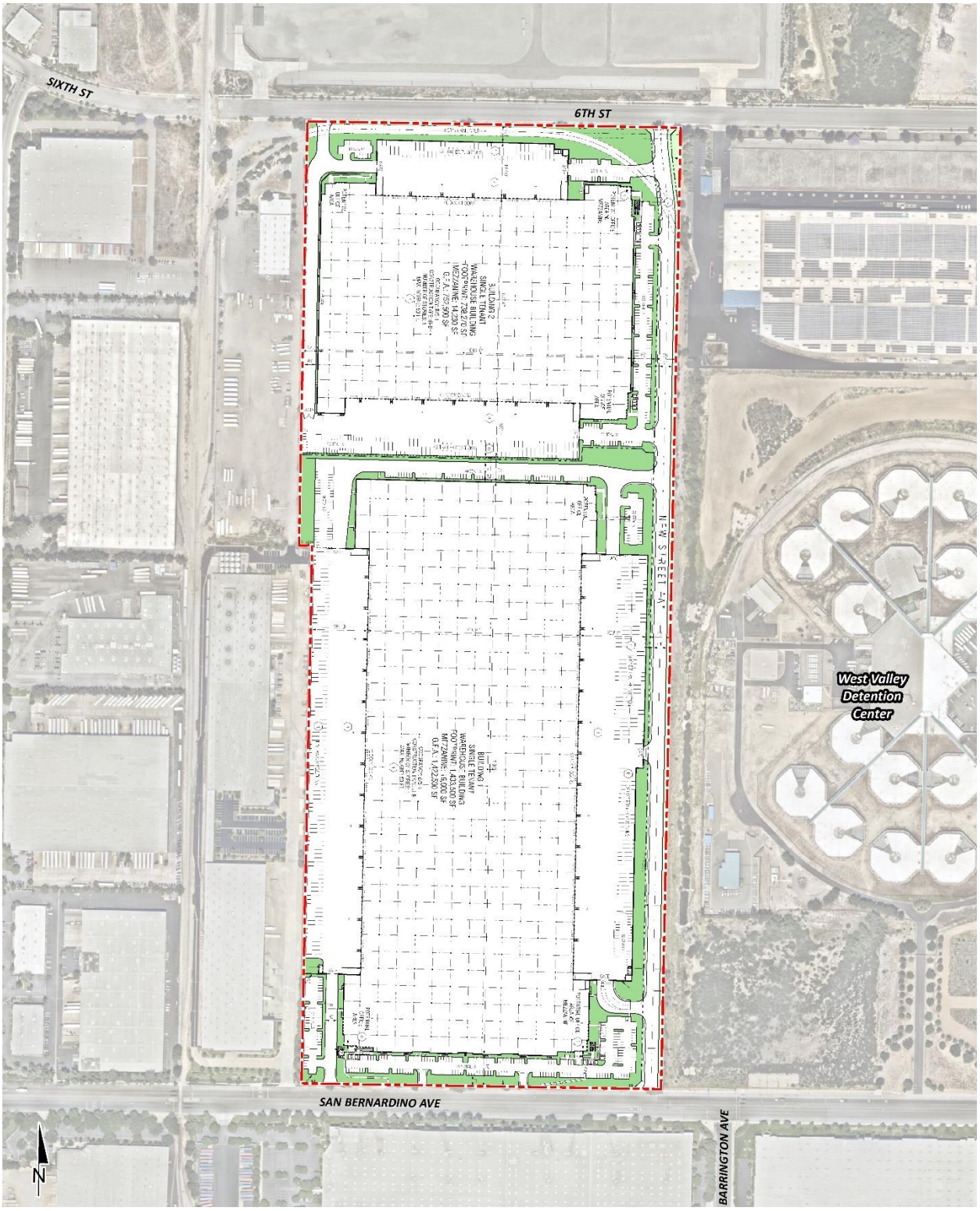


EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

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

at approximately 100 feet, which can cause serious discomfort (3). Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

To describe the time-varying character of environmental noise, the City of Rancho Cucamonga relies on the L_{25}, L_{17}, L_8 and L_{max}, percentile noise levels to describe the stationary source noise level limits. The percentile noise descriptors are the noise levels equaled or exceeded during 25 percent, 17 percent, and 8 percent of a stated time. Sound levels associated with the L_8 typically describe transient or short-term events, while levels associated with the L_{25} describe the base or typical noise conditions. The City of Rancho Cucamonga relies on the percentile noise levels to describe the stationary source noise level limits. While the L_{25} describes the noise levels occurring 25 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour.

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

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. Based on guidance from the U.S. Department of Transportation, Federal Highway Administration (FHWA), Office of Environment and Planning, Noise and Air Quality Branch, the way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling

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

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source (4).

2.3.3 ATMOSPHERIC EFFECTS

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

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an “out of sight, out of mind” effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearest residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure (4).

2.3.5 REFLECTION

Field studies conducted by the FHWA have shown that the reflection from barriers and buildings does not substantially increase noise levels (4). If all the noise striking a structure was reflected back to a given receiving point, the increase would be theoretically limited to 3 dBA. Further, not

all the acoustical energy is reflected back to same point. Some of the energy would go over the structure, some is reflected to points other than the given receiving point, some is scattered by ground coverings (e.g., grass and other plants), and some is blocked by intervening structures and/or obstacles (e.g., the noise source itself). Additionally, some of the reflected energy is lost due to the longer path that the noise must travel. FHWA measurements made to quantify reflective increases in traffic noise have not shown an increase of greater than 1-2 dBA; an increase that is not perceptible to the average human ear.

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source (4).

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, recreation areas or buildings where people normally sleep. Although the West Valley Detention Center is a temporary holding facility, there are beds at this facility for temporary stays. Therefore, as a conservative measure, the individuals held at the West Valley Detention Center are considered sensitive receptors for the purposes of this analysis.

As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized (5).

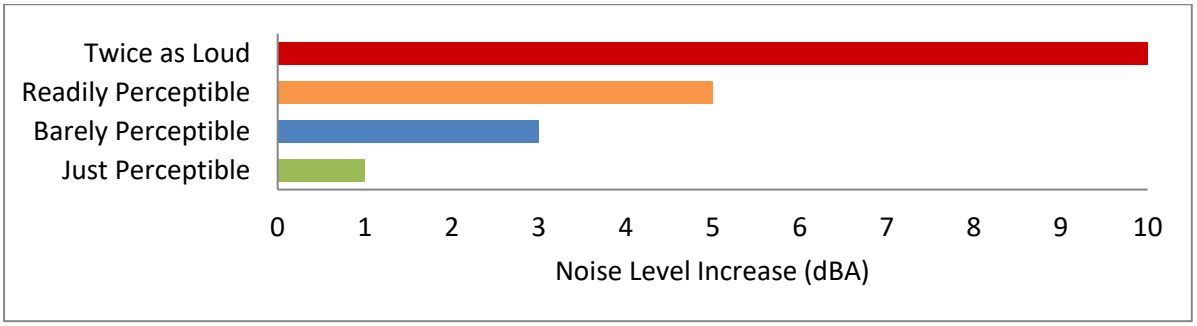
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise varies depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment (6). Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain (6). Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



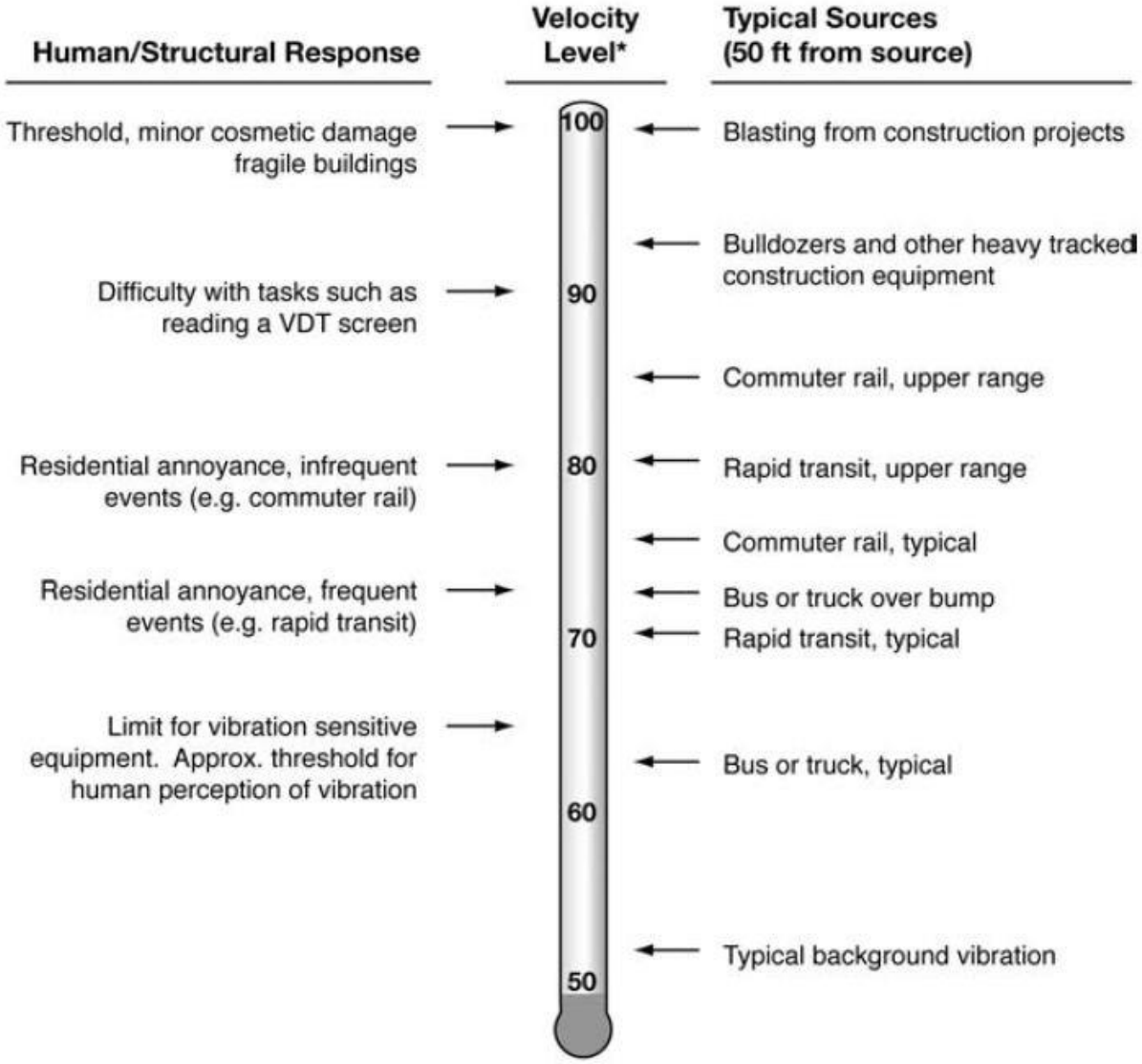
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (7), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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

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



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

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

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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR) (8). The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort (9). These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 CITY OF RANCHO CUCAMONGA PUBLIC HEALTH AND SAFETY ELEMENT

The City of Rancho Cucamonga has adopted a Public Health and Safety Element of the General Plan to, among other purposes, minimize noise impacts on the community and to coordinate with surrounding jurisdictions and other entities regarding noise control (10). The Public Health and Safety Element identifies noise-sensitive land uses and establishes compatibility guidelines for land use and noise. In addition, the Public Health and Safety Element identifies goals and policies to minimize the impacts of excessive noise levels throughout the community. The noise-related Public Health and Safety Element goals are as follows:

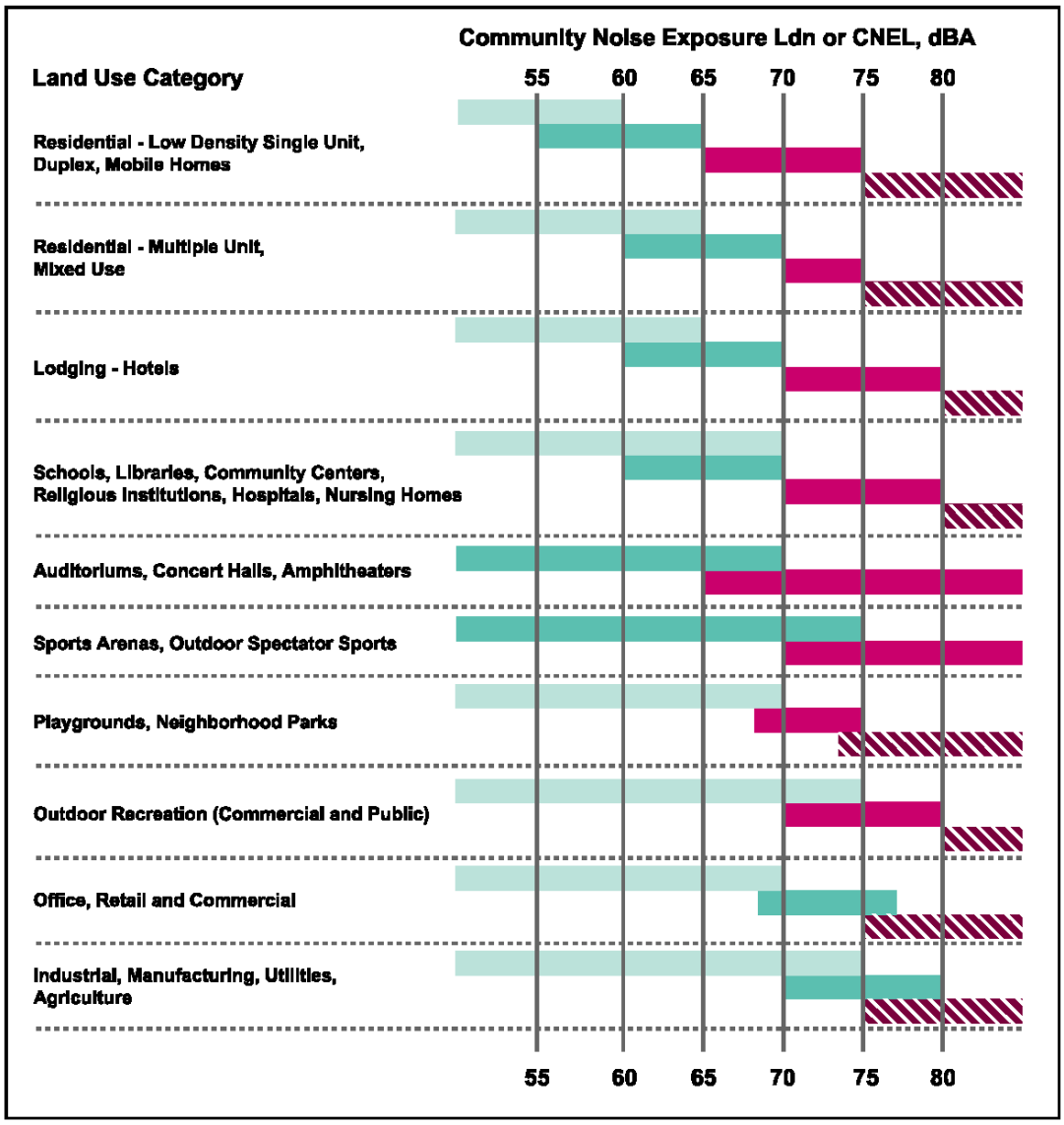
PS-13: Minimize the impacts of excessive noise levels throughout the community and adopt appropriate noise level requirements for all land uses.

PS-14: Minimize the impacts of transportation-related noise.

The noise criteria identified in the City of Rancho Cucamonga Public Health and Safety Element (Figure PS-8) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Noise Compatibility Matrix* describes categories of compatibility and not specific noise standards. The Project includes industrial (warehouse) land use which is considered *normally acceptable* with exterior noise levels of up to 75 dBA CNEL and considered *conditionally acceptable* with exterior noise levels approaching 80 dBA CNEL. For *conditionally acceptable* exterior noise levels, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy* (10).

EXHIBIT 3-A: NOISE COMPATIBILITY MATRIX



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 are included in the design. Conventional construction but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.

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 costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Bridge Point Rancho Cucamonga Project, operational source noise such as the expected outdoor loading dock activity, truck movements, roof-top air conditioning units, and trash enclosure activity are typically evaluated against standards established under a City's Municipal Code. For the City of Rancho Cucamonga, however, the operational noise standards are found in the Development Code.

The City of Rancho Cucamonga Development Code, Chapter 17.66 *Performance Standards*, Section 17.66.050 *Noise Standards*, contains the base exterior and interior noise level limits for residential (Noise Zone 1) and exterior noise level limits for all commercial (Noise Zone 2) land uses, as shown on Table 3-1. To control unnecessary, excessive, and annoying noise, the City of Rancho Cucamonga Municipal Code, Section 17.66.050[C][1] identifies the following operational exterior noise level limits. *It shall be unlawful for any person at any location within the city to create any noise or allow the creation of any noise on the property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured on the property line of any other property to exceed the basic noise level as adjusted below:*

a. Basic noise level for a cumulative period of not more than 15 minutes in any one hour; or

b. Basic noise level plus five dBA for a cumulative period of not more than ten minutes in any one hour; or

c. Basic noise level plus 14 dBA for a cumulative period of not more than five minutes in any one hour; or

d. Basic noise level plus 15 dBA at any time.

Table 17.66.050-1 *Residential Noise Limits* of the Development Code identifies a daytime (7:00 a.m. to 10:00 p.m.) base exterior noise level standard of 65 dBA, and a nighttime (10:00 p.m. to 7:00 a.m.) base exterior noise level standard of 60 dBA for residential land uses. In addition, Table 17.66.050-1 identifies a daytime base interior noise level standard of 50 dBA and a nighttime base interior noise level standard of 45 dBA for residential land uses. However, since typical building construction provides a minimum 25 dBA noise reduction with "windows closed", project related noise levels that comply with the exterior noise level limits generally satisfy the interior noise level limits. Section 17.66.050[G] identifies a daytime (7:00 a.m. to 10:00 p.m.) base exterior noise level standard of 70 dBA, and a nighttime (10:00 p.m. to 7:00 a.m.) base exterior noise level standard of 65 dBA for commercial and office properties. No base noise level adjustments or interior noise levels standards are identified in Section 17.66.050[G] for commercial properties.

Section 17.66.110[A][2] outlines the Class B performance standards for industrial activities within the General Industrial zoning district. The performance standards are designed to protect uses on adjoining sites from effects which could adversely affect their functional and economic viability. According to Table 17.66.110, Project related exterior operational noise levels from Class B General Industrial uses shall not exceed 80 dBA anywhere on the lot or 65 dBA at the

residential property line. Noise caused by motors vehicles and trains is exempted from this standard. The residential property line performance standard applies to the property line of any noise sensitive land use including the nearby West Valley Detention Center. The City of Rancho Cucamonga Development Code Performance Standards for noise are shown on Table 3-1 and included in Appendix 3.1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Receiving Land Use	Time Period	Exterior Noise Standards (dBA)[1]			
		L_{25} (15 mins)	L_{17} (10 mins)	L_8 (5 mins)	L_{max} (0 min)
Residential (Noise Zone 1)	Daytime	65	70	79	80
	Nighttime	60	65	74	75
All Commercial (Noise Zone 2)	Daytime	70	-[2]	-[2]	-[2]
	Nighttime	65	-[2]	-[2]	-[2]

[1] City of Rancho Cucamonga Development Code, Section 17.66.050 Noise Standards (Appendix 3.1).
[2] No base noise level adjustments are identified in Section 17.66.050[G] for commercial land use.
The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{25} is the noise level exceeded 25% of the time. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

The City of Rancho Cucamonga percentile noise descriptors are provided to ensure that the duration of the noise source is fully considered. However, due to the relatively constant intensity of the Project operational activities, the L_{25} (base exterior noise level limit) or the average L_{eq} noise level metrics best describes the outdoor loading dock activity, truck movements, roof-top air conditioning units, and trash enclosure activity. 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, a review of the existing ambient noise level measurements shows that the L_{eq} is generally greater than or equal to the L_{25}. Therefore, this noise study conservatively relies on the average L_{eq} sound level limits to describe the Project operational noise levels.

3.5 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project the City of Rancho Cucamonga has established limits to the hours of construction and noise levels. According to Section 17.66.050[D][4] of the City of Rancho Cucamonga Development Code the following activities are exempt from the provisions of the noise standards: (11) *Noise sources associated with, or vibration created by, construction, repair, remodeling, or grading of any real property or during authorized seismic surveys, provided said activities:*

a. When adjacent to a residential land use, school, church or similar type of use, the noise generating activity does not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a national holiday, and provided that noise levels created do not exceed the base noise level standard of 65 dBA when measured at the adjacent property line.

b. When adjacent to a commercial or industrial use, the noise generating activity does not take place between the hours of 10:00 p.m. and 6:00 a.m. on weekdays, including Saturday and

Sunday, and provided noise levels created do not exceed the standards of 70 dBA at the adjacent property line.

If the Project demonstrates compliance with the standards for both types of uses, the construction noise level impacts are considered exempt from the noise standards. The City of Rancho Cucamonga Development Code Noise Standards for construction activities are shown on Table 3-2 and included in Appendix 3.1.

TABLE 3-2: CONSTRUCTION NOISE STANDARDS

City	Receiving Land Use	Permitted Hours of Construction Activity	Construction Noise Level Standard (dBA Leq)[2]
Rancho Cucamonga[1]	Residential, School, & Church	7:00 a.m. to 8:00 p.m. Monday to Saturday; no activity on Sundays or national holidays	65
	Commercial or Industrial	6:00 a.m. to 10:00 p.m. Monday to Saturday; no activity on Sundays or national holidays	70

[1] City of Rancho Cucamonga Development Code, Section 17.66.050[D][4] Special Exclusions (Appendix 3.1).
[2] When measured at the adjacent property line.

3.6 CONSTRUCTION VIBRATION STANDARDS

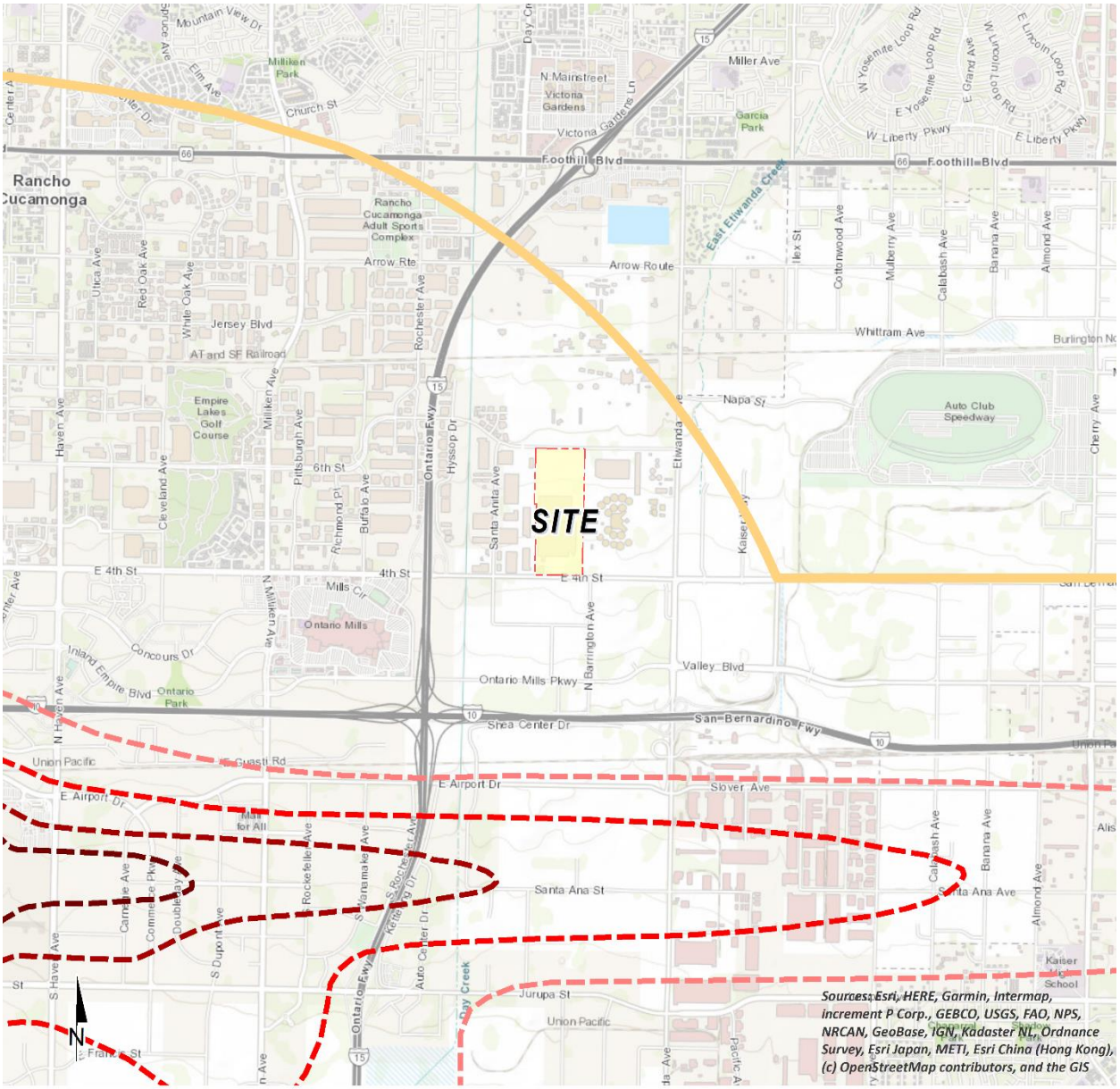
The City of Rancho Cucamonga Development Code, Section 17.66.070, identifies the City's vibration standards. However, Section 17.66.070[D] indicates that *vibrations from temporary construction/demolition and vehicles that leave the subject parcel (e.g., trucks, trains, and aircraft) are exempt from the provisions of this section* (11). Therefore, according to Section 17.66.070[D] construction/demolition and vehicle vibration activity associated with construction activity is considered exempt from the vibration standards of the City of Rancho Cucamonga. In addition to Development Code Section 17.66.070[D], the City of Rancho Cucamonga has identified vibration performance standards for Class B industrial activities within Section 17.66.110[A][2]. According to Table 17.66.110, *all uses shall be operated so as not to generate vibration discernible without instruments by the average persons beyond the lot upon which the source is located. Vibration caused by motor vehicles, trains, and temporary construction or demolition is exempted from this standard.*

Since the City of Rancho Cucamonga does not identify specific construction vibration level limits, this analysis relies on the Federal Transit Administration (FTA) methodology for the purpose of analyzing construction vibration impacts from the proposed project. The FTA *Transit Noise and Vibration Impact Assessment Manual* general vibration assessment methodology provides guidelines for the maximum-acceptable infrequent event vibration criteria for different types of land uses. These guidelines allow 90 VdB for industrial use, 84 VdB for office use and 78 VdB for daytime residential uses and 72 VdB for nighttime uses in buildings where people normally sleep (7).

3.7 AIRPORT LAND USE COMPATIBILITY

The Project site is located approximately 3 miles northeast of the Ontario International Airport (ONT). This places the Project site within the ONT Airport Influence Area according to Policy Map 2-1 of the *Ontario International Airport Land Use Compatibility Plan (ONT ALUCP).* The ONT ALUCP was amended July 2018 to promote compatibility between airport and the land uses that surround it (12). Since the Project site is located within the ONT Airport Influence Area, the Project is subject to the Noise Criteria established on Table 2-3 in the ONT ALUCP. As shown on Exhibit 3-B, the Project site is located within the ONT Airport Influence Area but outside the 60 dBA CNEL airport noise impact zone consistent with Policy Map 2-3. According to Table 2-3 of the ONT ALUCP, industrial land uses located outside the 60 dBA CNEL noise level contours of ONT, such as the Project, are considered *normally compatible land use.* For *normally compatible land use,* either the activities associated with the land use are inherently noisy or standard construction methods will sufficiently attenuate exterior noise to an acceptable indoor community noise equivalent level (CNEL).

EXHIBIT 3-B: ONT FUTURE AIRPORT NOISE CONTOURS



LEGEND:

- Project Site Boundary
- ONT Airport Influence Area

Ontario Airport Noise Impact Zone

- 60 dBA CNEL Noise Contour
- 65 dBA CNEL Noise Contour
- 70 dBA CNEL Noise Contour
- 75 dBA CNEL Noise Contour

Source: Ontario International ALUCP Compatibility Policy Map: Noise Impact Zones, Map 2-3 (July 2018 Amendment)

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4 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four 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 4-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, April 22, 2020 and Tuesday, September 29, 2020. Appendix 4.1 includes study area photos.

These measurements represent background ambient noise conditions during the mandatory State of California stay at home orders due to the Covid-19 pandemic. Based on a comparison of noise level measurements taken in December 2019, we were able to estimate a 2.5 dBA L_{eq} reduction in noise levels due to the stay-at-home order. Therefore, the noise levels presented below conservatively overstate the relative project noise level increases to compensate for the lower ambient noise level measurements.

4.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013 (13).

4.2 NOISE MEASUREMENT LOCATIONS

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

EXHIBIT 4-A: NOISE MEASUREMENT LOCATIONS

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence (7). In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

4.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 4.2 provides a summary of the existing hourly ambient noise levels described below.

TABLE 4-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Receiving Use	Description	Noise Level (dBA L_{eq})[2]		CNEL
			Daytime	Nighttime	
L1	Church	Located northwest of the Project site near 6th Street by the JKI Miracle Center | Christian Church at 12120 6th Street.	59.6	56.1	63.6
L2	Utility	Located east of the Project site on 6th Street by Chino Basin Municipal at 12811 6th Street.	59.7	61.3	67.6
L3	Hotel	Located southwest of the Project site by Rochester Avenue near Hyatt Place Ontario at 4760 E Mills Circle.	64.5	62.7	69.6
L4	Hotel	Located west of the Project site by the Courtyard by Marriott Ontario 11525 Mission Vista Drive.	53.7	56.8	63.0
L5	Detention Center	Located near northeastern boundary of the Project site near the West Valley Detention Center at 9500 Etiwanda Avenue.	55.6	61.2	67.2
L6	Detention Center	Located near the southeastern boundary of the Project site by the West Valley Detention Center at 9500 Etiwanda Avenue.	53.5	54.6	61.1

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

Table 4-1 provides the (energy or logarithmic average) hourly noise levels used to describe the daytime and nighttime ambient conditions and the calculated 24-hour CNEL. 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 4.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with surface streets. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations.

5 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, sensitive receiver locations identified below and shown on Exhibit 4-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, recreation areas or buildings where people normally sleep. Although the nearby West Valley Detention Center is a temporary holding facility, there are beds at this facility for temporary stays. Therefore, as a conservative measure, the individuals held at the West Valley Detention Center are considered sensitive receptors for the purposes of this analysis.

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, four receiver locations in the vicinity of the Project site were identified. A review of the study area shows that the Project site is located within an area developed for industrial use including the neighboring San Bernardino County – West Valley Detention Center. However, for the purpose this analysis the individuals held at the West Valley Detention Center and the temporary visitors at the Hyatt Place and Courtyard By Marriott Hotels are considered as noise sensitive receivers.

R1: Location R1 represents the noise sensitive JKI Miracle Center | Christian Church at 12120 6th Street, approximately 1,658 feet northwest of 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 noise sensitive West Valley Detention Center at 9500 Etiwanda Avenue, approximately 364 feet east of the Project site. Receiver R2 is placed at the building façade. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

R3: Location R3 represents the noise sensitive Hyatt Place Ontario at 4760 East Mills Circle, approximately 4,167 feet southwest of the Project site. R3 is placed at the building façade. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

R4: Location R4 represents the noise sensitive Courtyard by Marriott Ontario at 11525 Mission Vista Drive, approximately 5,321 feet west of the Project site. R4 is placed at the building façade. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

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 4.2. Other

sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

EXHIBIT 5-A: SENSITIVE RECEIVER LOCATIONS

6 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?

While the City of Rancho Cucamonga General Plan provides direction on noise compatibility, and the Rancho Cucamonga Development Code establishes noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases project related off-site traffic and operational noise levels are considered substantial for use under CEQA Guideline A. Therefore, this section identifies noise level increase thresholds used to describe the amount to which a given noise level increase is considered acceptable.

6.1 CEQA THRESHOLD NOT REQUIRING FURTHER ANALYSIS

Threshold C, above, does not require further analysis. As previously indicated in Section 3.7, the ONT Airport noise contour boundaries are presented on Exhibit 3-B of this report and show that the Project is considered *normally compatible* land use since it is located outside the 60 dBA CNEL noise impact zone.

6.2 INCREMENTAL NOISE LEVEL INCREASES

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the nearest receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of receivers to determine if a noise increase represents a significant adverse environmental impact (14). This approach recognizes that there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an effective way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged.

The Federal Interagency Committee on Noise (FICON) (15) 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 (14). 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 existing noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 6-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 6-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS

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

Federal Interagency Committee on Noise (FICON), 1992.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (2 p. 2_44).

6.3 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development.

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
  - are less than 60 dBA CNEL and the Project creates a 5 dBA CNEL or greater Project-related noise level increase: or
  - range from 60 to 65 dBA CNEL and the Project creates a 3 dBA CNEL or greater Project-related noise level increase: or
  - are greater than 65 dBA CNEL, and the Project creates a community noise level increase of greater than 1.5 dBA CNEL (FICON, 1992).
- When the noise levels at existing and future non-noise-sensitive land uses (e.g., office, commercial, industrial):
  - are less than the City of Rancho Cucamonga General Plan Public Health and Safety Element, Figure PS-8, normally acceptable 70 dBA CNEL and the Project creates a readily perceptible 5 dBA CNEL or greater Project related noise level increase: or
  - are greater than the City of Rancho Cucamonga General Plan Public Health and Safety Element, Figure PS-8, normally acceptable 70 dBA CNEL and the Project creates a barely perceptible 3 dBA CNEL or greater Project noise level increase.

OPERATIONAL NOISE

- If Project-related operational (stationary-source) noise levels exceed the exterior 65 dBA L_{eq} daytime or 60 dBA L_{eq} nighttime noise level standards at nearby noise sensitive residential receiver locations (City of Rancho Cucamonga Development Code, Section 17.66.050).
- If Project-related operational (stationary-source) noise levels exceed the exterior 70 dBA L_{eq} daytime or 65 dBA L_{eq} nighttime noise level standards at nearby commercial and office receiver locations (City of Rancho Cucamonga Development Code, Section 17.66.050[G]).
- If Project-related operational (stationary-source) noise levels exceed the Class B General Industrial uses of 65 dBA at the residential property line. The general industrial land use performance standard applies to the property line of any noise sensitive land use including the nearby West Valley Detention Center. (City of Rancho Cucamonga Development Code, Table 17.66.110).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
  - are less than 60 dBA L_{eq} and the Project creates a readily perceptible 5 dBA L_{eq} or greater Project-related noise level increase: or
  - range from 60 to 65 dBA L_{eq} and the Project creates a barely perceptible 3 dBA L_{eq} or greater Project-related noise level increase: or
  - already exceed 65 dBA L_{eq}, and the Project creates a community noise level increase of greater than 1.5 dBA L_{eq} (FICON, 1992).

CONSTRUCTION NOISE

- If Project-related construction activities adjacent to a residential land use, school, church or similar type of use occur between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a national holiday and the noise levels created exceed the base noise level standard of 65 dBA when measured at the adjacent property line(City of Rancho Cucamonga Development Code, Section 17.66.050 [D][4][a]);
- If Project-related construction activities adjacent to a commercial or industrial use, occur between the hours of 10:00 p.m. and 6:00 a.m. on weekdays, including Saturday and Sunday, and the noise levels created exceed the standards of 70 dBA at the adjacent property line (City of Rancho Cucamonga Development Code, Section 17.66.050 [D][4][b]);

CONSTRUCTION VIBRATION

- If Project-related construction activities create vibration levels which exceed the FTA guidelines for the maximum-acceptable vibration criteria of 90 VdB for industrial (workshop) use, 84 VdB for office use, 78 VdB for daytime residential uses and 72 VdB for nighttime uses in buildings where people normally sleep. (FTA *Transit Noise and Vibration Impact Assessment Manual)*

7 OFF-SITE TRAFFIC NOISE METHODS AND PROCEDURES

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

7.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108 (16). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels (17). Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis (18).

7.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 7-1 presents the roadway parameters used to assess the Project's off-site dBA CNEL transportation noise impacts. Table 7-1 identifies the seven study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Rancho Cucamonga General Plan, and the posted vehicle speeds. The ADT volumes used in this study area presented on Table 7-2 are based on the *Bridge Point Rancho Cucamonga High-Cube Fulfillment Center Traffic Memo*, prepared by Urban Crossroads, Inc. for the following (Non-Sort) traffic scenarios under both Without and With Project alternatives: Existing (2020), Opening Year Cumulative (OYC) (2022) including with and without the potential 6th Street extension, and Horizon Year (2040) (19). Since the proposed Project will replace existing uses, the net change in trips between the existing uses and the proposed use has been used to assess the off-site traffic noise levels.

The ADT volumes vary for each roadway segment based on the existing traffic volumes, background traffic, cumulative development traffic and the combination of Project traffic distributions. This analysis relies on a comparative evaluation of the off-site traffic noise impacts, without and with project ADT estimates derived from the *Bridge Point Rancho Cucamonga High-Cube Fulfillment Center Traffic Memo*.

TABLE 7-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Distance from Centerline to Receiving Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	50'	50
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	50'	50
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	60'	50
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	60'	50
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	44'	40
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	60'	55
7	4th St.	w/o Etiwanda Av.	Sensitive	60'	55
8	Street A	s/o Dwy. 8	Sensitive	30'	40

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] Distance to receiving land use is based upon the right-of-way distances.
[3] Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.

TABLE 7-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]							
			Existing 2020		Opening Year Cumulative (OYC) 2022 Without 6th Street Connection		Opening Year Cumulative (OYC) 2022 with 6th Street Connection		Horizon Year (HY) 2040	
			Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Etiwanda Av.	s/o Foothill Bl.	13,077	13,250	16,469	16,643	16,469	16,643	27,232	27,405
2	Etiwanda Av.	s/o Whittram Av.	17,260	17,471	21,789	22,001	21,789	21,963	37,211	37,384
3	Etiwanda Av.	s/o San Bernardino Av.	19,731	19,850	24,076	24,195	30,447	30,566	25,271	25,390
4	Foothill Bl.	w/o Etiwanda Av.	27,934	28,070	32,898	33,033	32,898	32,995	51,539	51,636
5	6th St.	w/o Etiwanda Av.	337	591	350	605	350	566	5,543	5,759
6	4th St.	e/o I-15 NB Ramps	17,250	17,809	19,899	20,458	19,899	20,420	22,189	22,710
7	4th St.	w/o Etiwanda Av.	17,800	17,963	20,471	20,635	26,219	26,382	22,831	22,994
8	Street A	s/o Dwy. 8	n/a	370	n/a	370	n/a	332	n/a	332

[1] Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.

To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix. Table 7-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Bridge Point Rancho Cucamonga High-Cube Fulfillment Center Traffic Memo*. Using the Project truck

trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 7-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 7-5 to 7-7 show the vehicle mixes used for the with Project traffic scenarios.

TABLE 7-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

[1] Typical Southern California vehicle mix.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 7-4: WITHOUT PROJECT VEHICLE MIX

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	85.80%	3.57%	10.63%	100.00%

Based on an existing 24-hour count taken at Etiwanda Avenue and San Bernardino Avenue. (Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.). Values rounded to the nearest one-hundredth.

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

TABLE 7-5: EXISTING (2020) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Etiwanda Av.	s/o Foothill Bl.	85.83%	3.57%	10.60%	100.00%
2	Etiwanda Av.	s/o Whittram Av.	85.85%	3.56%	10.59%	100.00%
3	Etiwanda Av.	s/o San Bernardino Av.	85.67%	3.61%	10.72%	100.00%
4	Foothill Bl.	w/o Etiwanda Av.	85.79%	3.57%	10.63%	100.00%
5	6th St.	w/o Etiwanda Av.	81.09%	5.25%	13.67%	100.00%
6	4th St.	e/o I-15 NB Ramps	85.46%	3.69%	10.85%	100.00%
7	4th St.	w/o Etiwanda Av.	85.87%	3.55%	10.58%	100.00%
8	Street A	s/o Dwy. 8	82.65%	5.15%	12.20%	100.00%

[1] Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 7-6: OYC (2022) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Etiwanda Av.	s/o Foothill Bl.	85.82%	3.57%	10.61%	100.00%
2	Etiwanda Av.	s/o Whittram Av.	85.84%	3.56%	10.60%	100.00%
3	Etiwanda Av.	s/o San Bernardino Av.	85.69%	3.61%	10.70%	100.00%
4	Foothill Bl.	w/o Etiwanda Av.	85.79%	3.57%	10.63%	100.00%
5	6th St.	w/o Etiwanda Av.	81.19%	5.21%	13.60%	100.00%
6	4th St.	e/o I-15 NB Ramps	85.50%	3.68%	10.82%	100.00%
7	4th St.	w/o Etiwanda Av.	85.86%	3.56%	10.59%	100.00%
8	Street A	s/o Dwy. 8	82.65%	5.15%	12.20%	100.00%

[1] Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 7-7: OYC (2022) WITH PROJECT WITH 6TH STREET VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Etiwanda Av.	s/o Foothill Bl.	85.82%	3.57%	10.61%	100.00%
2	Etiwanda Av.	s/o Whittram Av.	85.82%	3.57%	10.61%	100.00%
3	Etiwanda Av.	s/o San Bernardino Av.	85.71%	3.60%	10.69%	100.00%
4	Foothill Bl.	w/o Etiwanda Av.	85.78%	3.58%	10.64%	100.00%
5	6th St.	w/o Etiwanda Av.	79.93%	5.56%	14.51%	100.00%
6	4th St.	e/o I-15 NB Ramps	85.48%	3.68%	10.84%	100.00%
7	4th St.	w/o Etiwanda Av.	85.85%	3.56%	10.59%	100.00%
8	Street A	s/o Dwy. 8	80.66%	5.74%	13.60%	100.00%

[1] Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 7-8: HORIZON YEAR (2040) WITH VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Etiwanda Av.	s/o Foothill Bl.	85.81%	3.57%	10.62%	100.00%
2	Etiwanda Av.	s/o Whittram Av.	85.81%	3.57%	10.62%	100.00%
3	Etiwanda Av.	s/o San Bernardino Av.	85.70%	3.60%	10.70%	100.00%
4	Foothill Bl.	w/o Etiwanda Av.	85.79%	3.57%	10.64%	100.00%
5	6th St.	w/o Etiwanda Av.	85.22%	3.77%	11.01%	100.00%
6	4th St.	e/o I-15 NB Ramps	85.51%	3.67%	10.82%	100.00%
7	4th St.	w/o Etiwanda Av.	85.85%	3.56%	10.59%	100.00%
8	Street A	s/o Dwy. 8	80.66%	5.74%	13.60%	100.00%

[1] Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

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8 OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site traffic CNEL noise level impacts associated with the proposed Project, noise contours were developed based on the *Bridge Point Rancho Cucamonga High-Cube Fulfillment Center Traffic Memo* (19). Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

8.1 TRAFFIC NOISE CONTOURS

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

Tables 8-1 through 8-8 present a summary of the exterior dBA CNEL traffic noise level without barrier attenuation. Roadway segments are analyzed without Project and with Project conditions in each of the following timeframes: Existing (2020), Opening Year Cumulative (2022), Opening Year Cumulative (2022) with the 6th Street Connection, and Horizon Year (2040). Appendix 8.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

TABLE 8-1: EXISTING WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	74.8	105	225	485
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	76.0	126	271	584
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	76.0	150	323	697
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	77.5	189	408	879
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	58.4	RW	RW	RW
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.1	154	332	715
7	4th St.	w/o Etiwanda Av.	Sensitive	76.3	157	339	730
8	Street A	s/o Dwy. 8	Sensitive	n/a	n/a	n/a	n/a

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Street A does not exist for the without project conditions.

TABLE 8-2: EXISTING WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	74.9	105	227	489
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	76.0	127	273	587
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	76.0	151	326	703
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	77.5	190	409	882
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	61.8	RW	RW	58
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.4	159	343	738
7	4th St.	w/o Etiwanda Av.	Sensitive	76.3	158	340	732
8	Street A	s/o Dwy. 8	Sensitive	60.7	RW	RW	33

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 8-3: OYC (2022) WITHOUT PROJECT AND WITHOUT 6TH ST. CONNECTION NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	75.8	122	263	566
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	77.0	147	317	682
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	76.8	171	369	796
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	78.2	211	455	980
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	58.5	RW	RW	RW
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.8	169	365	786
7	4th St.	w/o Etiwanda Av.	Sensitive	76.9	173	372	801
8	Street A	s/o Dwy. 8	Sensitive	n/a	n/a	n/a	n/a

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Street A does not exist for the without project conditions.

TABLE 8-4: OYC (2022) WITH PROJECT AND WITHOUT 6TH ST. CONNECTION NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	75.9	123	264	569
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	77.1	148	318	685
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	76.9	173	372	801
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	78.2	212	456	983
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	61.9	RW	RW	58
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.9	174	375	809
7	4th St.	w/o Etiwanda Av.	Sensitive	76.9	173	373	804
8	Street A	s/o Dwy. 8	Sensitive	60.7	RW	RW	33

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 8-5: OYC (2022) WITHOUT PROJECT WITH 6TH ST. CONNECTION NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	75.8	122	263	566
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	77.0	147	317	682
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	77.9	200	432	930
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	78.2	211	455	980
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	58.5	RW	RW	RW
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.8	169	365	786
7	4th St.	w/o Etiwanda Av.	Sensitive	78.0	204	439	945
8	Street A	s/o Dwy. 8	Sensitive	n/a	n/a	n/a	n/a

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Street A does not exist for the without project conditions.

TABLE 8-6: OYC (2022) WITH PROJECT WITH 6TH ST. CONNECTION NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	75.9	123	264	569
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	77.1	148	318	685
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	77.9	202	434	936
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	78.2	212	456	982
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	61.8	RW	RW	58
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.9	174	375	808
7	4th St.	w/o Etiwanda Av.	Sensitive	78.0	204	440	947
8	Street A	s/o Dwy. 8	Sensitive	60.6	RW	RW	33

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 8-7: HORIZON YEAR (2040) WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	78.0	170	367	791
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	79.4	210	452	974
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	77.1	177	381	822
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	80.1	285	613	1322
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	70.5	48	103	221
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	77.2	182	392	845
7	4th St.	w/o Etiwanda Av.	Sensitive	77.4	186	400	862
8	Street A	s/o Dwy. 8	Sensitive	n/a	n/a	n/a	n/a

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Street A does not exist for the without project conditions.

TABLE 8-8: HORIZON YEAR (2040) WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	78.0	171	369	794
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	79.4	210	453	977
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	77.1	178	384	827
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	80.2	285	615	1324
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	70.8	50	108	232
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	77.4	187	402	867
7	4th St.	w/o Etiwanda Av.	Sensitive	77.4	186	401	864
8	Street A	s/o Dwy. 8	Sensitive	60.6	RW	RW	33

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

8.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the *Bridge Point Rancho Cucamonga High-Cube Fulfillment Center Traffic Memo*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 8-1 shows the Existing (2020) without Project conditions CNEL noise levels. The Existing (2020) without Project exterior noise levels are expected to range from 58.4 to 77.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-2 shows the Existing (2020) with Project conditions will range from 61.8 to 77.5 dBA CNEL. Table 8-9 shows that the Project off-site traffic noise level impacts will range from 0.0 to 3.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 6.3, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

8.3 OYC (2022) WITHOUT 6TH ST. CONNECTION PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 8-3 presents the Opening Year Cumulative (2022) without Project and without the 6th Street connection conditions CNEL noise levels. The Opening Year (2022) without Project and without the 6th Street connection exterior noise levels are expected to range from 58.5 to 78.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-4 shows that the Opening Year Cumulative (2022) with Project but without the 6th Street connection conditions will range from 61.9 to 78.2 dBA CNEL. Table 8-10 shows that the Project off-site traffic noise level increases will range from 0.0 to 3.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 6.3, land uses adjacent to the study area

roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

8.4 OYC (2022) WITH 6TH ST. CONNECTION PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 8-5 presents the Opening Year Cumulative (2022) without Project with 6th Street connection conditions CNEL noise levels. The Opening Year (2022) without Project with 6th Street connection exterior noise levels are expected to range from 58.5 to 78.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-6 shows that the Opening Year Cumulative (2022) with Project with 6th Street connection conditions will range from 61.8 to 78.2 dBA CNEL. Table 8-11 shows that the Project off-site traffic noise level increases will range from 0.0 to 3.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 6.3, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

8.5 HORIZON YEAR (2040) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 8-7 presents the Horizon Year (2040) without Project conditions CNEL noise levels. The Horizon Year (2040) without Project exterior noise levels are expected to range from 70.5 to 80.1 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-8 shows that the Horizon Year (2040) with Project conditions will range from 70.8 to 80.2 dBA CNEL. Table 8-12 shows that the Project off-site traffic noise level increases will range from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 6.3, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 8-9: EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	74.8	74.9	0.1	1.5	No
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	76.0	76.0	0.0	3.0	No
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	76.0	76.0	0.0	3.0	No
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	77.5	77.5	0.0	3.0	No
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	58.4	61.8	3.4	5.0	No
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.1	76.4	0.3	3.0	No
7	4th St.	w/o Etiwanda Av.	Sensitive	76.3	76.3	0.0	1.5	No

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria in Section 6.3?

TABLE 8-10: OYC (2022) WITH PROJECT WITHOUT 6TH ST. CONNECTION TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	75.8	75.9	0.1	1.5	No
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	77.0	77.1	0.1	3.0	No
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	76.8	76.9	0.1	3.0	No
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	78.2	78.2	0.0	3.0	No
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	58.5	61.9	3.4	5.0	No
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.8	76.9	0.1	3.0	No
7	4th St.	w/o Etiwanda Av.	Sensitive	76.9	76.9	0.0	1.5	No

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria in Section 6.3?

TABLE 8-11: OYC (2022) WITH PROJECT WITH 6TH ST. CONNECTION TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	75.8	75.9	0.1	1.5	No
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	77.0	77.1	0.1	3.0	No
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	77.9	77.9	0.0	3.0	No
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	78.2	78.2	0.0	3.0	No
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	58.5	61.8	3.3	5.0	No
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	76.8	76.9	0.1	3.0	No
7	4th St.	w/o Etiwanda Av.	Sensitive	78.0	78.0	0.0	1.5	No

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria in Section 6.3?

TABLE 8-12: HORIZON YEAR (2040) WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Etiwanda Av.	s/o Foothill Bl.	Sensitive	78.0	78.0	0.0	1.5	No
2	Etiwanda Av.	s/o Whittram Av.	Non-Sensitive	79.4	79.4	0.0	3.0	No
3	Etiwanda Av.	s/o San Bernardino Av.	Non-Sensitive	77.1	77.1	0.0	3.0	No
4	Foothill Bl.	w/o Etiwanda Av.	Non-Sensitive	80.1	80.2	0.1	3.0	No
5	6th St.	w/o Etiwanda Av.	Non-Sensitive	70.5	70.8	0.3	3.0	No
6	4th St.	e/o I-15 NB Ramps	Non-Sensitive	77.2	77.4	0.2	3.0	No
7	4th St.	w/o Etiwanda Av.	Sensitive	77.4	77.4	0.0	1.5	No

[1] Noise sensitive uses limited to noise sensitive residential land uses and the West Valley Detention Center.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria in Section 6.3?

9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 8, resulting from the operation of the proposed Bridge Point Rancho Cucamonga Project. Exhibit 9-A identifies the representative noise source locations used to assess the operational noise levels with the planned 8-foot-high screen wall surrounding the northern and eastern loading dock areas.

9.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. To present the potential worst-case noise conditions, this analysis assumes the Project would be operational 24 hours per day, seven days per week. Consistent with similar warehouse uses, the Project business operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: outdoor loading dock activity, truck movements, roof-top air conditioning units, and trash enclosure activity.

9.2 REFERENCE NOISE LEVELS

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

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013 (13).

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

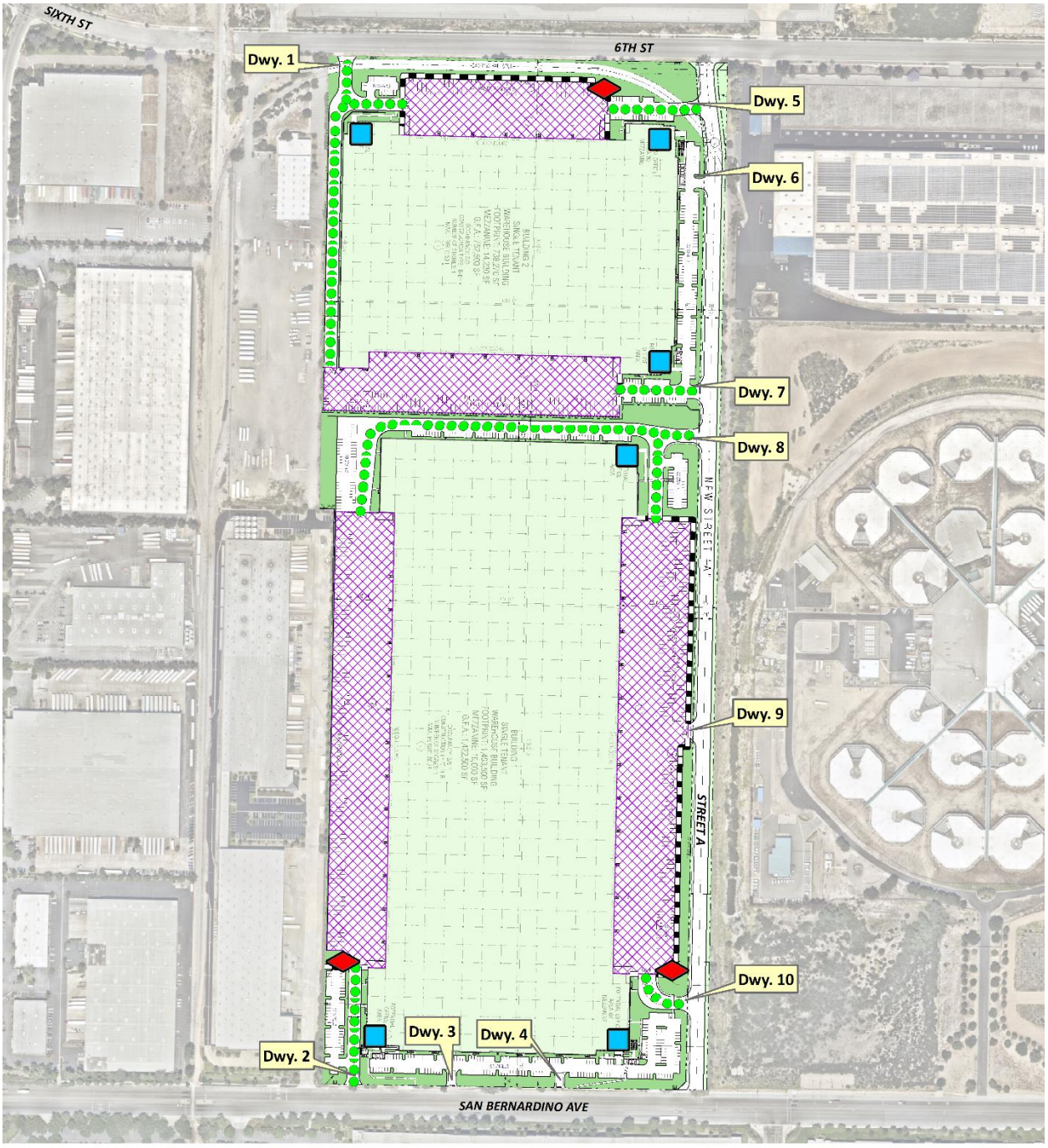


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Duration (hh:mm:ss)	Ref. Distance (Feet)	Noise Source Height (Feet)	Min./Hour[3]		Reference Noise Level (dBA L_{eq})		Sound Power Level (dBA)[4]
				Day	Night	@ Ref. Dist.	@ 50 Feet	
Outdoor Loading Dock Activity	00:14:00	30'	8'	60	60	70.1	65.7	111.5
Truck Movements	00:15:00	20'	8'	-[5]	-[5]	64.0	58.0	89.7
Roof-Top Air Conditioning Units[2]	96:00:00	5'	5'	39	28	77.2	57.2	88.9
Trash Enclosure Activity	00:00:32	8'	5'	5	5	72.7	56.8	89.0

[1] As measured by Urban Crossroads, Inc.
[2] Lennox SCA120 series 10-ton model packaged air conditioning unit.
[3] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.
[4] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.
[5] Truck Movements are calculate based on the number of events by time of day (See Table 9-2).

9.2.2 OUTDOOR LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical outdoor operational noise activities associated with the Project. This includes truck idling, reefer activity (refrigerator truck/cold storage), deliveries, backup alarms, trailer docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background operation activities. Since the noise levels generated by cold storage loading dock activity can be slightly higher due to the use of refrigerated trucks or reefers, this analysis conservatively assumes that all loading dock activity is associated with cold storage facilities, even though only 10 percent cold storage is anticipated. (19) To describe the loading dock activities for cold storage, a reference noise level measurement was collected at the Nature's Best distribution facility located at 16081 Fern Avenue in the City of Chino.

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

9.2.3 TRUCK MOVEMENTS

The truck movements reference noise level measurement were taken at the southern entry gate of the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino over a 15-minute period and represents multiple noise sources

producing a reference noise level of 58.0 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for the entry rattling and squeaking during normal opening and closing operations, the gate closure equipment, truck engines idling outside the entry gate, truck movements through the entry gate, and truck movement activities.

Consistent with the *Bridge Point Rancho Cucamonga High-Cube Fulfillment Center Traffic Memo*, the (non-sort) truck movements by driveway location are anticipated to contribute 4,008 daily trips (actual vehicles) including 536 truck trip-ends per day. All driveways have full access for both passenger cars and trucks except for driveways 3, 4 and 6 with full access for passenger cars only and Driveways 9 and 10 with full access for trucks only.

This noise study relies on the actual Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of individual truck trips on the study area roadway network. Using the estimated number of truck trips in combination with time-of-day vehicle splits, the number of truck movements by driveway location were calculated. As shown on Table 9-2, this information is then used to calculate the truck movements operational noise source activity based on the number of events by time of day.

TABLE 9-2 MOVEMENTS BY DRIVEWAY LOCATION

Truck Movement Location[1]	Total Project Truck Trips[2]	Trip Dist.[3]		Truck Trips by Location[4]	Time of Day Vehicle Splits[5]			Truck Movements[6]		
		In	Out		Day	Evening	Night	Day	Evening	Night
Driveway 1	536	5%	5%	27	86.50%	2.70%	10.80%	23	1	3
Driveway 2		35%	35%	188	86.50%	2.70%	10.80%	163	5	20
Driveway 5		15%	15%	80	86.50%	2.70%	10.80%	69	2	9
Driveway 7		15%	15%	80	86.50%	2.70%	10.80%	69	2	9
Driveway 8		5%	5%	27	86.50%	2.70%	10.80%	23	1	3
Driveway 9		10%	10%	54	86.50%	2.70%	10.80%	47	1	6
Driveway 10		15%	15%	80	86.50%	2.70%	10.80%	69	2	9

[1] Driveway locations as shown on Exhibit 9-A.
[2] Project truck trips based on Table 4 of the Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.
[3] Project truck trip distribution according to Exhibits 3A and 3B of the Bridge Point High-Cube Fulfillment Center Traffic Memo, Urban Crossroads, Inc.
[4] Calculated trip trucks per location represents the product of the total (inbound and outbound) project truck trips by and the trip distribution.
[5] Heavy truck time of day vehicle splits as shown on Table 7-3.
[6] Calculated time of day truck movements by location.

9.2.4 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements were collected from a Lennox SCA120 series 10-ton model packaged air conditioning unit. At 5 feet from the roof-top air conditioning unit, the exterior noise levels were measured at 77.2 dBA L_{eq}. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the

nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings. This reference noise level describes the expected roof-top air conditioning units located 5 feet above the roof for the planned air conditioning units at the Project site.

9.2.5 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for each of the Project buildings. Typical trash enclosure activities are estimated to occur for 5 minutes per hour.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels. This includes the additional noise attenuation provided by the existing intervening building structures and noise barriers located between the Project and the nearest receiver locations. Using the ISO 9613 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources.

While sound pressure levels (e.g. L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish as a result of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces.

Appendix 9.1 provides the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

9.4 PROJECT OPERATIONAL NOISE LEVELS

The operational noise levels describe the expected noise level impacts associated with typical warehouse storage uses including the planned 8-foot-high screen wall surrounding the northern and eastern loading dock areas. It is expected that the Project related operational noise levels with be generally consistent with the operational noise source activity associated with the previous Big Lots warehouse land use.

Using the reference noise levels to represent the proposed Project operations that include outdoor loading dock activity, truck movements, roof-top air conditioning units, and trash enclosure activity, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Tables 9-3 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 35.5 to 44.5 dBA L_{eq}. The daytime operational noise levels at the eastern property line adjacent to the noise sensitive West Valley Detention Center is estimated at 59.9 dBA L_{eq}.

TABLE 9-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	PL[2]
Loading Dock Activity	44.4	53.3	35.4	35.8	59.9
Truck Movements	23.4	27.4	17.3	15.9	26.8
Roof-Top Air Conditioning Units	21.0	27.1	14.5	12.5	28.4
Trash Enclosure Activity	8.8	14.8	0.1	2.4	18.2
Total (All Noise Sources)	**44.5**	**53.3**	**35.5**	**35.9**	**59.9**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.
[2] Represents the property line of the noise sensitive West Valley Detention Center.

Table 9-4 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 35.4 to 53.3 dBA L_{eq}. The nighttime operational noise levels at the eastern property line adjacent to the noise sensitive West Valley Detention Center is estimated at 59.9 dBA L_{eq}. The differences between the daytime and nighttime noise levels is largely related to the duration of noise activity (Table 9-1) and the number of Truck Movements (Table 9-2).

TABLE 9-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	PL[2]
Loading Dock Activity	44.4	53.3	35.4	35.8	59.9
Truck Movements	14.5	18.6	8.3	6.9	17.9
Roof-Top Air Conditioning Units	18.6	24.7	12.1	10.1	26.0
Trash Enclosure Activity	7.8	13.8	1.4	1.4	17.3
Total (All Noise Sources)	**44.4**	**53.3**	**35.4**	**35.8**	**59.9**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.
[2] Represents the property line of the noise sensitive West Valley Detention Center.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Rancho Cucamonga exterior noise level standards at the nearest noise-sensitive receiver locations and at the eastern property line adjacent to the noise sensitive West Valley Detention Center. Table 9-5 shows the operational noise levels associated with Bridge Point Rancho Cucamonga Project will satisfy the City of Rancho Cucamonga 65 dBA L_{eq} daytime and 60 dBA L_{eq} nighttime exterior noise level standards at the nearest receiver locations. In addition, Table 9-5 shows that the daytime and nighttime Project-related operational (stationary-source) including the planned 8-foot-high screen wall surrounding the northern and eastern loading dock areas will satisfy the General Industrial zoning district Class B (daytime and nighttime) performance standards of 65 dBA at the residential property line (City of Rancho Cucamonga Development Code, Table 17.66.110). Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-5: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	44.5	44.4	65	60	No	No
R2	53.3	53.3	65	60	No	No
R3	35.5	35.4	65	60	No	No
R4	35.9	35.8	65	60	No	No
PL[5]	59.9	59.9	65	65	No	No

[1] See Exhibit 5-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-3 and 9-4.
[3] City of Rancho Cucamonga Development Code, Section 17.66.050 & 17.66.110 Noise Standards.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
[5] Represents the property line of the noise sensitive West Valley Detention Center.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

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

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level increases to the existing ambient noise environment. As indicated on Tables 9-6 and 9-7, the Project will generate daytime and nighttime operational noise level increases ranging from 0.0 to 2.9 dBA L_{eq} at the receiver locations. Project operational noise level increases are not provided at the property line since this location does not represent an area of frequent human use. In addition, it unlikely that individuals will perceive an increase in the project operation noise levels at the property line but instead at receiver location R2 representing the West Valley Detention Center. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented in Section 6.3. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 9-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Noise Sensitive Land Use?	Increase Criteria[7]	Increase Criteria Exceeded?
R1	44.5	L1	59.6	59.7	0.1	Yes	5	No
R2	53.3	L6	53.5	56.4	2.9	Yes	5	No
R3	35.5	L3	64.5	64.5	0.0	Yes	3	No
R4	35.9	L4	53.7	53.8	0.1	Yes	5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 9-3.
[3] Reference noise level measurement locations as shown on Exhibit 4-A.
[4] Observed daytime ambient noise levels as shown on Table 4-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown in Section 6.3.

TABLE 9-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Noise Sensitive Land Use?	Increase Criteria[7]	Increase Criteria Exceeded?
R1	44.4	L1	56.1	56.4	0.3	Yes	5	No
R2	53.3	L6	54.6	57.0	2.4	Yes	5	No
R3	35.4	L3	62.7	62.7	0.0	Yes	3	No
R4	35.8	L4	56.8	56.8	0.0	Yes	5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 9-4.
[3] Reference noise level measurement locations as shown on Exhibit 4-A.
[4] Observed nighttime ambient noise levels as shown on Table 4-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown in Section 6.3.

10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations including the potential 6th Street railroad spur crossing connection, in relation to the nearest sensitive receiver locations previously described in Section 5. To prevent high levels of construction noise from impacting noise-sensitive land uses, City of Rancho Cucamonga Development Code Section 17.66.050[D][4], exempts noise sources associated with construction from the provision of the noise standards;

a. When adjacent to a residential land use, school, church or similar type of use, the noise generating activity does not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a national holiday, and provided that noise levels created do not exceed the base noise level standard of 65 dBA when measured at the adjacent property line.

b. When adjacent to a commercial or industrial use, the noise generating activity does not take place between the hours of 10:00 p.m. and 6:00 a.m. on weekdays, including Saturday and Sunday, and provided noise levels created do not exceed the standards of 70 dBA at the adjacent property line.

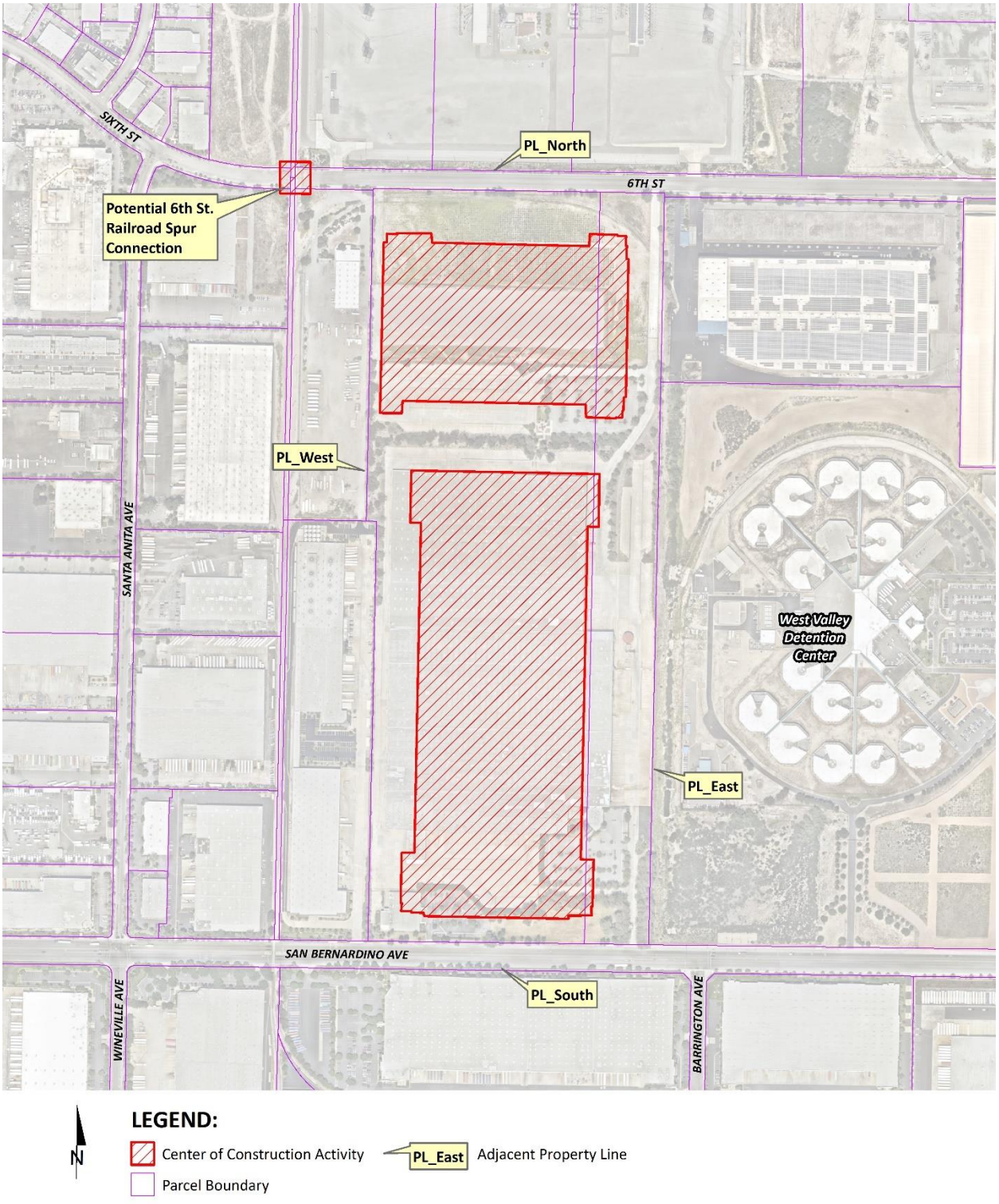
10.1 CONSTRUCTION NOISE LEVELS

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

- Demolition
- Grading
- Utilities/Infrastructure
- Paving
- Building Construction/Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels with multiple pieces of equipment operating simultaneously to conservatively estimate Project construction noise levels.

EXHIBIT 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS



10.2 TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project typical construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 10-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet. Construction noise generated from concrete crushing activities and nighttime concrete pours are addressed separately, below.

TABLE 10-1: TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

Area	Phase Name	Construction Stage	Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Highest Reference Noise Level (dBA L_{eq})
Overall Site	Site Work	Demolition	Demolition Activity	67.9	75.3
			Scraper, Water Truck, & Dozer Activity	75.3	
			Water Truck Pass-By & Backup Alarm	71.9	
		Grading	Rough Grading Activities	73.5	73.5
			Water Truck Pass-By & Backup Alarm	71.9	
			Construction Vehicle Activities	67.5	
Bldg. 1 & Bldg. 2	Site Work	Utilities/ Infrastructure	Foundation Trenching	68.2	71.6
			Framing	62.3	
			Concrete Mixer Backup Alarms & Air Brakes	71.6	
		Paving	Concrete Mixer Truck Movements	71.2	71.2
			Concrete Paver Activities	65.6	
			Concrete Mixer Pour & Paving Activities	65.9	
	Vertical Cons.	Building Construction/ Architectural Coating	Backhoe	64.2	67.5
			Crane	62.3	
			Construction Vehicle Activities	67.5	
			Air Compressors	65.2	
			Generator	64.9	
			Crane	62.3	

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

10.3 TYPICAL CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts with multiple pieces of equipment operating simultaneously at the nearest sensitive receiver locations were completed. The reference noise level measurements were collected from existing construction operations with similar equipment as those expected with the Project. While the construction size, scope of work, and ambient noise levels varies for each of the reference noise level measurements, each piece of construction equipment fully represents the expected noise levels for each activity. The construction noise analysis does not rely on any one reference noise level to fully describe the potential impacts. Rather, a combination of individual construction noise level measurements is used to describe typical activities for each stage of construction. As shown on Table 10-2, the unmitigated construction noise levels are expected to range from 66.4 to 68.9 dBA L_{eq} at the parcel boundary of adjacent uses. Appendix 10.1 includes the unmitigated typical construction CadnaA noise model calculations.

TABLE 10-2: UNMITIGATED TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Adjacent Property Line[1]	Unmitigated Construction Noise Levels (dBA L_{eq})					
	Demolition	Grading	Utilities/ Infrastructure	Paving	Building Construction/ Arch. Coating	Highest Levels[2]
North	66.4	64.6	62.7	62.3	58.6	66.4
South	66.9	65.1	63.2	62.8	59.1	66.9
East	67.6	65.8	63.9	63.5	59.8	67.6
West	68.9	67.1	65.2	64.8	61.1	68.9

[1] Adjacent property line as shown on Exhibit 10-A.

[2] Construction noise level calculations based on distance from the center of project construction activity to the property line of adjacent uses. The unmitigated CadnaA construction noise model inputs are included in Appendix 10.1.

10.4 TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only construction noise levels are evaluated against exterior noise level thresholds established by Section 17.66.050[D][4] City of Rancho Cucamonga Development at the adjacent property line. As shown on Table 10-3, the estimated construction noise levels at the adjacent industrial uses to the north, south and west will satisfy the 70 dBA L_{eq} construction noise level standard. However, the construction noise levels at the noise sensitive West Valley Detention Center property line to the east will exceed the City of Rancho Cucamonga construction noise level standard 65 dBA L_{eq}. Therefore, the unmitigated noise impact due to Project construction activities is considered *potentially significant*.

TABLE 10-3: UNMITIGATED TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Adjacent Property Line[1]	Use	Construction Noise Levels (dBA L_{eq})		
		Highest Construction[2]	Construction Standard[3]	Threshold Exceeded?[4]
North	Industrial	66.4	70	No
South	Industrial	66.9	70	No
East	Detention Center	67.6	65	Yes
West	Industrial	68.9	70	No

[1] Adjacent property line as shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the center of project construction activity to the property line of adjacent uses as shown on Table 10-2.
[3] Construction noise level standards as shown on Table 3-2.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

Therefore, a minimum 6-foot-high temporary construction noise barrier at the east Project site boundary is required to reduce the typical construction noise levels as shown on Exhibit 10-B. As shown on Table 10-4, the mitigated construction noise levels are expected to range from 62.1 to 68.9 dBA L_{eq} at the parcel boundary of adjacent uses. Appendix 10.2 includes the mitigated typical construction CadnaA noise model calculations.

TABLE 10-4: MITIGATED TYPICAL CONSTRUCTION NOISE LEVELS

Adjacent Property Line[1]	Mitigated Construction Noise Levels (dBA L_{eq})					
	Demolition	Grading	Utilities/ Infrastructure	Paving	Building Construction/ Arch. Coating	Highest Levels[2]
North	66.4	64.6	62.7	62.3	58.6	66.4
South	66.9	65.1	63.2	62.8	59.1	66.9
East	62.1	60.3	58.4	58.0	54.3	62.1
West	68.9	67.1	65.2	64.8	61.1	68.9

[1] Adjacent property line as shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the center of project construction activity to the property line of adjacent uses. The mitigated CadnaA construction noise model inputs are included in Appendix 10.2.

Table 10-5 shows that the mitigated construction noise levels will satisfy the City of Rancho Cucamonga construction noise level standard 65 dBA L_{eq} at the adjacent noise sensitive property line to the east. With the required 6-foot-high temporary noise barrier, the mitigated construction noise impacts are considered *less than significant* at adjacent property lines to the north, south, east, and west.

TABLE 10-5: MITIGATED TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Adjacent Property Line[1]	Use	Construction Noise Levels (dBA L_{eq})		
		Highest Construction[2]	Construction Standard[3]	Threshold Exceeded?[4]
North	Industrial	66.4	70	No
South	Industrial	66.9	70	No
East	Detention Center	62.1	65	No
West	Industrial	68.9	70	No

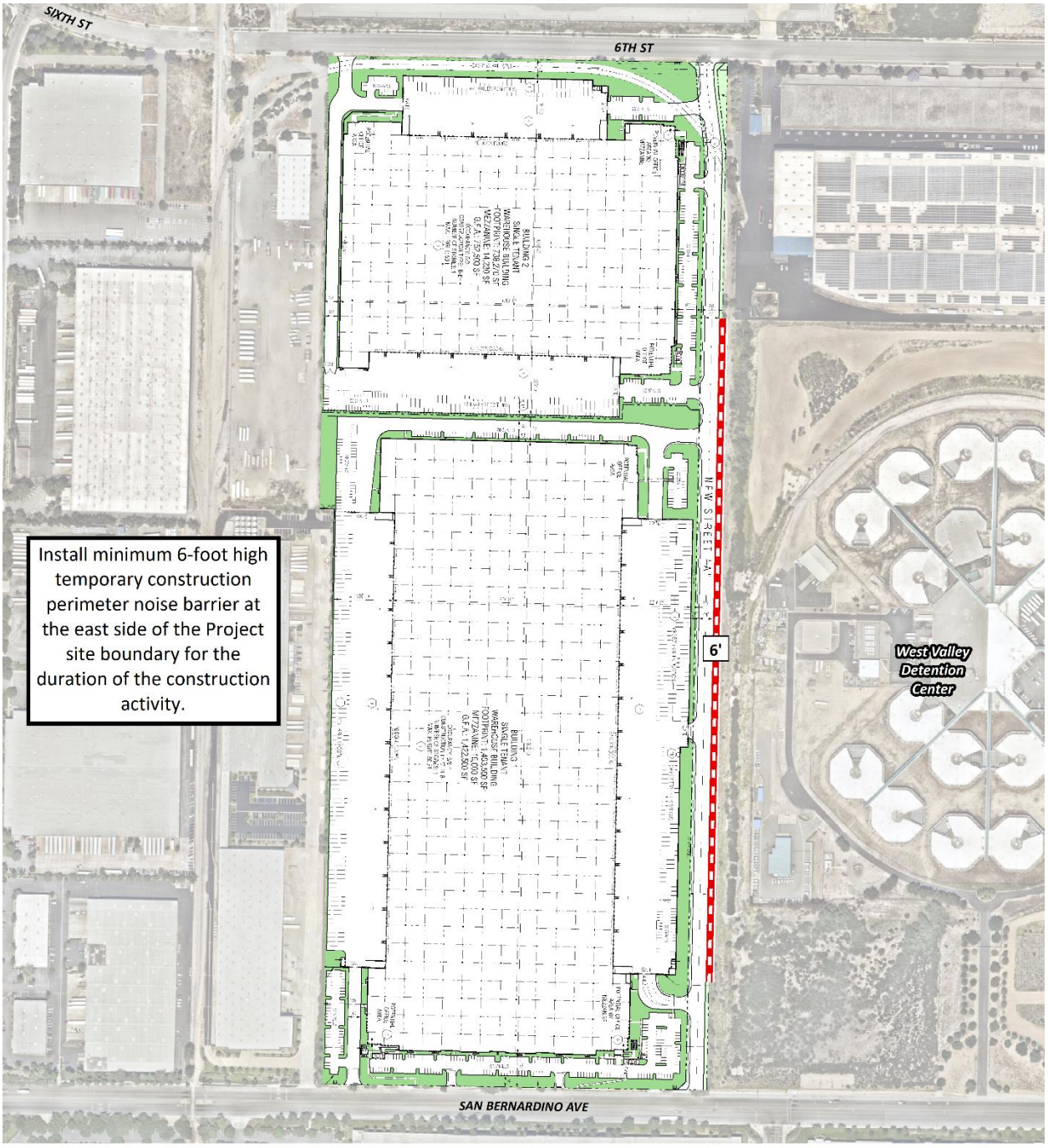
[1] Adjacent property line as shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the center of project construction activity to the property line of adjacent uses as shown on Table 10-4.
[3] Construction noise level standards as shown on Table 3-2.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.5 PROJECT CONSTRUCTION NOISE MITIGATION MEASURES

Though construction noise is temporary and intermittent, and will not present any long-term impacts, the following project construction noise mitigation measures shall be provided.

- To reduce construction noise at the West Valley Detention Center by a minimum of 2.6 dBA, the contractor shall install a minimum 6-foot-high temporary construction perimeter noise barrier at the east of the Project site boundary for the duration of construction activities. The limits of the noise barrier are shown on Exhibit 10-B. The noise control barrier shall include the following:
    - The noise control barriers must present a solid face from top to bottom.
    - The noise barrier shall be constructed using one of the following materials with no decorative cutouts or line-of-sight openings between shielded areas and the noise source:
        - An acoustical blanket (e.g. vinyl acoustic curtains, quilted blankets, or equivalent) attached to the construction site perimeter fence or equivalent temporary fence posts.
        - Any combination of these construction materials satisfying a weight of at least 4 pounds per square foot of face area.
    - The noise barriers shall be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

EXHIBIT 10-B: CONSTRUCTION NOISE MITIGATION MEASURES



10.6 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

Nighttime concrete pouring activities could occur as a part of Project construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours. Since the nighttime concrete pours will take place outside the permitted City of Rancho Cucamonga Development Code, Section 17.66.050[D][4] hours of 7:00 a.m. to 8:00 p.m. on any day except Sundays or national holidays, the Project Applicant will be required to obtain authorization for nighttime work from the City of Rancho Cucamonga. Table 10-6 shows the mitigated concrete pour activities (paving) noise levels with the required 6-foot-high temporary noise barrier will range from 58.0 to 64.8 dBA $L_{eq.}$ at the parcel boundary of adjacent uses. With the required 6-foot-high temporary noise barrier, the mitigated nighttime concrete noise impacts are considered *less than significant* at adjacent property lines to the north, south, east, and west.

TABLE 10-6: MITIGATED NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Adjacent Property Line[1]	Use	Construction Noise Levels (dBA L_{eq})		
		Paving Construction[2]	Construction Standard[3]	Threshold Exceeded?[4]
North	Industrial	62.3	70	No
South	Industrial	62.8	70	No
East	Detention Center	58.0	65	No
West	Industrial	64.8	70	No

[1] Adjacent property line as shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the center of project construction activity to the property line of adjacent uses as shown on Table 10-4.
[3] Construction noise level standards as shown on Table 3-2.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.7 TYPICAL CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA) (7). However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used.

Ground vibration levels associated with various types of construction equipment are summarized on Table 10-7. It should be noted that pile driving is not required for the Project. This list includes vibration source levels for a hoe ram or breaker representing a percussion hammer fitted to an excavator for breaking concrete. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To

describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $L_{VdB}(D) = L_{VdB}(25\text{ ft}) - 30\log(D/25)$

TABLE 10-7: VIBRATION SOURCE LEVELS FOR TYPICAL CONSTRUCTION EQUIPMENT

Equipment	Vibration Decibels (VdB) at 25 feet
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large bulldozer	87
Hoe Ram (Breaker)	87

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 10-8 presents the expected typical construction equipment vibration levels at the nearest receiver locations. At distances ranging from 364 feet to 5,321 feet from typical Project construction activities (at the Project site boundary), construction vibration levels are estimated to range from 17.2 to 52.1 VdB and will remain below the FTA Transit Noise and Vibration Impact Assessment Manual maximum acceptable vibration criteria of 78 VdB for daytime residential uses at all receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site. Moreover, the vibration levels reported at the sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 10-8: TYPICAL CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance to Construction Activity (Feet)	Receiver Vibration Levels (VdB)[2]					Threshold VdB[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels		
R1	1,248'	7.1	28.1	35.1	36.1	36.1	78	No
R2	364'	23.1	44.1	51.1	52.1	52.1	78	No
R3	4,167'	0.0	12.3	19.3	20.3	20.3	78	No
R4	5,321'	0.0	9.2	16.2	17.2	17.2	78	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 10-5.
[3] FTA Transit Noise and Vibration Impact Assessment maximum acceptable vibration criteria as shown in Section 6.3.
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

10.8 CONCRETE CRUSHING REFERENCE NOISE LEVELS

An additional analysis was completed to assess potential noise level impacts due to concrete crushing activities planned near the eastern project site boundary. Exhibit 10-C shows the location of the planned concrete crushing activity area in relation to the receiver locations. The concrete crushing construction noise analysis was prepared using reference construction

equipment noise levels from the Federal Highway Administration (FHWA) published in the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels (20). Table 10-9 provides a summary of the reference average L_{eq} noise levels used to describe concrete crushing construction activities. The reference noise level summary describes construction activity noise levels with multiple pieces of concrete construction equipment operating simultaneously and includes source noise levels for a hoe ram or breaker representing a percussion hammer fitted to an excavator for breaking concrete.

TABLE 10-9: CONCRETE CRUSHING REFERENCE NOISE LEVELS

Construction Stage	Typical Equipment	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Highest Reference Noise Level (dBA L_{eq})
Concrete Crushing	Impact Hammer (hoe ram)	83	83
	Front End Loader	75	
	Dump Truck	72	

[1] FHWA's Roadway Construction Noise Model, January 2006.

10.9 CONCRETE CRUSHING CONSTRUCTION NOISE ANALYSIS AND COMPLIANCE

Using the reference RCNM construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project concrete construction noise level impacts at the parcel boundary of adjacent uses were completed. Exhibit 10-C identifies the location of the planned concrete crushing activities. As shown on Table 10-10, the unmitigated construction noise levels are expected to range from 50.8 to 72.1 dBA L_{eq} at the parcel boundary of adjacent uses. Table 10-10 shows that the estimated construction noise levels at the adjacent industrial uses to the north, south and west will satisfy the 70 dBA L_{eq} construction noise level standard. However, the construction noise levels at the noise sensitive West Valley Detention Center property line to the east will exceed the City of Rancho Cucamonga construction noise level standard 65 dBA L_{eq}. Appendix 10.3 includes the unmitigated concrete crushing CadnaA noise model calculations.

TABLE 10-10: UNMITIGATED CONCRETE CRUSHING NOISE LEVEL SUMMARY

Adjacent Property Line[1]	Use	Unmitigated Construction Noise Levels (dBA L_{eq})		
		Concrete Crushing[2]	Construction Standard[3]	Threshold Exceeded?[4]
North	Industrial	50.8	70	No
South	Industrial	51.8	70	No
East	Detention Center	72.1	65	Yes
West	Industrial	55.5	70	No

[1] Adjacent property line as shown on Exhibit 10-C.
[2] Construction noise level calculations based on distance from the concrete crushing activity to the property line of adjacent uses.
[3] Construction noise level standards as shown on Table 3-2.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

EXHIBIT 10-C: CONCRETE CRUSHING NOISE SOURCE LOCATIONS

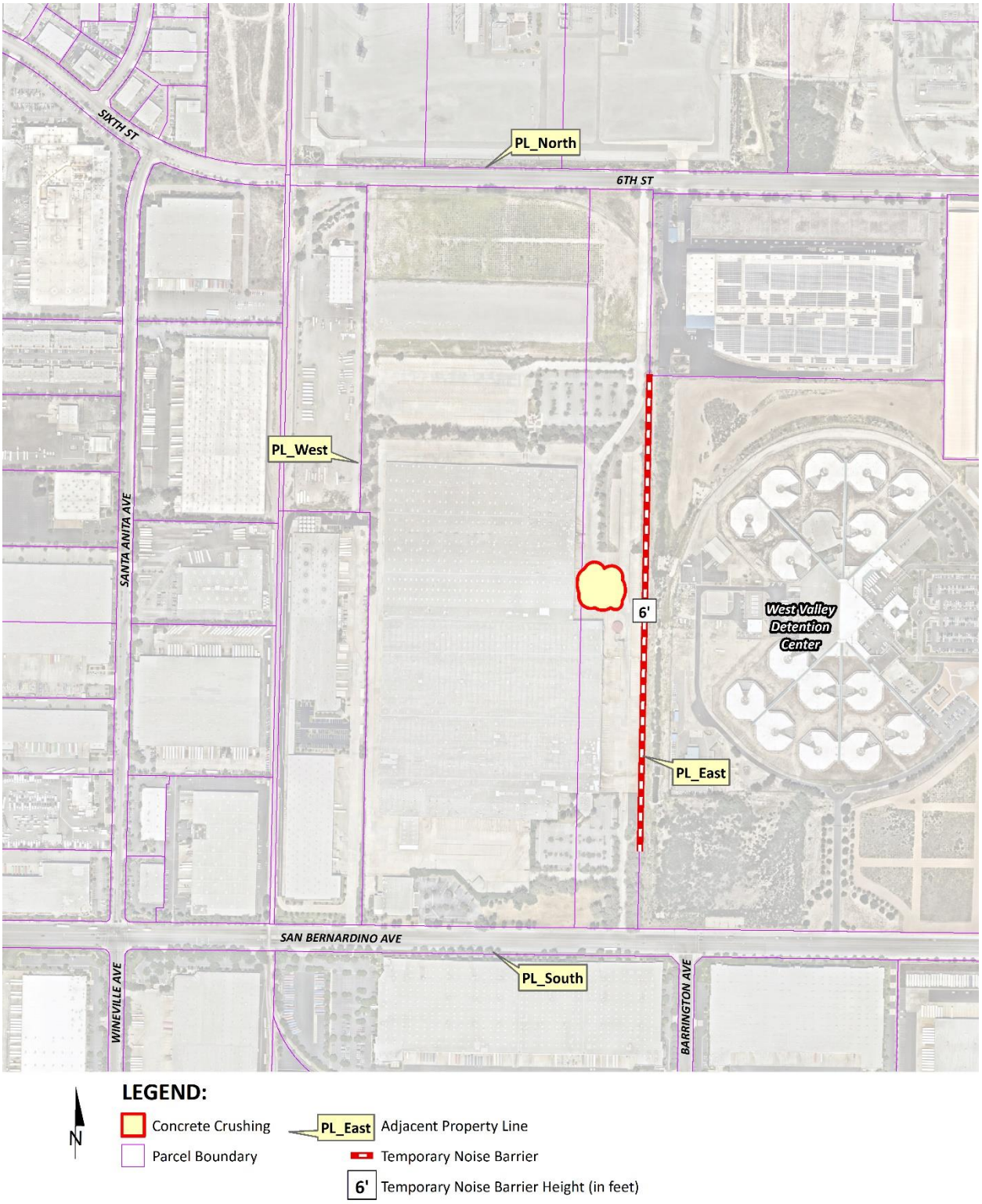


Table 10-11 shows that the mitigated concrete crushing construction noise levels will range from 50.8 to 64.7 dBA L_{eq} at the parcel boundary of adjacent uses. With the required 6-foot high temporary noise barrier, the mitigated construction noise impacts are considered *less than significant* at adjacent property lines to the north, south, east, and west. Appendix 10.4 includes the mitigated concrete crushing CadnaA noise model calculations.

TABLE 10-11: MITIGATED CONCRETE CRUSHING NOISE LEVEL SUMMARY

Adjacent Property Line[1]	Use	Mitigated Construction Noise Levels (dBA L_{eq})		
		Concrete Crushing[2]	Construction Standard[3]	Threshold Exceeded?[4]
North	Industrial	50.8	70	No
South	Industrial	51.8	70	No
East	Detention Center	64.7	65	No
West	Industrial	55.5	70	No

[1] Adjacent property line as shown on Exhibit 10-C.
[2] Construction noise level calculations based on distance from the concrete crushing activity to the property line of adjacent uses.
[3] Construction noise level standards as shown on Table 3-2.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.10 CONCRETE CRUSHING CONSTRUCTION VIBRATION ANALYSIS AND COMPLIANCE

Using the vibration source level of construction equipment list provided on Table 10-6 that includes source levels for a hoe ram or breaker representing a percussion hammer fitted to an excavator for breaking concrete and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project concrete crushing construction vibration impacts. Table 10-11 presents the expected concrete crushing construction equipment vibration levels when the equipment with the highest reference vibration activity operating at the closest point from the edge of primary construction activity (Exhibit 5-A) to each receiver location.

At distances ranging from 614 feet to 6,310 feet from the Project concrete crushing construction vibration levels are estimated to range from 14.9 to 45.3 VdB and will remain below the FTA Transit Noise and Vibration Impact Assessment Manual maximum acceptable vibration criteria of 78 VdB for daytime residential uses at all receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during Project concrete crushing construction activities at the Project site.

TABLE 10-11: CONCRETE CRUSHING VIBRATION LEVELS

Receiver Location[1]	Distance to Construction Activity (Feet)	Receiver Vibration Levels (VdB)[2]						Threshold VdB[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Hoe Ram (Breaker)	Highest Vibration Levels		
R1	3,401'	0.0	15.0	22.0	23.0	23.0	23.0	78	No
R2	614'	16.3	37.3	44.3	45.3	45.3	45.3	78	No
R3	5,837'	0.0	8.0	15.0	16.0	16.0	16.0	78	No
R4	6,310'	0.0	6.9	13.9	14.9	14.9	14.9	78	No

[1] Concrete Crushing receiver locations are shown on Exhibit 10-B.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 10-5.
[3] FTA Transit Noise and Vibration Impact Assessment maximum acceptable vibration criteria as shown in Section 6.3.
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

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11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
6. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
7. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
8. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
9. **State of California.** *2016 California Green Building Standards Code.* January 2017.
10. **City of Rancho Cucamonga.** *General Plan Public Health and Safety Element.* May 2010.
11. —. *Development Code, 17.66 Performance Standards.*
12. **City of Ontario.** *Ontario International Airport Land Use Compatibility Plan.* July 2018.
13. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
14. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
15. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
16. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
17. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
18. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
19. **Urban Crossroads, Inc.** *High-Cube Fulfillment Center Traffic Memo.* April, 2021.
20. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

12 CERTIFICATIONS

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

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EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

CITY OF RANCHO CUCAMONGA MUNICIPAL CODE

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17.66.050 Noise standards.

A. *Purpose*. In order to control unnecessary, excessive, and annoying noise and vibration in the city, it is hereby declared to be the policy of the city to prohibit such noise generated from or by all sources as specified in this section. The provisions apply within all jurisdictions within all zoning districts. Provisions apply based on the designated noise zones:

Noise Zone I: All single- and multiple-family residential properties.

Noise Zone II: All commercial properties.

B. *Decibel measurement criteria*. Any decibel measurement made pursuant to the provisions of this section shall be based on a reference sound pressure of 20 micropascals as measured with a sound level meter using the A-weighted network (scale) at slow response.

C. *Exterior noise standards*.

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

a. Basic noise level for a cumulative period of not more than 15 minutes in any one hour; or

b. Basic noise level plus five dBA for a cumulative period of not more than ten minutes in any one hour; or

c. Basic noise level plus 14 dBA for a cumulative period of not more than five minutes in any one hour; or

d. Basic noise level plus 15 dBA at any time.

2. If the measurement location is a boundary between two different noise zones, the lower noise level standard shall apply.

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

D. *Special exclusions*. The following activities shall be exempted from the provisions of this section:

1. City- or school-approved activities conducted on public parks, public playgrounds, and public or private school grounds including, but not limited to, athletic and school entertainment events between the hours of 7:00 a.m. and 10:00 p.m.

2. Occasional outdoor gatherings, dances, shows, and sporting and entertainment events, provided said events are conducted pursuant to the approval of a temporary use permit issued by the city.

3. Any mechanical device, apparatus, or equipment used, related to, or connected with emergency machinery, vehicle, work, or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within 30 minutes in any hour of its being activated.

4. Noise sources associated with, or vibration created by, construction, repair, remodeling, or grading of any real property or during authorized seismic surveys, provided said activities:

a. When adjacent to a residential land use, school, church or similar type of use, the noise generating activity does not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a national holiday, and provided noise levels created do not exceed the noise standard of 65 dBA when measured at the adjacent property line.

b. When adjacent to a commercial or industrial use, the noise generating activity does not take place between the hours of 10:00 p.m. and 6:00 a.m. on weekdays, including Saturday and Sunday, and provided noise levels created do not exceed the noise standards of 70 dBA at the when measured at the adjacent property line.

5. All devices, apparatus, or equipment associated with agricultural operations, provided:

a. Operations do not take place between 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a national holiday.

b. Such operations and equipment are utilized for protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

c. Such operations and equipment are associated with agricultural pest control through pesticide application, provided the application is made in accordance with permits issued by, or regulations enforced by, the state department of agriculture.

6. Noise sources associated with the maintenance of real property, provided said activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day.

7. Any activity to the extent regulation thereof has been preempted by state or federal law.

E. *Schools, churches, libraries, health care institutions*. It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or similar health care institution, church, or library while the same is in use, to exceed the noise standards specified in this section and prescribed for the assigned noise zone in which the school, hospital, church, or library is located.

F. *Residential noise standards*.

1. Table 17.66.050-1 (Residential Noise Limits) includes the maximum noise limits in residential zones. These are the noise limits when measured at the adjacent residential property line (exterior) or within a neighboring home (interior).

TABLE 17.66.050-1 RESIDENTIAL NOISE LIMITS

Location of Measurement	*Maximum Allowable*	
	10:00 p.m. to 7:00 a.m.	*7:00 a.m. to 10:00 p.m.*
Exterior	60 dBA	65dBA
Interior	45 dBA	50dBA

Additional:

(A) It shall be unlawful for any person at any location within the city to create any noise or to allow the creation of any noise which causes the noise level when measured within any other fully enclosed (windows and doors shut) residential dwelling unit to exceed the interior noise standard in the manner described herein.

(B) If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, each of the noise limits above shall be reduced five dBA for noise consisting of impulse or simple tone noise.

2. *Other residential noise limitations*.

a. *Peddlers; use of loud noise, etc., to advertise goods, etc*. No peddler or mobile vendor or any person in their behalf shall shout, cry out, or use any device or instrument to make sounds for the purpose of advertising in such a manner as to create a noise disturbance.

b. *Animal noises*. No person owning or having the charge, care, custody, or control of any dog or other animal or fowl shall allow or permit the same to habitually howl, bark, yelp, or make other noises, in such a manner as to create a noise disturbance.

c. *Radios, television sets, musical instruments, and similar devices*. No person shall operate or permit the operation or playing of any device which reproduces, produces, or amplifies sound, such as a radio, musical instrument, phonograph, or sound amplifier, in such a manner as to create a noise disturbance.

i. Across any real property boundary or within Noise Zone I, between the hours of 10:00 p.m. and 7:00 a.m. on the following day (except for activities for which a temporary use permit has been

issued).

ii. At 50 feet from any such device, if operated on or over any public right-of-way.

G. *Commercial and office noise provisions*. All operations and businesses shall be conducted to comply with the following standards:

1. All commercial and office activities shall not create any noise that would exceed an exterior noise level of 65 dBA during the hours of 10:00 p.m. to 7:00 a.m. and 70 dBA during the hours of 7:00 a.m. to 10:00 p.m. when measured at the adjacent property line.

2. *Loading and unloading*. No person shall cause the loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 p.m. and 7:00 a.m., in a manner which would cause a noise disturbance to a residential area.

3. *Vehicle repairs and testing*. No person shall cause or permit the repairing, rebuilding, modifying, or testing of any motor vehicle, motorcycle, or motorboat in such a manner as to increase a noise disturbance between the hours of 10:00 p.m. and 8:00 a.m. adjacent to a residential area.

H. Industrial noise provision included in Table 17.66.110-1 (Industrial Performance Standards). (Code 1980, § 17.66.050; Ord. No. 855, § 4, 2012)

17.66.070 Vibration.

Uses that generate vibrations that may be considered a public nuisance or hazard on any adjacent property shall be cushioned or isolated to prevent generation of vibrations. Uses shall be operated in compliance with the following provisions:

A. No vibration shall be produced that is transmitted through the ground and is discernible without the aid of instruments at the points of measurement specified in section 17.66.030 (Points of Measurement) of this chapter, nor shall any vibration produced exceed 0.002g peak at up to 50 CPS frequency, measured at the point of measurement specified in section 17.66.030 (Points of Measurement) of this chapter using either seismic or electronic vibration measuring equipment. Vibrations occurring at higher than 50 CPS frequency of a periodic vibration shall not induce accelerations exceeding 0.001g. Single-impulse periodic vibrations occurring at an average interval greater than five minutes shall not induce accelerations exceeding 0.01g.

B. Uses, activities, and processes shall not generate vibrations that cause discomfort or annoyance to reasonable persons of normal sensitivity or which endangers the comfort, repose, health, or peace of residents whose property abuts the property line of the parcel.

C. Uses shall not generate ground vibration that interferes with the operations of equipment and facilities of adjoining parcels.

D. Vibrations from temporary construction/demolition and vehicles that leave the subject parcel (e.g., trucks, trains, and aircraft) are exempt from the provisions of this section. (Code 1980, § 17.66.070; Ord. No. 855, § 4, 2012)

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17.66.110 Special industrial performance standards.

A. *Purpose*. The performance standards allow industrial uses to operate consistent with the overall characteristics of the land use category to provide for a healthy, safe, and pleasing environment in keeping with the nature and level of surrounding industrial activity. The performance standards contained in Table 17.66.110-1 (Industrial Performance Standards) are applied based on the zoning district as follows:

1. *Industrial Park (IP) Zoning District; Class A performance standards*. The most restrictive of the performance standards to ensure a high quality working environment and available sites for industrial and business firms whose functional and economic needs require protection from the adverse affects of noise, odors, vibration, glare, or high-intensity illumination, and other nuisances.

2. *General Industrial (GI) Zoning District; Class B performance standards*. These standards are intended to provide for the broadest range of industrial activity while assuring a basic level environmental protection. It is the intent of the standards of this section to provide for uses whose operational needs may produce noise, vibration, particulate matter and air contaminants, odors, or humidity, heat, and glare which cannot be mitigated sufficiently to meet the Class A standards. The standards are so designed to protect uses on adjoining sites from effects which could adversely affect their functional and economic viability.

3. *Medium Impact/High Impact (MI/HI) and Heavy Industrial (HI) Zoning Districts; Class C performance standards*. It is the intent of the standards of this section to make allowances for industrial uses whose associated processes produce noise, particulate matter and air contaminants, vibration, odor, humidity, heat, glare, or high-intensity illumination which would adversely affect the functional and economic viability of other uses. The standards, when combined with standards imposed by other governmental agencies, serve to provide basic health and safety protection for persons employed within or visiting the area.

TABLE 17.66.110-1 INDUSTRIAL PERFORMANCE STANDARDS

Class A	Class B	Class C
Noise Maximum		
• 70dB (anywhere on lot) • 65 dB (interior space of neighboring use on same lot) • Noise caused by motor vehicles is exempted from this standard.	• 80 dB (anywhere on lot) • 65dB (at residential property line) • Noise caused by motor vehicles and trains is exempted from this standard.	• 85 dB (lot line) • 65dB (at residential property line) • Where a use occupies a lot abutting or separated by a street from a lot within the designated Class A or B performance standard or residential property, the performance standard of the abutting property shall apply at the common or facing lot line.
Vibration		
All uses shall be so operated as not to generate vibration discernible without instruments by the average person while on or beyond the lot upon which the source is located or within an adjoining enclosed space if more than one establishment occupies a structure. Vibration caused by motor vehicles, trains, and temporary construction or demolition work is exempted from this standard.	All uses shall be operated so as not to generate vibration discernible without instruments by the average persons beyond the lot upon which the source is located. Vibration caused by motor vehicles, trains, and temporary construction or demolition is exempted from this standard.	All uses shall be operated so as not to generate vibration discernible without instruments by the average person beyond 600 feet from where the source is located. Vibration caused by motor vehicles, trains, and temporary construction and demolition is exempted from this standard.
Particulate Matter and Air Contaminants		
In addition to compliance with the Air Quality Maintenance District (AQMD) standards, all uses	In addition to compliance with the AQMD standards, all uses shall be operated so as not to emit particulate	In addition to compliance with the AQMD standards, all uses shall be operated so as not to emit particulate

shall be operated so as not to emit particulate matter or air contaminants that are readily detectable without instruments by the average person while on the lot containing such uses.	matter or air contaminants that are readily detectable without instruments by the average person beyond any lot line of the lot containing such uses.	matter or air contaminants that (a) are injurious to the health of either persons engaged in or related to the use of the lot, or persons residing, working, visiting, or recreating in neighboring areas; (b) substantially and adversely affect the maintenance of property in nearby areas; (c) are disruptive of industrial processes carried on in other parts of the industrial area. Where a use occupies a lot abutting or separated by a street lot with designated Class A or B, the A or B performance standard for particulate matter and air contaminants shall apply at the common or facing lot line.
Odor		
All uses shall be operated so as not to emit matter causing unpleasant odors that are perceptible to the average person while within or beyond the lot containing such uses.	All uses shall be operated so as not to emit matter causing unpleasant odors that are perceptible to the average person beyond any lot line of the lot containing such uses.	All uses shall be operated so as not to emit matter causing unpleasant odors that are perceptible to the average person beyond any lot line of the lot containing such uses.
Humidity, Heat, and Glare		
All uses shall be operated so as not to produce humidity, heat, glare, or high-intensity illumination that is perceptible without instruments by the average person while on or beyond the lot containing such use.	All uses shall be operated so as not to produce humidity, heat, glare, or high-intensity illumination that is perceptible without instruments by the average person beyond the lot line of any lot containing such use.	All uses shall be operated so as not to produce humidity, heat, glare, or high-intensity illumination that is perceptible without instruments by the average person while on any lot zoned for residential purposes or any industrial property with a Class A or B performance standard designation.

(Code 1980, § 17.66.110; Ord. No. 855, § 4, 2012)

View the mobile version.

APPENDIX 4.1:

STUDY AREA PHOTOS

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JN: 13349 Study Area Photos

L1_E
34, 5' 17.380000", 117, 32' 25.460000"

L1_N
34, 5' 17.050000", 117, 32' 25.460000"

L1_S
34, 5' 17.180000", 117, 32' 25.490000"

L1_W
34, 5' 17.560000", 117, 32' 25.460000"

L2_E
34, 5' 10.230000", 117, 31' 29.070000"

L2_N
,

JN: 13349 Study Area Photos

L2_S
34, 5' 10.230000", 117, 31' 29.070000"

L2_W
34, 5' 10.250000", 117, 31' 29.020000"

L3_E
34, 4' 13.830000", 117, 32' 46.500000"

L3_N
34, 4' 13.810000", 117, 32' 46.530000"

L3_S
34, 4' 13.830000", 117, 32' 46.530000"

L3_W
34, 4' 13.840000", 117, 32' 46.470000"

JN: 13349 Study Area Photos

L4_E
34, 4' 44.040000", 117, 33' 11.550000"

L4_N
34, 4' 43.570000", 117, 33' 11.740000"

L4_S
34, 4' 43.790000", 117, 33' 11.770000"

L4_W
34, 4' 44.020000", 117, 33' 11.550000"

L5_E
34, 5' 4.600000", 117, 31' 54.860000"

L5_N
34, 5' 4.790000", 117, 31' 54.830000"

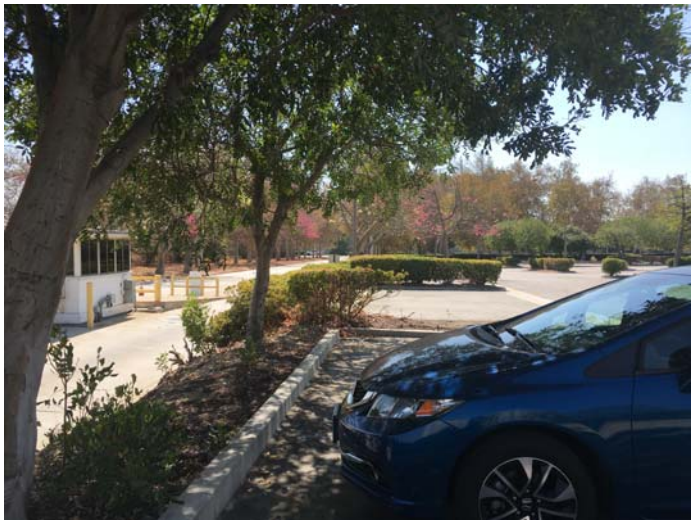
JN: 13349 Study Area Photos

L5_S
34, 5' 4.600000", 117, 31' 54.860000"

L5_W
34, 5' 4.470000", 117, 31' 54.890000"

L6_E
34, 4' 43.890000", 117, 31' 55.910000"

L6_N
34, 4' 43.870000", 117, 31' 55.910000"



L6_S
34, 4' 43.910000", 117, 31' 55.910000"

L6_W
34, 4' 43.910000", 117, 31' 55.910000"

APPENDIX 4.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

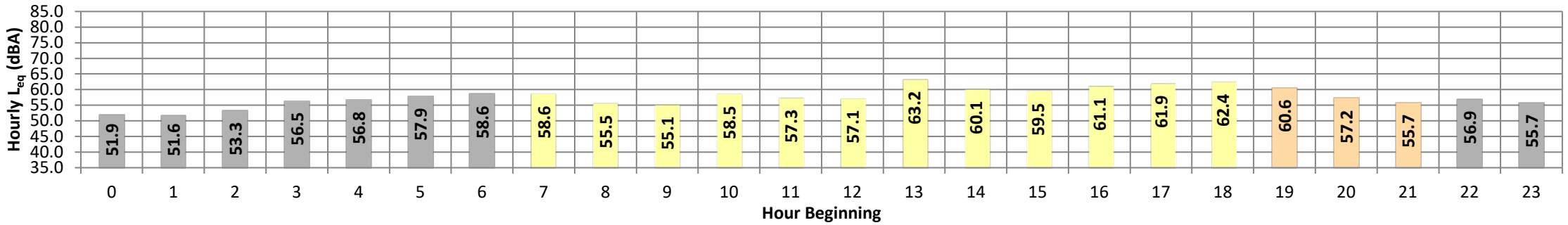
Date: Wednesday, April 22, 2020
Project: Bridge Development

Location: L1 - Located northwest of the Project site near 6th Street by the JKI Miracle Center | Christian Church.

Meter: Piccolo II

JN: 13349
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.9	55.4	49.9	55.2	54.9	54.0	53.5	52.3	51.5	50.4	50.2	50.0	51.9	10.0	61.9
	1	51.6	58.2	49.1	57.9	57.3	55.6	54.2	51.5	50.6	49.6	49.4	49.2	51.6	10.0	61.6
	2	53.3	57.3	51.1	57.1	56.8	55.9	55.3	53.7	52.7	51.6	51.4	51.2	53.3	10.0	63.3
	3	56.5	59.9	54.0	59.7	59.4	58.7	58.2	57.0	56.2	54.7	54.4	54.1	56.5	10.0	66.5
	4	56.8	64.5	53.7	63.6	62.6	61.0	59.9	57.0	55.1	54.2	54.0	53.8	56.8	10.0	66.8
	5	57.9	63.8	55.6	63.1	62.3	60.5	59.6	58.1	57.3	56.2	55.9	55.7	57.9	10.0	67.9
	6	58.6	64.4	56.1	63.8	63.3	61.8	60.8	58.7	57.8	56.6	56.4	56.2	58.6	10.0	68.6
Day	7	58.6	66.2	54.3	65.4	64.3	62.7	61.8	59.3	57.0	54.9	54.7	54.4	58.6	0.0	58.6
	8	55.5	61.6	51.4	60.9	60.2	58.8	58.2	56.6	54.9	52.1	51.9	51.6	55.5	0.0	55.5
	9	55.1	59.5	53.1	59.2	58.7	57.8	57.0	55.4	54.5	53.6	53.4	53.1	55.1	0.0	55.1
	10	58.5	63.6	56.4	62.9	62.0	60.5	59.9	58.9	58.2	56.9	56.7	56.5	58.5	0.0	58.5
	11	57.3	61.2	55.6	60.9	60.4	59.1	58.5	57.6	57.0	56.1	55.9	55.7	57.3	0.0	57.3
	12	57.1	61.1	55.0	60.7	60.3	59.2	58.6	57.5	56.8	55.6	55.4	55.1	57.1	0.0	57.1
	13	63.2	74.4	57.4	73.2	71.4	68.1	66.7	63.0	60.5	58.2	57.8	57.5	63.2	0.0	63.2
	14	60.1	65.6	57.4	65.1	64.4	62.7	61.8	60.4	59.5	58.3	57.8	57.5	60.1	0.0	60.1
	15	59.5	62.2	57.7	61.9	61.7	61.1	60.8	60.0	59.3	58.2	58.0	57.8	59.5	0.0	59.5
	16	61.1	64.3	59.4	64.1	63.8	62.8	62.4	61.4	60.8	60.0	59.8	59.5	61.1	0.0	61.1
	17	61.9	64.4	60.2	64.2	63.9	63.4	63.1	62.3	61.8	60.8	60.5	60.3	61.9	0.0	61.9
	18	62.4	65.7	60.5	65.3	65.0	64.2	63.7	62.8	62.1	61.1	60.8	60.6	62.4	0.0	62.4
Evening	19	60.6	64.1	58.4	63.9	63.6	62.9	62.5	61.0	60.1	59.0	58.8	58.5	60.6	5.0	65.6
	20	57.2	59.9	55.4	59.6	59.3	58.8	58.4	57.7	56.9	55.9	55.7	55.5	57.2	5.0	62.2
	21	55.7	59.0	53.7	58.8	58.5	57.9	57.5	56.1	55.2	54.3	54.0	53.8	55.7	5.0	60.7
Night	22	56.9	62.1	54.4	61.7	61.3	59.9	59.0	57.3	56.2	55.1	54.8	54.5	56.9	10.0	66.9
	23	55.7	60.2	53.6	60.0	59.8	58.6	56.8	55.9	55.2	54.1	53.9	53.7	55.7	10.0	65.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.1	59.5	51.4	59.2	58.7	57.8	57.0	55.4	54.5	52.1	51.9	51.6
	Max	63.2	74.4	60.5	73.2	71.4	68.1	66.7	63.0	62.1	61.1	60.8	60.6
Energy Average		59.9	Average:		63.6	63.0	61.7	61.0	59.6	58.5	57.1	56.9	56.6
Evening	Min	55.7	59.0	53.7	58.8	58.5	57.9	57.5	56.1	55.2	54.3	54.0	53.8
	Max	60.6	64.1	58.4	63.9	63.6	62.9	62.5	61.0	60.1	59.0	58.8	58.5
Energy Average		58.3	Average:		60.8	60.5	59.9	59.5	58.3	57.4	56.4	56.2	55.9
Night	Min	51.6	55.4	49.1	55.2	54.9	54.0	53.5	51.5	50.6	49.6	49.4	49.2
	Max	58.6	64.5	56.1	63.8	63.3	61.8	60.8	58.7	57.8	56.6	56.4	56.2
Energy Average		56.1	Average:		60.2	59.7	58.4	57.5	55.7	54.7	53.6	53.4	53.2

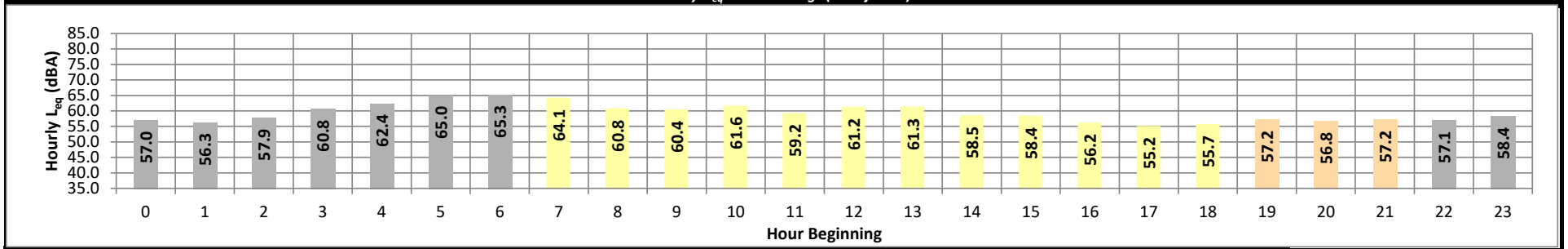
L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
58.6	59.6	56.1

24-Hour CNEL (dBA)
63.6

24-Hour Noise Level Measurement Summary

Date: Wednesday, April 22, 2020
Project: Bridge Development
Location: L2 - Located east of the Project site on 6th Street near the Inland Empire Utilities Agency Regional Water Quality Recycling Plant at 12811 6th Street.
Meter: Piccolo I
JN: 13349
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	57.0	78.8	46.1	67.0	65.0	62.0	60.0	54.0	49.0	47.0	47.0	46.0	57.0	10.0	67.0
	1	56.3	69.7	44.9	66.0	65.0	62.0	61.0	55.0	50.0	47.0	46.0	45.0	56.3	10.0	66.3
	2	57.9	75.7	45.9	67.0	66.0	64.0	62.0	57.0	52.0	48.0	47.0	46.0	57.9	10.0	67.9
	3	60.8	80.2	47.8	69.0	67.0	65.0	64.0	60.0	56.0	50.0	49.0	48.0	60.8	10.0	70.8
	4	62.4	80.1	49.4	71.0	69.0	67.0	66.0	62.0	58.0	52.0	51.0	50.0	62.4	10.0	72.4
	5	65.0	83.5	50.4	74.0	71.0	69.0	68.0	65.0	62.0	54.0	53.0	51.0	65.0	10.0	75.0
	6	65.3	88.7	50.6	75.0	73.0	68.0	67.0	64.0	61.0	54.0	53.0	51.0	65.3	10.0	75.3
Day	7	64.1	83.6	47.7	76.0	72.0	67.0	66.0	62.0	59.0	52.0	51.0	49.0	64.1	0.0	64.1
	8	60.8	80.0	47.7	71.0	68.0	65.0	63.0	60.0	56.0	50.0	49.0	48.0	60.8	0.0	60.8
	9	60.4	82.1	47.7	72.0	69.0	64.0	62.0	58.0	54.0	49.0	49.0	48.0	60.4	0.0	60.4
	10	61.6	84.8	47.3	74.0	71.0	65.0	61.0	57.0	54.0	49.0	48.0	48.0	61.6	0.0	61.6
	11	59.2	83.0	47.4	71.0	68.0	62.0	60.0	56.0	53.0	49.0	49.0	48.0	59.2	0.0	59.2
	12	61.2	84.7	46.2	73.0	71.0	64.0	61.0	57.0	54.0	50.0	48.0	47.0	61.2	0.0	61.2
	13	61.3	85.1	49.1	73.0	69.0	63.0	61.0	57.0	54.0	51.0	50.0	49.0	61.3	0.0	61.3
	14	58.5	78.5	49.2	70.0	67.0	61.0	60.0	56.0	53.0	51.0	50.0	49.0	58.5	0.0	58.5
	15	58.4	81.0	49.3	68.0	66.0	61.0	60.0	56.0	53.0	51.0	50.0	50.0	58.4	0.0	58.4
	16	56.2	74.3	49.2	65.0	62.0	59.0	58.0	55.0	53.0	51.0	50.0	50.0	56.2	0.0	56.2
	17	55.2	73.3	49.5	62.0	61.0	59.0	58.0	55.0	53.0	51.0	50.0	50.0	55.2	0.0	55.2
	18	55.7	74.9	49.6	63.0	61.0	59.0	58.0	55.0	53.0	51.0	51.0	50.0	55.7	0.0	55.7
Evening	19	57.2	77.3	46.6	66.0	64.0	62.0	61.0	56.0	53.0	48.0	48.0	47.0	57.2	5.0	62.2
	20	56.8	77.2	45.1	66.0	65.0	62.0	61.0	56.0	50.0	46.0	46.0	45.0	56.8	5.0	61.8
	21	57.2	75.7	45.7	67.0	65.0	63.0	61.0	56.0	51.0	46.0	46.0	46.0	57.2	5.0	62.2
Night	22	57.1	73.8	46.4	67.0	66.0	63.0	61.0	56.0	51.0	48.0	47.0	46.0	57.1	10.0	67.1
	23	58.4	80.6	46.6	68.0	66.0	63.0	62.0	57.0	52.0	48.0	48.0	47.0	58.4	10.0	68.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.2	73.3	46.2	62.0	61.0	59.0	58.0	55.0	53.0	49.0	48.0	47.0
	Max	64.1	85.1	49.6	76.0	72.0	67.0	66.0	62.0	59.0	52.0	51.0	50.0
Energy Average		60.1	Average:		69.8	67.1	62.4	60.7	57.0	54.1	50.4	49.6	48.8
Evening	Min	56.8	75.7	45.1	66.0	64.0	62.0	61.0	56.0	50.0	46.0	46.0	45.0
	Max	57.2	77.3	46.6	67.0	65.0	63.0	61.0	56.0	53.0	48.0	48.0	47.0
Energy Average		57.1	Average:		66.3	64.7	62.3	61.0	56.0	51.3	46.7	46.7	46.0
Night	Min	56.3	69.7	44.9	66.0	65.0	62.0	60.0	54.0	49.0	47.0	46.0	45.0
	Max	65.3	88.7	50.6	75.0	73.0	69.0	68.0	65.0	62.0	54.0	53.0	51.0
Energy Average		61.3	Average:		69.3	67.6	64.8	63.4	58.9	54.6	49.8	49.0	47.8

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
60.4	**59.7**	**61.3**

24-Hour CNEL (dBA)

67.6

24-Hour Noise Level Measurement Summary

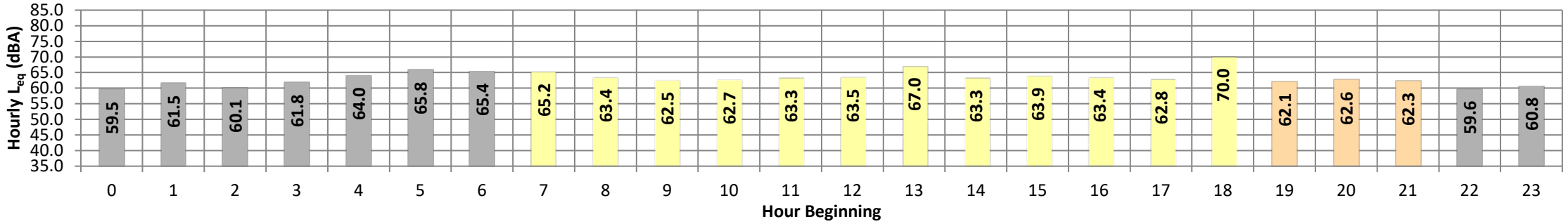
Date: Wednesday, April 22, 2020
Project: Bridge Development

Location: L3 - Located southwest of the Project site by Rochester Avenue near Hyatt Place Ontario.

Meter: Piccolo I

JN: 13349
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	59.5	72.4	52.2	67.0	64.0	62.0	62.0	59.0	58.0	55.0	55.0	53.0	59.5	10.0	69.5
	1	61.5	85.5	53.8	69.0	67.0	64.0	62.0	60.0	58.0	56.0	56.0	55.0	61.5	10.0	71.5
	2	60.1	73.5	53.7	68.0	65.0	63.0	62.0	60.0	59.0	56.0	55.0	54.0	60.1	10.0	70.1
	3	61.8	69.7	55.8	65.0	65.0	64.0	64.0	62.0	61.0	59.0	58.0	57.0	61.8	10.0	71.8
	4	64.0	75.5	59.1	68.0	67.0	66.0	65.0	64.0	63.0	61.0	61.0	60.0	64.0	10.0	74.0
	5	65.8	75.6	61.0	69.0	68.0	67.0	67.0	66.0	65.0	63.0	63.0	62.0	65.8	10.0	75.8
	6	65.4	74.6	60.2	70.0	69.0	68.0	67.0	66.0	64.0	62.0	62.0	61.0	65.4	10.0	75.4
Day	7	65.2	84.7	59.2	69.0	68.0	67.0	66.0	65.0	64.0	62.0	62.0	61.0	65.2	0.0	65.2
	8	63.4	74.5	57.2	67.0	66.0	65.0	65.0	64.0	63.0	60.0	60.0	59.0	63.4	0.0	63.4
	9	62.5	73.6	56.7	66.0	66.0	65.0	64.0	63.0	62.0	60.0	59.0	58.0	62.5	0.0	62.5
	10	62.7	79.4	56.1	69.0	67.0	65.0	64.0	63.0	61.0	59.0	59.0	58.0	62.7	0.0	62.7
	11	63.3	83.8	56.6	69.0	67.0	65.0	64.0	63.0	62.0	60.0	59.0	58.0	63.3	0.0	63.3
	12	63.5	78.7	58.3	70.0	68.0	65.0	65.0	63.0	62.0	60.0	60.0	59.0	63.5	0.0	63.5
	13	67.0	93.3	57.3	75.0	71.0	66.0	65.0	63.0	62.0	60.0	60.0	59.0	67.0	0.0	67.0
	14	63.3	76.3	58.7	68.0	66.0	65.0	65.0	63.0	62.0	60.0	60.0	59.0	63.3	0.0	63.3
	15	63.9	84.5	57.5	69.0	68.0	66.0	65.0	63.0	62.0	60.0	60.0	59.0	63.9	0.0	63.9
	16	63.4	80.1	59.1	67.0	66.0	65.0	65.0	63.0	62.0	61.0	60.0	60.0	63.4	0.0	63.4
	17	62.8	77.1	57.4	68.0	66.0	65.0	64.0	63.0	62.0	60.0	60.0	59.0	62.8	0.0	62.8
	18	70.0	100.3	57.5	73.0	69.0	66.0	64.0	62.0	61.0	59.0	59.0	58.0	70.0	0.0	70.0
Evening	19	62.1	74.2	56.8	68.0	66.0	64.0	63.0	62.0	61.0	59.0	59.0	58.0	62.1	5.0	67.1
	20	62.6	80.6	56.8	69.0	67.0	65.0	64.0	62.0	61.0	59.0	59.0	58.0	62.6	5.0	67.6
	21	62.3	88.2	54.2	66.0	65.0	63.0	62.0	61.0	60.0	57.0	57.0	55.0	62.3	5.0	67.3
Night	22	59.6	71.5	53.8	66.0	64.0	62.0	61.0	59.0	58.0	56.0	55.0	55.0	59.6	10.0	69.6
	23	60.8	80.7	54.3	68.0	64.0	63.0	62.0	60.0	59.0	57.0	57.0	56.0	60.8	10.0	70.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	62.5	73.6	56.1	66.0	66.0	65.0	64.0	62.0	61.0	59.0	59.0	58.0
	Max	70.0	100.3	59.2	75.0	71.0	67.0	66.0	65.0	64.0	62.0	62.0	61.0
Energy Average		64.9	Average:		69.2	67.3	65.4	64.7	63.2	62.1	60.1	59.8	58.9
Evening	Min	62.1	74.2	54.2	66.0	65.0	63.0	62.0	61.0	60.0	57.0	57.0	55.0
	Max	62.6	88.2	56.8	69.0	67.0	65.0	64.0	62.0	61.0	59.0	59.0	58.0
Energy Average		62.3	Average:		67.7	66.0	64.0	63.0	61.7	60.7	58.3	58.3	57.0
Night	Min	59.5	69.7	52.2	65.0	64.0	62.0	61.0	59.0	58.0	55.0	55.0	53.0
	Max	65.8	85.5	61.0	70.0	69.0	68.0	67.0	66.0	65.0	63.0	63.0	62.0
Energy Average		62.7	Average:		67.8	65.9	64.3	63.6	61.8	60.6	58.3	58.0	57.0

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
63.9	64.5	62.7

24-Hour CNEL (dBA)
69.6

24-Hour Noise Level Measurement Summary

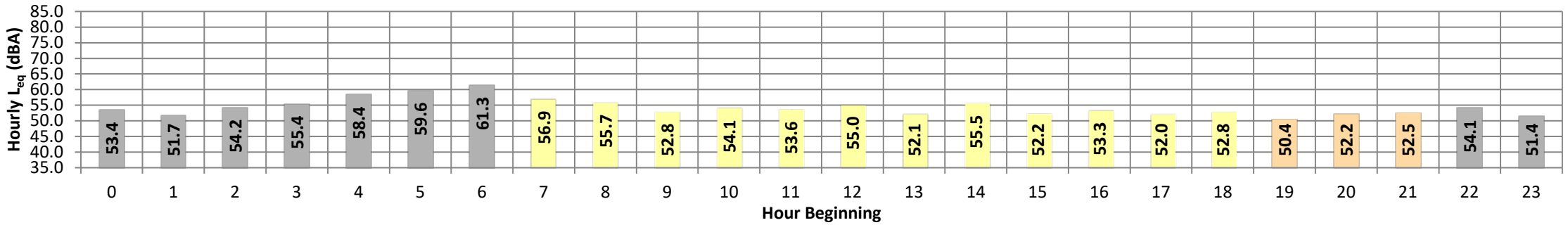
Date: Wednesday, April 22, 2020
Project: Bridge Development

Location: L4 - Located west of the Project site by the Courtyard by Marriott Ontario.

Meter: Piccolo II

JN: 13349
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.4	57.2	51.1	57.0	56.7	56.1	55.7	54.0	52.8	51.6	51.5	51.2	53.4	10.0	63.4
	1	51.7	56.2	49.0	55.9	55.5	54.6	54.1	52.4	50.7	49.5	49.3	49.0	51.7	10.0	61.7
	2	54.2	58.6	51.2	58.4	58.1	57.4	57.0	55.1	53.1	51.7	51.5	51.3	54.2	10.0	64.2
	3	55.4	59.7	52.3	59.5	59.2	58.5	58.0	56.1	54.7	52.9	52.7	52.4	55.4	10.0	65.4
	4	58.4	63.2	56.4	62.9	62.4	60.9	60.2	58.6	57.8	56.9	56.7	56.5	58.4	10.0	68.4
	5	59.6	62.2	58.1	62.0	61.8	61.2	60.8	59.9	59.3	58.5	58.4	58.2	59.6	10.0	69.6
	6	61.3	66.5	59.5	65.9	65.3	63.9	62.9	61.5	60.8	59.9	59.8	59.6	61.3	10.0	71.3
Day	7	56.9	65.0	52.0	64.7	64.3	62.6	61.3	56.6	54.2	52.5	52.3	52.1	56.9	0.0	56.9
	8	55.7	62.3	50.4	61.9	61.4	60.4	59.7	56.5	54.1	51.2	50.9	50.6	55.7	0.0	55.7
	9	52.8	58.6	48.9	58.3	58.0	57.3	56.3	53.4	51.3	49.6	49.4	49.0	52.8	0.0	52.8
	10	54.1	60.7	48.2	60.4	60.0	58.8	58.0	55.0	52.3	49.0	48.6	48.3	54.1	0.0	54.1
	11	53.6	62.1	47.4	61.4	60.6	59.2	58.3	53.8	50.7	48.3	47.9	47.6	53.6	0.0	53.6
	12	55.0	64.1	47.1	63.8	63.5	62.3	60.4	54.2	50.8	47.8	47.5	47.2	55.0	0.0	55.0
	13	52.1	59.3	47.0	58.9	58.5	57.0	56.1	52.6	50.2	47.8	47.5	47.2	52.1	0.0	52.1
	14	55.5	63.8	47.6	63.4	62.9	61.2	60.3	56.3	52.4	48.4	48.1	47.7	55.5	0.0	55.5
	15	52.2	58.5	48.2	58.0	57.5	56.4	55.6	52.7	50.8	48.9	48.6	48.3	52.2	0.0	52.2
	16	53.3	60.7	47.8	60.3	59.9	58.4	57.4	53.6	51.0	48.5	48.2	47.9	53.3	0.0	53.3
	17	52.0	58.9	47.6	58.5	57.9	56.3	55.2	52.7	50.5	48.4	48.1	47.8	52.0	0.0	52.0
	18	52.8	61.6	46.9	61.0	60.6	58.9	57.4	52.5	49.7	47.6	47.3	47.0	52.8	0.0	52.8
Evening	19	50.4	58.0	46.6	57.4	56.5	54.7	53.9	50.7	48.6	47.1	46.9	46.7	50.4	5.0	55.4
	20	52.2	58.4	47.4	58.1	57.7	56.6	55.8	53.2	50.4	48.1	47.8	47.5	52.2	5.0	57.2
	21	52.5	61.1	47.8	60.6	59.8	57.7	56.6	52.4	49.8	48.4	48.2	47.9	52.5	5.0	57.5
Night	22	54.1	61.7	46.6	61.4	61.2	60.1	59.1	54.5	51.0	47.3	47.0	46.7	54.1	10.0	64.1
	23	51.4	58.0	48.1	57.7	57.3	56.0	54.6	51.5	49.7	48.6	48.4	48.2	51.4	10.0	61.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	52.0	58.5	46.9	58.0	57.5	56.3	55.2	52.5	49.7	47.6	47.3	47.0
	Max	56.9	65.0	52.0	64.7	64.3	62.6	61.3	56.6	54.2	52.5	52.3	52.1
Energy Average		54.1	Average:		60.9	60.4	59.1	58.0	54.2	51.5	49.0	48.7	48.4
Evening	Min	50.4	58.0	46.6	57.4	56.5	54.7	53.9	50.7	48.6	47.1	46.9	46.7
	Max	52.5	61.1	47.8	60.6	59.8	57.7	56.6	53.2	50.4	48.4	48.2	47.9
Energy Average		51.8	Average:		58.7	58.0	56.4	55.4	52.1	49.6	47.9	47.6	47.4
Night	Min	51.4	56.2	46.6	55.9	55.5	54.6	54.1	51.5	49.7	47.3	47.0	46.7
	Max	61.3	66.5	59.5	65.9	65.3	63.9	62.9	61.5	60.8	59.9	59.8	59.6
Energy Average		56.8	Average:		60.1	59.7	58.7	58.0	56.0	54.4	53.0	52.8	52.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
55.2	53.7	56.8

24-Hour CNEL (dBA)
63.0

24-Hour Noise Level Measurement Summary

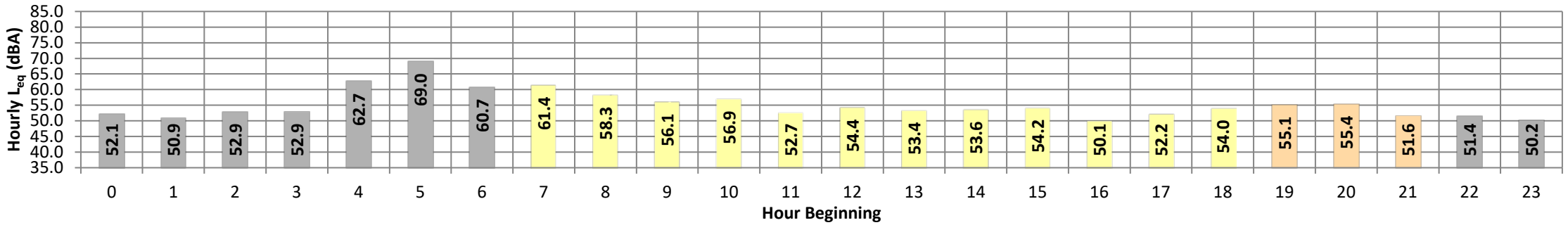
Date: Tuesday, September 29, 2020
Project: Bridge Development

Location: L5 - Located near northeastern boundary of the Project site near the West Valley Detention Center at 9500 Etiwanda Avenue.

Meter: Piccolo II

JN: 13349
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	52.1	54.3	51.2	54.0	53.8	53.3	53.0	52.3	52.0	51.5	51.4	51.3	52.1	10.0	62.1
	1	50.9	52.4	50.2	52.3	52.1	51.8	51.6	51.2	50.8	50.4	50.4	50.2	50.9	10.0	60.9
	2	52.9	55.7	51.6	55.5	55.3	54.7	54.3	53.4	52.5	51.8	51.8	51.6	52.9	10.0	62.9
	3	52.9	55.1	52.0	54.9	54.8	54.3	54.0	53.1	52.7	52.3	52.2	52.1	52.9	10.0	62.9
	4	62.7	67.9	56.4	67.6	67.1	66.1	65.6	64.0	62.0	58.3	57.3	56.5	62.7	10.0	72.7
	5	69.0	77.4	65.9	76.8	76.3	75.5	75.0	73.0	71.1	67.8	67.0	66.2	69.0	10.0	79.0
	6	60.7	67.9	57.6	67.2	66.3	64.5	63.5	61.2	59.4	58.1	57.9	57.7	60.7	10.0	70.7
Day	7	61.4	65.2	59.3	64.6	64.1	63.4	63.1	62.0	61.0	59.8	59.6	59.4	61.4	0.0	61.4
	8	58.3	62.4	55.8	62.0	61.7	61.0	60.6	59.0	57.5	56.3	56.1	55.9	58.3	0.0	58.3
	9	56.1	62.8	52.6	61.8	60.9	59.4	58.8	56.8	55.0	53.3	53.0	52.7	56.1	0.0	56.1
	10	56.9	63.1	52.6	62.7	62.1	61.0	60.2	57.9	55.3	53.3	53.0	52.7	56.9	0.0	56.9
	11	52.7	56.4	50.4	56.0	55.6	54.9	54.5	53.4	52.2	51.0	50.8	50.5	52.7	0.0	52.7
	12	54.4	59.5	50.7	59.2	58.9	58.0	57.3	55.1	53.2	51.5	51.2	50.8	54.4	0.0	54.4
	13	53.4	57.2	50.9	57.0	56.6	56.0	55.6	54.0	52.8	51.5	51.3	51.0	53.4	0.0	53.4
	14	53.6	57.8	50.9	57.4	57.1	56.3	55.8	54.3	53.0	51.7	51.4	51.0	53.6	0.0	53.6
	15	54.2	61.0	50.2	60.2	59.7	57.8	57.3	54.9	52.8	50.8	50.6	50.3	54.2	0.0	54.2
	16	50.1	54.1	48.1	53.5	53.0	52.1	51.7	50.5	49.7	48.6	48.5	48.2	50.1	0.0	50.1
	17	52.2	56.0	50.4	55.5	55.1	54.3	53.8	52.6	51.8	50.9	50.8	50.5	52.2	0.0	52.2
	18	54.0	56.7	52.6	56.3	56.0	55.4	55.1	54.3	53.7	53.0	52.9	52.7	54.0	0.0	54.0
Evening	19	55.1	59.1	53.6	58.7	58.2	57.0	56.5	55.3	54.7	54.0	53.9	53.7	55.1	5.0	60.1
	20	55.4	57.7	54.1	57.4	57.2	56.7	56.4	55.7	55.2	54.5	54.4	54.2	55.4	5.0	60.4
	21	51.6	53.4	50.5	53.2	53.0	52.7	52.5	51.9	51.4	50.9	50.7	50.6	51.6	5.0	56.6
Night	22	51.4	54.3	50.1	54.0	53.8	53.0	52.6	51.7	51.1	50.5	50.3	50.2	51.4	10.0	61.4
	23	50.2	52.1	49.2	51.8	51.6	51.3	51.0	50.4	50.0	49.5	49.4	49.3	50.2	10.0	60.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.1	54.1	48.1	53.5	53.0	52.1	51.7	50.5	49.7	48.6	48.5	48.2
	Max	61.4	65.2	59.3	64.6	64.1	63.4	63.1	62.0	61.0	59.8	59.6	59.4
Energy Average		55.9	Average:		58.8	58.4	57.5	57.0	55.4	54.0	52.6	52.4	52.2
Evening	Min	51.6	53.4	50.5	53.2	53.0	52.7	52.5	51.9	51.4	50.9	50.7	50.6
	Max	55.4	59.1	54.1	58.7	58.2	57.0	56.5	55.7	55.2	54.5	54.4	54.2
Energy Average		54.3	Average:		56.4	56.1	55.5	55.1	54.3	53.8	53.1	53.0	52.8
Night	Min	50.2	52.1	49.2	51.8	51.6	51.3	51.0	50.4	50.0	49.5	49.4	49.3
	Max	69.0	77.4	65.9	76.8	76.3	75.5	75.0	73.0	71.1	67.8	67.0	66.2
Energy Average		61.2	Average:		59.4	59.0	58.3	57.8	56.7	55.8	54.5	54.2	53.9

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
58.6	55.6	61.2

24-Hour CNEL (dBA)
67.2

24-Hour Noise Level Measurement Summary

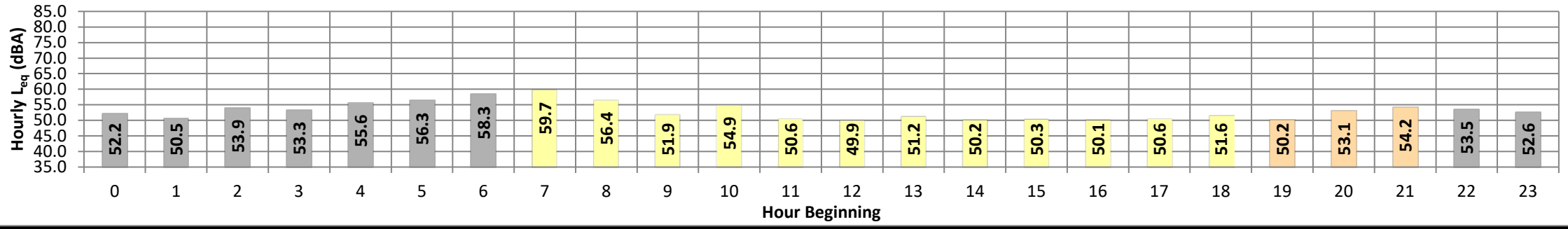
Date: Tuesday, September 29, 2020
Project: Bridge Development

Location: L6 -Located near the southeastern boundary of the Project site by the West Valley Detention Center at 9500 Etiwanda Avenue.

Meter: Piccolo II

JN: 13349
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	52.2	56.6	50.1	56.2	55.9	55.1	54.5	52.6	51.5	50.5	50.3	50.2	52.2	10.0	62.2
	1	50.5	54.4	48.7	54.2	53.8	52.9	52.4	50.9	49.9	49.1	48.9	48.8	50.5	10.0	60.5
	2	53.9	58.8	51.3	58.4	57.9	57.1	56.7	54.6	52.7	51.8	51.6	51.4	53.9	10.0	63.9
	3	53.3	56.8	51.4	56.5	56.3	55.6	55.2	53.8	52.8	51.8	51.7	51.5	53.3	10.0	63.3
	4	55.6	58.6	54.0	58.3	58.0	57.3	57.0	56.1	55.3	54.4	54.3	54.1	55.6	10.0	65.6
	5	56.3	60.6	54.8	60.0	59.2	58.1	57.7	56.6	55.9	55.1	55.0	54.8	56.3	10.0	66.3
	6	58.3	60.6	57.0	60.4	60.1	59.7	59.4	58.6	58.1	57.4	57.3	57.1	58.3	10.0	68.3
Day	7	59.7	62.4	58.5	62.0	61.7	61.1	60.8	60.0	59.5	58.9	58.8	58.6	59.7	0.0	59.7
	8	56.4	59.8	54.8	59.4	59.1	58.3	57.8	56.7	56.1	55.2	55.1	54.9	56.4	0.0	56.4
	9	51.9	58.7	48.6	58.4	57.9	56.0	54.5	52.1	50.8	49.2	49.0	48.7	51.9	0.0	51.9
	10	54.9	63.9	48.3	63.2	62.8	60.8	58.5	55.5	52.0	48.9	48.7	48.4	54.9	0.0	54.9
	11	50.6	57.6	47.0	56.6	55.6	54.1	53.2	51.0	49.6	47.7	47.4	47.2	50.6	0.0	50.6
	12	49.9	56.3	45.7	55.6	55.0	53.4	52.7	50.6	49.0	46.7	46.2	45.9	49.9	0.0	49.9
	13	51.2	54.9	48.8	54.6	54.3	53.6	53.2	51.9	50.8	49.4	49.2	48.9	51.2	0.0	51.2
	14	50.2	73.5	53.9	73.4	73.2	72.3	69.5	62.6	59.1	55.5	54.7	54.0	50.2	0.0	50.2
	15	50.3	57.2	45.7	56.6	56.0	54.5	53.5	50.9	49.0	46.7	46.3	45.9	50.3	0.0	50.3
	16	50.1	55.5	46.2	54.9	54.3	53.1	52.5	51.0	49.4	47.1	46.8	46.4	50.1	0.0	50.1
	17	50.6	56.3	46.4	56.0	55.5	54.5	53.9	51.2	49.5	47.1	46.8	46.5	50.6	0.0	50.6
	18	51.6	56.8	48.7	56.4	55.8	54.5	53.8	52.1	51.0	49.3	49.1	48.8	51.6	0.0	51.6
Evening	19	50.2	54.4	47.9	54.0	53.6	52.7	52.2	50.7	49.7	48.4	48.2	48.0	50.2	5.0	55.2
	20	53.1	57.7	50.8	57.5	57.1	56.0	55.3	53.5	52.3	51.3	51.1	50.9	53.1	5.0	58.1
	21	54.2	57.0	52.5	56.8	56.6	56.1	55.7	54.7	54.0	53.0	52.8	52.6	54.2	5.0	59.2
Night	22	53.5	57.9	51.6	57.5	57.0	56.1	55.4	53.8	53.0	52.0	51.9	51.7	53.5	10.0	63.5
	23	52.6	57.1	50.4	56.6	56.0	55.1	54.5	53.0	52.1	51.0	50.8	50.5	52.6	10.0	62.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.9	54.9	45.7	54.6	54.3	53.1	52.5	50.6	49.0	46.7	46.2	45.9
	Max	59.7	73.5	58.5	73.4	73.2	72.3	69.5	62.6	59.5	58.9	58.8	58.6
Energy Average		53.6	Average:		58.9	58.4	57.2	56.2	53.8	52.2	50.1	49.8	49.5
Evening	Min	50.2	54.4	47.9	54.0	53.6	52.7	52.2	50.7	49.7	48.4	48.2	48.0
	Max	54.2	57.7	52.5	57.5	57.1	56.1	55.7	54.7	54.0	53.0	52.8	52.6
Energy Average		52.8	Average:		56.1	55.8	54.9	54.4	53.0	52.0	50.9	50.7	50.5
Night	Min	50.5	54.4	48.7	54.2	53.8	52.9	52.4	50.9	49.9	49.1	48.9	48.8
	Max	58.3	60.6	57.0	60.4	60.1	59.7	59.4	58.6	58.1	57.4	57.3	57.1
Energy Average		54.6	Average:		57.6	57.1	56.3	55.9	54.5	53.5	52.6	52.4	52.2

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
53.9	**53.5**	**54.6**

24-Hour CNEL (dBA)

61.1

APPENDIX 8.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2020)
Road Name: Etiwanda Av.
Road Segment: s/o Foothill Bl.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,077 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,326 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.73	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.54	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-10.80	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.1	64.3	58.3	66.9	67.5
Medium Trucks:	65.1	63.5	57.1	55.6	64.1	64.3
Heavy Trucks:	74.2	72.7	63.7	64.9	73.3	73.4
Vehicle Noise:	75.5	74.0	67.5	66.2	74.6	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	101	218	469	1,010
CNEL:	105	225	485	1,045

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2020)
Road Name: Etiwanda Av.
Road Segment: s/o San Bernardino Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,731 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,001 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.05	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-13.76	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-9.02	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.2	67.3	65.5	59.5	68.1	68.7
Medium Trucks:	66.2	64.7	58.3	56.8	65.2	65.5
Heavy Trucks:	75.4	73.9	64.8	66.1	74.4	74.6
Vehicle Noise:	76.7	75.1	68.6	67.3	75.8	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	145	313	674	1,451
CNEL:	150	323	697	1,501

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2020)
Road Name: Etiwanda Av.
Road Segment: s/o Whittram Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,260 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,750 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.53	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.34	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.60	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.3	65.5	59.5	68.1	68.7
Medium Trucks:	66.3	64.7	58.4	56.8	65.3	65.5
Heavy Trucks:	75.4	73.9	64.9	66.1	74.5	74.6
Vehicle Noise:	76.8	75.2	68.7	67.4	75.8	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	262	564	1,216
CNEL:	126	271	584	1,258

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2020)
Road Name: Foothill Bl.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,934 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,833 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	0.0 feet
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.56	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.25	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.51	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.8	67.0	61.0	69.6	70.2
Medium Trucks:	67.8	66.2	59.8	58.3	66.7	67.0
Heavy Trucks:	76.9	75.4	66.4	67.6	76.0	76.1
Vehicle Noise:	78.2	76.7	70.1	68.9	77.3	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	183	394	849	1,830
CNEL:	189	408	879	1,893

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2020) | Project Name: BridgePoint
Road Name: 6th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	337 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	34 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.66	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-30.47	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.73	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.6	48.6	46.9	40.8	49.4	50.0
Medium Trucks:	48.0	46.5	40.1	38.6	47.0	47.2
Heavy Trucks:	58.0	56.6	47.5	48.8	57.1	57.3
Vehicle Noise:	59.1	57.6	50.6	49.8	58.2	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	33	71
CNEL:	7	16	34	74

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2020) | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,800 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,805 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.81	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.62	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.88	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.0	66.2	60.2	68.8	69.4
Medium Trucks:	66.8	65.2	58.9	57.3	65.8	66.0
Heavy Trucks:	75.5	74.0	65.0	66.3	74.6	74.7
Vehicle Noise:	77.0	75.4	69.1	67.6	76.0	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	152	327	704	1,518
CNEL:	157	339	730	1,572

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2020) | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: e/o I-15 NB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,250 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,749 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.95	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.75	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.02	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	66.1	60.0	68.7	69.3
Medium Trucks:	66.7	65.1	58.7	57.2	65.6	65.9
Heavy Trucks:	75.4	73.9	64.9	66.1	74.5	74.6
Vehicle Noise:	76.9	75.3	69.0	67.5	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	149	320	690	1,486
CNEL:	154	332	715	1,540

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o Foothill Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,250 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,344 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.83%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.60%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.68	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.49	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-10.76	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.2	64.4	58.3	67.0	67.6
Medium Trucks:	65.1	63.6	57.2	55.7	64.1	64.4
Heavy Trucks:	74.2	72.8	63.7	65.0	73.3	73.5
Vehicle Noise:	75.6	74.0	67.5	66.2	74.6	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	102	219	473	1,018
CNEL:	105	227	489	1,053

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Etiwanda Av.
Road Segment: s/o Whittram Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,471 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,772 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.85%
Medium Trucks:	84.8%	4.9%	10.3%	3.56%
Heavy Trucks:	86.5%	2.7%	10.8%	10.59%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.47	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.30	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.56	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.4	65.6	59.5	68.2	68.8
Medium Trucks:	66.3	64.8	58.4	56.9	65.3	65.5
Heavy Trucks:	75.4	74.0	64.9	66.2	74.5	74.6
Vehicle Noise:	76.8	75.2	68.7	67.4	75.8	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	568	1,223
CNEL:	127	273	587	1,265

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Foothill Bl.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,070 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,846 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.79%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.58	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.22	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.49	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.8	67.0	61.0	69.6	70.2
Medium Trucks:	67.8	66.2	59.9	58.3	66.8	67.0
Heavy Trucks:	76.9	75.4	66.4	67.6	76.0	76.1
Vehicle Noise:	78.2	76.7	70.2	68.9	77.3	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	184	395	852	1,836
CNEL:	190	409	882	1,899

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Etiwanda Av.
Road Segment: s/o San Bernardino Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,850 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,013 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.67%
Medium Trucks:	84.8%	4.9%	10.3%	3.61%
Heavy Trucks:	86.5%	2.7%	10.8%	10.72%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.07	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-13.68	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-8.96	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.3	65.5	59.5	68.1	68.7
Medium Trucks:	66.3	64.8	58.4	56.9	65.3	65.5
Heavy Trucks:	75.4	73.9	64.9	66.2	74.5	74.6
Vehicle Noise:	76.8	75.2	68.7	67.4	75.8	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	146	315	679	1,464
CNEL:	151	326	703	1,514

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: 6th St.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	591 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	60 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	81.09%
Medium Trucks:	84.8%	4.9%	10.3%	5.25%
Heavy Trucks:	86.5%	2.7%	10.8%	13.67%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.46	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-26.35	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.19	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.8	50.8	49.1	43.0	51.6	52.2
Medium Trucks:	52.1	50.6	44.2	42.7	51.1	51.4
Heavy Trucks:	61.6	60.1	51.1	52.3	60.7	60.8
Vehicle Noise:	62.5	61.0	53.7	53.2	61.6	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	26	56	121
CNEL:	12	27	58	124

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: 4th St.
Road Segment: e/o I-15 NB Ramps
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,809 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,806 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.46%
Medium Trucks:	84.8%	4.9%	10.3%	3.69%
Heavy Trucks:	86.5%	2.7%	10.8%	10.85%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.82	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.47	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.79	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.0	66.2	60.2	68.8	69.4
Medium Trucks:	66.9	65.4	59.0	57.5	65.9	66.2
Heavy Trucks:	75.6	74.1	65.1	66.3	74.7	74.8
Vehicle Noise:	77.1	75.5	69.1	67.7	76.1	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	154	331	713	1,535
CNEL:	159	343	738	1,590

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Street A
Road Segment: s/o Dwy. 8
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	370 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	37 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	82.65%
Medium Trucks:	84.8%	4.9%	10.3%	5.15%
Heavy Trucks:	86.5%	2.7%	10.8%	12.20%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.912
Medium Trucks:	29.615
Heavy Trucks:	29.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.41	3.24	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-28.47	3.31	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-24.72	3.30	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.1	50.2	48.4	42.4	51.0	51.6
Medium Trucks:	51.4	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	60.4	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	61.4	59.9	52.7	52.1	60.5	60.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	70
CNEL:	7	15	33	72

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: 4th St.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,963 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,821 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.87%
Medium Trucks:	84.8%	4.9%	10.3%	3.55%
Heavy Trucks:	86.5%	2.7%	10.8%	10.58%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.77	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.60	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.86	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.0	66.3	60.2	68.8	69.4
Medium Trucks:	66.8	65.2	58.9	57.3	65.8	66.0
Heavy Trucks:	75.5	74.1	65.0	66.3	74.6	74.8
Vehicle Noise:	77.0	75.5	69.1	67.7	76.1	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	152	328	707	1,523
CNEL:	158	340	732	1,578

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022
Road Name: Etiwanda Av.
Road Segment: s/o Foothill Bl.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,469 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,670 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.73	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.54	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.80	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.1	65.3	59.3	67.9	68.5
Medium Trucks:	66.1	64.5	58.1	56.6	65.1	65.3
Heavy Trucks:	75.2	73.7	64.7	65.9	74.3	74.4
Vehicle Noise:	76.5	75.0	68.5	67.2	75.6	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	254	547	1,178
CNEL:	122	263	566	1,219

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o Whittram Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,789 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,209 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.48	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.33	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.59	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.3	66.6	60.5	69.1	69.7
Medium Trucks:	67.3	65.7	59.4	57.8	66.3	66.5
Heavy Trucks:	76.4	74.9	65.9	67.1	75.5	75.6
Vehicle Noise:	77.8	76.2	69.7	68.4	76.8	77.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	142	306	659	1,420
CNEL:	147	317	682	1,469

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 | Project Name: BridgePoint
Road Name: Foothill Bl. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,898 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	3,336 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.27	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.54	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.80	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	68.5	66.9	60.5	59.0	67.5	67.7
Heavy Trucks:	77.6	76.1	67.1	68.3	76.7	76.8
Vehicle Noise:	78.9	77.4	70.8	69.6	78.0	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	204	440	947	2,040
CNEL:	211	455	980	2,111

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o San Bernardino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,076 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,441 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.92	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.89	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-8.15	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.1	66.4	60.3	68.9	69.5
Medium Trucks:	67.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	76.2	74.7	65.7	67.0	75.3	75.4
Vehicle Noise:	77.6	76.0	69.5	68.2	76.6	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	166	357	769	1,657
CNEL:	171	369	796	1,714

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 | Project Name: BridgePoint
Road Name: 6th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	350 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	35 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.49	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-30.30	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.56	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.8	48.8	47.0	41.0	49.6	50.2
Medium Trucks:	48.2	46.6	40.3	38.7	47.2	47.4
Heavy Trucks:	58.2	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	59.3	57.7	50.8	49.9	58.3	58.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	16	34	73
CNEL:	8	16	35	76

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: e/o I-15 NB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,899 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,018 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.33	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.13	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.39	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.7	60.7	69.3	69.9
Medium Trucks:	67.3	65.7	59.3	57.8	66.3	66.5
Heavy Trucks:	76.0	74.5	65.5	66.7	75.1	75.2
Vehicle Noise:	77.5	75.9	69.6	68.1	76.5	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	163	352	759	1,635
CNEL:	169	365	786	1,694

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o Foothill Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,643 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,688 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.82%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.61%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.69	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.50	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.77	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.1	65.4	59.3	68.0	68.6
Medium Trucks:	66.1	64.6	58.2	56.6	65.1	65.3
Heavy Trucks:	75.2	73.7	64.7	66.0	74.3	74.4
Vehicle Noise:	76.6	75.0	68.5	67.2	75.6	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	255	550	1,185
CNEL:	123	264	569	1,226

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,471 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,076 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.20	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.01	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.27	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	67.4	65.8	59.5	57.9	66.4	66.6
Heavy Trucks:	76.1	74.6	65.6	66.9	75.2	75.3
Vehicle Noise:	77.6	76.0	69.7	68.2	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	167	359	773	1,666
CNEL:	173	372	801	1,726

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o Whittram Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,001 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,231 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.84%
Medium Trucks:	84.8%	4.9%	10.3%	3.56%
Heavy Trucks:	86.5%	2.7%	10.8%	10.60%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.53	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.29	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.56	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	67.3	65.8	59.4	57.9	66.3	66.5
Heavy Trucks:	76.4	75.0	65.9	67.2	75.5	75.7
Vehicle Noise:	77.8	76.2	69.7	68.4	76.8	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	307	662	1,427
CNEL:	148	318	685	1,476

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022
Road Name: Etiwanda Av.
Road Segment: s/o San Bernardino Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,195 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,453 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.69%
Medium Trucks:	84.8%	4.9%	10.3%	3.61%
Heavy Trucks:	86.5%	2.7%	10.8%	10.70%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.93	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.83	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-8.10	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.4	60.3	69.0	69.6
Medium Trucks:	67.2	65.6	59.2	57.7	66.2	66.4
Heavy Trucks:	76.3	74.8	65.8	67.0	75.4	75.5
Vehicle Noise:	77.6	76.1	69.5	68.3	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	167	359	775	1,669
CNEL:	173	372	801	1,726

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022
Road Name: 6th St.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	605 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	61 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	81.19%
Medium Trucks:	84.8%	4.9%	10.3%	5.21%
Heavy Trucks:	86.5%	2.7%	10.8%	13.60%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.36	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-26.28	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.12	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.9	50.9	49.2	43.1	51.7	52.3
Medium Trucks:	52.2	50.6	44.3	42.7	51.2	51.4
Heavy Trucks:	61.7	60.2	51.1	52.4	60.7	60.9
Vehicle Noise:	62.6	61.1	53.8	53.3	61.7	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	26	57	122
CNEL:	13	27	58	126

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022
Road Name: Foothill Bl.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,033 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	3,350 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.79%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.29	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.51	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.78	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	68.5	66.9	60.6	59.0	67.5	67.7
Heavy Trucks:	77.6	76.1	67.1	68.3	76.7	76.8
Vehicle Noise:	79.0	77.4	70.9	69.6	78.0	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	205	441	950	2,046
CNEL:	212	456	983	2,117

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022
Road Name: 4th St.
Road Segment: e/o I-15 NB Ramps
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,458 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,074 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.50%
Medium Trucks:	84.8%	4.9%	10.3%	3.68%
Heavy Trucks:	86.5%	2.7%	10.8%	10.82%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.22	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.88	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.20	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	67.5	66.0	59.6	58.0	66.5	66.7
Heavy Trucks:	76.2	74.7	65.7	66.9	75.3	75.4
Vehicle Noise:	77.7	76.1	69.7	68.3	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	168	362	781	1,682
CNEL:	174	375	809	1,742

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,635 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,092 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.86%
Medium Trucks:	84.8%	4.9%	10.3%	3.56%
Heavy Trucks:	86.5%	2.7%	10.8%	10.59%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.16	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.99	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.26	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.6	66.9	60.8	69.4	70.0
Medium Trucks:	67.4	65.8	59.5	57.9	66.4	66.6
Heavy Trucks:	76.1	74.7	65.6	66.9	75.2	75.4
Vehicle Noise:	77.6	76.1	69.7	68.3	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	167	360	776	1,671
CNEL:	173	373	804	1,731

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 w/ ext. | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o Foothill Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,469 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,670 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.73	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.54	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.80	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.1	65.3	59.3	67.9	68.5
Medium Trucks:	66.1	64.5	58.1	56.6	65.1	65.3
Heavy Trucks:	75.2	73.7	64.7	65.9	74.3	74.4
Vehicle Noise:	76.5	75.0	68.5	67.2	75.6	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	254	547	1,178
CNEL:	122	263	566	1,219

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 | Project Name: BridgePoint
Road Name: Street A | Job Number: 13349
Road Segment: s/o Dwy. 8

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	370 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	37 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	82.65%
Medium Trucks:	84.8%	4.9%	10.3%	5.15%
Heavy Trucks:	86.5%	2.7%	10.8%	12.20%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.912
Medium Trucks:	29.615
Heavy Trucks:	29.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.41	3.24	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-28.47	3.31	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-24.72	3.30	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.1	50.2	48.4	42.4	51.0	51.6
Medium Trucks:	51.4	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	60.4	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	61.4	59.9	52.7	52.1	60.5	60.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	70
CNEL:	7	15	33	72

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 w/ ext. | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o Whittram Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,789 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,209 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.48	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.33	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.59	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.3	66.6	60.5	69.1	69.7
Medium Trucks:	67.3	65.7	59.4	57.8	66.3	66.5
Heavy Trucks:	76.4	74.9	65.9	67.1	75.5	75.6
Vehicle Noise:	77.8	76.2	69.7	68.4	76.8	77.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	142	306	659	1,420
CNEL:	147	317	682	1,469

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 w/ ext.
Road Name: Etiwanda Av.
Road Segment: s/o San Bernardino Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,447 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	3,087 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.94	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.87	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.13	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.4	61.3	70.0	70.6
Medium Trucks:	68.1	66.6	60.2	58.7	67.1	67.3
Heavy Trucks:	77.2	75.8	66.7	68.0	76.3	76.5
Vehicle Noise:	78.6	77.0	70.5	69.2	77.6	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	194	417	899	1,938
CNEL:	200	432	930	2,005

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 w/ ext.
Road Name: 6th St.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	350 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	35 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.49	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-30.30	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.56	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.8	48.8	47.0	41.0	49.6	50.2
Medium Trucks:	48.2	46.6	40.3	38.7	47.2	47.4
Heavy Trucks:	58.2	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	59.3	57.7	50.8	49.9	58.3	58.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	16	34	73
CNEL:	8	16	35	76

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 w/ ext.
Road Name: Foothill Bl.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,898 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	3,336 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.27	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.54	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.80	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	68.5	66.9	60.5	59.0	67.5	67.7
Heavy Trucks:	77.6	76.1	67.1	68.3	76.7	76.8
Vehicle Noise:	78.9	77.4	70.8	69.6	78.0	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	204	440	947	2,040
CNEL:	211	455	980	2,111

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 w/ ext.
Road Name: 4th St.
Road Segment: e/o I-15 NB Ramps
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,899 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,018 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.33	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.13	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.39	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.7	60.7	69.3	69.9
Medium Trucks:	67.3	65.7	59.3	57.8	66.3	66.5
Heavy Trucks:	76.0	74.5	65.5	66.7	75.1	75.2
Vehicle Noise:	77.5	75.9	69.6	68.1	76.5	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	163	352	759	1,635
CNEL:	169	365	786	1,694

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC 2022 w/ ext. | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,219 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,659 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.87	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-12.94	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.20	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.7	67.9	61.9	70.5	71.1
Medium Trucks:	68.5	66.9	60.5	59.0	67.5	67.7
Heavy Trucks:	77.2	75.7	66.7	67.9	76.3	76.4
Vehicle Noise:	78.7	77.1	70.8	69.3	77.7	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	196	423	912	1,965
CNEL:	204	439	945	2,036

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 w/ ext. | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o Whittram Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,963 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,227 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.82%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.61%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.52	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.29	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.56	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	67.3	65.8	59.4	57.9	66.3	66.5
Heavy Trucks:	76.4	75.0	65.9	67.2	75.5	75.7
Vehicle Noise:	77.8	76.2	69.7	68.4	76.8	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	307	662	1,426
CNEL:	148	318	685	1,476

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 w/ ext. | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o Foothill Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,643 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	1,688 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.82%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.61%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.69	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.50	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.77	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.1	65.4	59.3	68.0	68.6
Medium Trucks:	66.1	64.6	58.2	56.6	65.1	65.3
Heavy Trucks:	75.2	73.7	64.7	66.0	74.3	74.4
Vehicle Noise:	76.6	75.0	68.5	67.2	75.6	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	255	550	1,185
CNEL:	123	264	569	1,226

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 w/ ext. | Project Name: BridgePoint
Road Name: Etiwanda Av. | Job Number: 13349
Road Segment: s/o San Bernardino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,566 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	3,099 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.71%
Medium Trucks:	84.8%	4.9%	10.3%	3.60%
Heavy Trucks:	86.5%	2.7%	10.8%	10.69%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.95	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.82	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.09	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.2	67.4	61.4	70.0	70.6
Medium Trucks:	68.2	66.6	60.3	58.7	67.2	67.4
Heavy Trucks:	77.3	75.8	66.8	68.0	76.4	76.5
Vehicle Noise:	78.6	77.1	70.5	69.3	77.7	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	195	420	904	1,948
CNEL:	202	434	936	2,016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 w/ ext. | Project Name: BridgePoint
Road Name: Foothill Bl. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,995 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	3,346 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.78%
Medium Trucks:	84.8%	4.9%	10.3%	3.58%
Heavy Trucks:	86.5%	2.7%	10.8%	10.64%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.28	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.51	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.78	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	68.5	66.9	60.6	59.0	67.5	67.7
Heavy Trucks:	77.6	76.1	67.1	68.3	76.7	76.8
Vehicle Noise:	79.0	77.4	70.9	69.6	78.0	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	205	441	950	2,046
CNEL:	212	456	982	2,117

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 w/ ext. | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: e/o I-15 NB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,420 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,071 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.48%
Medium Trucks:	84.8%	4.9%	10.3%	3.68%
Heavy Trucks:	86.5%	2.7%	10.8%	10.84%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.23	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.88	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.20	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.6	66.8	60.7	69.4	70.0
Medium Trucks:	67.5	66.0	59.6	58.0	66.5	66.7
Heavy Trucks:	76.2	74.7	65.7	66.9	75.3	75.4
Vehicle Noise:	77.7	76.1	69.7	68.3	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	168	362	780	1,681
CNEL:	174	375	808	1,741

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 w/ ext. | Project Name: BridgePoint
Road Name: 6th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	566 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	57 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	79.93%
Medium Trucks:	84.8%	4.9%	10.3%	5.56%
Heavy Trucks:	86.5%	2.7%	10.8%	14.51%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.71	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-26.28	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.12	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.5	50.6	48.8	42.8	51.4	52.0
Medium Trucks:	52.2	50.6	44.3	42.7	51.2	51.4
Heavy Trucks:	61.7	60.2	51.1	52.4	60.7	60.9
Vehicle Noise:	62.6	61.0	53.7	53.2	61.6	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	26	57	122
CNEL:	13	27	58	125

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 w/ ext. | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,382 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,675 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.85%
Medium Trucks:	84.8%	4.9%	10.3%	3.56%
Heavy Trucks:	86.5%	2.7%	10.8%	10.59%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.90	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-12.92	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.18	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	69.7	67.9	61.9	70.5	71.1
Medium Trucks:	68.5	66.9	60.6	59.0	67.5	67.7
Heavy Trucks:	77.2	75.7	66.7	67.9	76.3	76.4
Vehicle Noise:	78.7	77.1	70.8	69.3	77.7	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	197	424	914	1,969
CNEL:	204	440	947	2,041

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP 2022 w/ ext.
Road Name: Street A
Road Segment: s/o Dwy. 8
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	332 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	34 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	80.66%
Medium Trucks:	84.8%	4.9%	10.3%	5.74%
Heavy Trucks:	86.5%	2.7%	10.8%	13.60%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.912
Medium Trucks:	29.615
Heavy Trucks:	29.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.99	3.24	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	77.72	-28.47	3.31	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-24.72	3.30	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.6	49.6	47.8	41.8	50.4	51.0
Medium Trucks:	51.4	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	60.4	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	61.4	59.8	52.5	52.0	60.4	60.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	69
CNEL:	7	15	33	71

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Etiwanda Av.
Road Segment: s/o Whittram Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,211 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	3,773 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.81	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-11.00	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-6.26	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.6	68.9	62.8	71.4	72.0
Medium Trucks:	69.6	68.1	61.7	60.1	68.6	68.8
Heavy Trucks:	78.7	77.3	68.2	69.5	77.8	77.9
Vehicle Noise:	80.1	78.5	72.0	70.7	79.1	79.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	203	437	942	2,029
CNEL:	210	452	974	2,099

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Etiwanda Av.
Road Segment: s/o Foothill Bl.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,232 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,761 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.45	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-12.36	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-7.62	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.3	67.5	61.5	70.1	70.7
Medium Trucks:	68.3	66.7	60.3	58.8	67.2	67.5
Heavy Trucks:	77.4	75.9	66.9	68.1	76.5	76.6
Vehicle Noise:	78.7	77.2	70.6	69.4	77.8	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	165	355	765	1,648
CNEL:	170	367	791	1,705

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Etiwanda Av.
Road Segment: s/o San Bernardino Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,271 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,562 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.13	0.18	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-12.68	0.20	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-7.94	0.20	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.3	66.6	60.5	69.2	69.8
Medium Trucks:	67.3	65.8	59.4	57.8	66.3	66.5
Heavy Trucks:	76.4	75.0	65.9	67.2	75.5	75.6
Vehicle Noise:	77.8	76.2	69.7	68.4	76.8	77.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	171	369	794	1,711
CNEL:	177	381	822	1,771

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Foothill Bl.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,539 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	5,226 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.22	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-9.59	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-4.85	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	71.4	69.7	63.6	72.2	72.9
Medium Trucks:	70.4	68.8	62.5	60.9	69.4	69.6
Heavy Trucks:	79.5	78.0	69.0	70.3	78.6	78.7
Vehicle Noise:	80.9	79.3	72.8	71.5	79.9	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	275	593	1,277	2,752
CNEL:	285	613	1,322	2,847

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: 4th St.
Road Segment: e/o I-15 NB Ramps
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,189 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,250 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.15	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.66	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.92	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	68.9	67.2	61.1	69.7	70.4
Medium Trucks:	67.7	66.2	59.8	58.3	66.7	67.0
Heavy Trucks:	76.5	75.0	66.0	67.2	75.6	75.7
Vehicle Noise:	78.0	76.4	70.1	68.6	77.0	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	176	379	816	1,758
CNEL:	182	392	845	1,821

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: 6th St.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,543 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	562 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.49	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-18.30	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-13.56	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.8	60.8	59.0	53.0	61.6	62.2
Medium Trucks:	60.2	58.6	52.3	50.7	59.2	59.4
Heavy Trucks:	70.2	68.7	59.7	60.9	69.3	69.4
Vehicle Noise:	71.3	69.7	62.8	61.9	70.3	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	100	215	462
CNEL:	48	103	221	477

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: 4th St.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,831 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,315 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.80%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.63%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.27	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.54	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.80	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	67.9	66.3	59.9	58.4	66.9	67.1
Heavy Trucks:	76.6	75.1	66.1	67.3	75.7	75.8
Vehicle Noise:	78.1	76.5	70.2	68.7	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	179	386	832	1,792
CNEL:	186	400	862	1,856

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040
Road Name: Etiwanda Av.
Road Segment: s/o Foothill Bl.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,405 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,779 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.81%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.62%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.48	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-12.33	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.60	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.3	67.5	61.5	70.1	70.7
Medium Trucks:	68.3	66.7	60.4	58.8	67.3	67.5
Heavy Trucks:	77.4	75.9	66.9	68.1	76.5	76.6
Vehicle Noise:	78.8	77.2	70.7	69.4	77.8	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	165	356	768	1,654
CNEL:	171	369	794	1,711

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040
Road Name: Etiwanda Av.
Road Segment: s/o San Bernardino Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,390 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,575 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.70%
Medium Trucks:	84.8%	4.9%	10.3%	3.60%
Heavy Trucks:	86.5%	2.7%	10.8%	10.70%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.14	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.62	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.89	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	67.4	65.8	59.5	57.9	66.4	66.6
Heavy Trucks:	76.5	75.0	66.0	67.2	75.6	75.7
Vehicle Noise:	77.8	76.3	69.7	68.5	76.9	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	172	371	800	1,723
CNEL:	178	384	827	1,782

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040
Road Name: Etiwanda Av.
Road Segment: s/o Whittram Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,384 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	3,791 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.81%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.62%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.83	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.98	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-6.25	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.7	68.9	62.8	71.5	72.1
Medium Trucks:	69.6	68.1	61.7	60.2	68.6	68.9
Heavy Trucks:	78.8	77.3	68.2	69.5	77.8	78.0
Vehicle Noise:	80.1	78.5	72.0	70.7	79.1	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	203	438	944	2,034
CNEL:	210	453	977	2,105

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040
Road Name: Foothill Bl.
Road Segment: w/o Etiwanda Av.
Project Name: BridgePoint
Job Number: 13349

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,636 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	5,236 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.79%
Medium Trucks:	84.8%	4.9%	10.3%	3.57%
Heavy Trucks:	86.5%	2.7%	10.8%	10.64%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.23	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-9.57	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-4.84	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	71.5	69.7	63.6	72.3	72.9
Medium Trucks:	70.4	68.9	62.5	61.0	69.4	69.6
Heavy Trucks:	79.5	78.1	69.0	70.3	78.6	78.8
Vehicle Noise:	80.9	79.3	72.8	71.5	79.9	80.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	276	594	1,280	2,757
CNEL:	285	615	1,324	2,852

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 | Project Name: BridgePoint
Road Name: 6th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,759 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	584 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.22%
Medium Trucks:	84.8%	4.9%	10.3%	3.77%
Heavy Trucks:	86.5%	2.7%	10.8%	11.01%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.36	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-17.90	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-13.24	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	60.9	59.2	53.1	61.7	62.3
Medium Trucks:	60.6	59.0	52.7	51.1	59.6	59.8
Heavy Trucks:	70.5	69.0	60.0	61.3	69.6	69.7
Vehicle Noise:	71.6	70.0	63.0	62.2	70.6	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	225	484
CNEL:	50	108	232	499

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: w/o Etiwanda Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,994 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,332 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.85%
Medium Trucks:	84.8%	4.9%	10.3%	3.56%
Heavy Trucks:	86.5%	2.7%	10.8%	10.59%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.31	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.52	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.78	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	67.9	66.3	60.0	58.4	66.9	67.1
Heavy Trucks:	76.6	75.1	66.1	67.3	75.7	75.8
Vehicle Noise:	78.1	76.5	70.2	68.7	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	180	387	834	1,797
CNEL:	186	401	864	1,861

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 | Project Name: BridgePoint
Road Name: 4th St. | Job Number: 13349
Road Segment: e/o I-15 NB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,710 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	2,303 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.51%
Medium Trucks:	84.8%	4.9%	10.3%	3.67%
Heavy Trucks:	86.5%	2.7%	10.8%	10.82%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	47.883
Medium Trucks:	47.698
Heavy Trucks:	47.716

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.23	0.18	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.44	0.20	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.74	0.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.0	67.3	61.2	69.8	70.4
Medium Trucks:	68.0	66.4	60.0	58.5	67.0	67.2
Heavy Trucks:	76.7	75.2	66.1	67.4	75.7	75.9
Vehicle Noise:	78.1	76.6	70.2	68.8	77.2	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	180	388	837	1,803
CNEL:	187	402	867	1,867

Thursday, January 21, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 | Project Name: BridgePoint
Road Name: Street A | Job Number: 13349
Road Segment: s/o Dwy. 8

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	332 vehicles
Peak Hour Percentage:	10.14%
Peak Hour Volume:	34 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	80.66%
Medium Trucks:	84.8%	4.9%	10.3%	5.74%
Heavy Trucks:	86.5%	2.7%	10.8%	13.60%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.912
Medium Trucks:	29.615
Heavy Trucks:	29.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.99	3.24	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-28.47	3.31	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-24.72	3.30	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.6	49.6	47.8	41.8	50.4	51.0
Medium Trucks:	51.4	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	60.4	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	61.4	59.8	52.5	52.0	60.4	60.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	69
CNEL:	7	15	33	71

Thursday, January 21, 2021

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APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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13349 - Bridge Point Rancho Cucamonga

CadnaA Noise Prediction Model: 13349-14.cna
Date: 12.01.21
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	44.4	44.4	51.1	65.0	60.0	0.0				5.00	a	6170806.84	2341967.49	5.00
RECEIVERS		R2	53.4	53.4	60.0	65.0	60.0	0.0				5.00	a	6173879.36	2339036.76	5.00
RECEIVERS		R3	35.5	35.4	42.1	65.0	60.0	0.0				5.00	a	6168980.96	2335531.62	5.00
RECEIVERS		R4	35.9	35.8	42.5	65.0	60.0	0.0				5.00	a	6166982.09	2338647.59	5.00
RECEIVERS		PL	59.9	59.9	66.6	65.0	65.0	0.0				5.00	a	6173514.81	2339003.28	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			K0	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night				X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(dB)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6173347.59	2341016.16	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6173347.85	2340320.67	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6173245.42	2340027.29	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6173217.65	2338199.18	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6172457.24	2338211.33	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6172413.42	2341033.16	50.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	0.0	5.00	a	6173173.65	2341174.96	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	0.0	5.00	a	6173385.86	2338416.78	5.00
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	0.0	5.00	a	6172356.83	2338444.09	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)
LINESOURCE		DWY01	83.3	69.7	74.5	63.3	49.7	54.5	PWL-Pt	89.7					23.0	1.0	3.0	6.2	8
LINESOURCE		DWY01	87.4	73.8	78.5	63.3	49.7	54.5	PWL-Pt	89.7					23.0	1.0	3.0	6.2	8
LINESOURCE		DWY02	92.3	77.2	83.2	71.8	56.7	62.7	PWL-Pt	89.7					163.0	5.0	20.0	6.2	8
LINESOURCE		DWY05	87.4	72.1	78.6	68.1	52.7	59.2	PWL-Pt	89.7					69.0	2.0	9.0	6.2	8
LINESOURCE		DWY07	87.0	71.6	78.1	68.1	52.7	59.2	PWL-Pt	89.7					69.0	2.0	9.0	6.2	8
LINESOURCE		DWY08	89.2	75.6	80.4	63.3	49.7	54.5	PWL-Pt	89.7					23.0	1.0	3.0	6.2	8
LINESOURCE		DWY08	82.5	68.8	73.6	63.3	49.7	54.5	PWL-Pt	89.7					23.0	1.0	3.0	6.2	8
LINESOURCE		DWY10	85.6	70.3	76.8	68.1	52.7	59.2	PWL-Pt	89.7					69.0	2.0	9.0	6.2	8

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
LINESOURCE	8.00	a		6172544.00	2341127.33	8.00	0.00
				6172367.13	2341128.49	8.00	0.00
				6172370.60	2341277.61	8.00	0.00
LINESOURCE	8.00	a		6172315.97	2340302.76	8.00	0.00
				6172333.39	2341090.84	8.00	0.00
				6172367.13	2341128.49	8.00	0.00
LINESOURCE	8.00	a		6172395.76	2338427.06	8.00	0.00
				6172389.66	2338060.48	8.00	0.00
LINESOURCE	8.00	a		6173187.90	2341111.15	8.00	0.00
				6173395.98	2341107.68	8.00	0.00
				6173469.96	2341112.31	8.00	0.00
LINESOURCE	8.00	a		6173222.02	2340234.45	8.00	0.00
				6173474.83	2340228.37	8.00	0.00
LINESOURCE	8.00	a		6172411.41	2339849.87	8.00	0.00
				6172436.31	2340089.96	8.00	0.00
				6172447.38	2340100.37	8.00	0.00
				6172459.78	2340109.16	8.00	0.00
				6172473.27	2340116.16	8.00	0.00
				6172487.60	2340121.25	8.00	0.00
				6172502.49	2340124.31	8.00	0.00
				6172517.66	2340125.31	8.00	0.00
				6172532.82	2340124.20	8.00	0.00
				6173290.09	2340107.08	8.00	0.00
				6173386.60	2340089.96	8.00	0.00
				6173469.10	2340089.18	8.00	0.00
LINESOURCE	8.00	a		6173334.45	2339828.45	8.00	0.00
				6173342.65	2340097.76	8.00	0.00
LINESOURCE	8.00	a		6173305.28	2338404.50	8.00	0.00
				6173304.34	2338391.70	8.00	0.00
				6173305.43	2338378.92	8.00	0.00
				6173308.55	2338366.47	8.00	0.00
				6173313.60	2338354.67	8.00	0.00
				6173320.47	2338343.83	8.00	0.00
				6173328.97	2338334.21	8.00	0.00
				6173338.89	2338326.07	8.00	0.00
				6173349.98	2338319.61	8.00	0.00
				6173361.95	2338314.99	8.00	0.00
				6173374.51	2338312.34	8.00	0.00
				6173387.33	2338311.71	8.00	0.00
				6173433.18	2338311.71	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
AREASOURCE		DOCK01	111.5	111.5	111.5	71.1	71.1	71.1	Lw	111.5					8
AREASOURCE		DOCK02	111.5	111.5	111.5	69.7	69.7	69.7	Lw	111.5					8
AREASOURCE		DOCK03	111.5	111.5	111.5	67.7	67.7	67.7	Lw	111.5					8
AREASOURCE		DOCK04	111.5	111.5	111.5	67.1	67.1	67.1	Lw	111.5					8

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	a		6172544.89	2341215.97	8.00	0.00
				6173138.82	2341202.27	8.00	0.00
				6173138.48	2341184.12	8.00	0.00
				6173186.43	2341183.09	8.00	0.00
				6173185.41	2341161.51	8.00	0.00
				6173184.72	2341135.48	8.00	0.00
				6173183.35	2341095.40	8.00	0.00
				6173183.69	2341015.94	8.00	0.00
				6172539.68	2341029.81	8.00	0.00
				6172543.52	2341104.31	8.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6172543.18	2341146.10	8.00	0.00
AREASOURCE	8.00	a			6172298.25	2340303.01	8.00	0.00
					6172345.05	2340302.35	8.00	0.00
					6172436.52	2340300.23	8.00	0.00
					6172437.58	2340352.34	8.00	0.00
					6173224.60	2340335.32	8.00	0.00
					6173223.54	2340282.15	8.00	0.00
					6173222.55	2340251.02	8.00	0.00
					6173221.27	2340211.07	8.00	0.00
					6173220.50	2340185.71	8.00	0.00
					6173219.83	2340149.58	8.00	0.00
					6172295.39	2340169.59	8.00	0.00
AREASOURCE	8.00	a			6172335.02	2339851.35	8.00	0.00
					6172517.57	2339847.83	8.00	0.00
					6172489.31	2338424.23	8.00	0.00
					6172434.23	2338425.96	8.00	0.00
					6172365.61	2338427.92	8.00	0.00
					6172365.39	2338470.02	8.00	0.00
					6172361.70	2338476.75	8.00	0.00
					6172356.50	2338479.57	8.00	0.00
					6172307.23	2338481.09	8.00	0.00
AREASOURCE	8.00	a			6173227.64	2339833.94	8.00	0.00
					6173276.25	2339832.21	8.00	0.00
					6173310.81	2339830.62	8.00	0.00
					6173356.39	2339830.11	8.00	0.00
					6173452.14	2339827.04	8.00	0.00
					6173435.76	2339187.47	8.00	0.00
					6173434.73	2339143.94	8.00	0.00
					6173435.24	2339114.75	8.00	0.00
					6173411.69	2339114.75	8.00	0.00
					6173397.35	2338402.98	8.00	0.00
					6173337.44	2338405.03	8.00	0.00
					6173280.93	2338405.58	8.00	0.00
					6173254.74	2338405.92	8.00	0.00
					6173201.59	2338406.86	8.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
			left	right		horz.	vert.	Begin		End	x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIERPROP		BARRIER01						8.00	a		6172540.10	2341031.01	8.00	0.00
											6172543.52	2341104.31	8.00	0.00
BARRIERPROP		BARRIER02						8.00	a		6172543.18	2341146.10	8.00	0.00
											6172544.89	2341215.97	8.00	0.00
											6173138.82	2341202.27	8.00	0.00
											6173138.48	2341184.12	8.00	0.00
											6173186.43	2341183.09	8.00	0.00
											6173184.72	2341135.48	8.00	0.00
BARRIERPROP		BARRIER03						8.00	a		6173183.35	2341095.40	8.00	0.00
											6173183.69	2341015.94	8.00	0.00
BARRIERPROP		BARRIER04						8.00	a		6173223.54	2340282.15	8.00	0.00
											6173222.55	2340251.02	8.00	0.00
BARRIERPROP		BARRIER05						8.00	a		6173221.27	2340211.07	8.00	0.00
											6173220.50	2340185.71	8.00	0.00
BARRIERPROP		BARRIER06						8.00	a		6173276.25	2339832.21	8.00	0.00
											6173310.81	2339830.62	8.00	0.00
BARRIERPROP		BARRIER07						8.00	a		6173356.39	2339830.11	8.00	0.00
											6173452.14	2339827.04	8.00	0.00
											6173435.76	2339187.47	8.00	0.00
BARRIERPROP		BARRIER08						8.00	a		6173434.73	2339143.94	8.00	0.00
											6173435.24	2339114.75	8.00	0.00
											6173411.69	2339114.75	8.00	0.00
											6173397.35	2338402.98	8.00	0.00
											6173337.44	2338405.03	8.00	0.00
BARRIERPROP		BARRIER09						8.00	a		6173280.93	2338405.58	8.00	0.00
											6173254.74	2338405.92	8.00	0.00
BARRIERPROP		BARRIER10						8.00	a		6172434.23	2338425.96	8.00	0.00
											6172415.76	2338426.08	8.00	0.00
BARRIERPROP		BARRIER11						8.00	a		6172376.40	2338427.61	8.00	0.00
											6172300.14	2338428.25	8.00	0.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING01	x	0		45.00	a	6172477.64	2340082.21	45.00	0.00
								6173245.00	2340063.11	45.00	0.00
								6173245.00	2340057.90	45.00	0.00
								6173274.51	2340057.90	45.00	0.00
								6173276.25	2339832.21	45.00	0.00
								6173227.64	2339833.94	45.00	0.00
								6173201.59	2338406.86	45.00	0.00
								6173254.74	2338405.92	45.00	0.00
								6173243.26	2338172.48	45.00	0.00
								6173149.51	2338169.01	45.00	0.00
								6173146.04	2338153.39	45.00	0.00
								6172533.19	2338167.27	45.00	0.00
								6172533.19	2338181.16	45.00	0.00
								6172430.76	2338188.11	45.00	0.00
								6172434.23	2338425.96	45.00	0.00
								6172489.31	2338424.23	45.00	0.00
								6172517.57	2339847.83	45.00	0.00
								6172472.43	2339853.04	45.00	0.00
BUILDING		BUILDING02	x	0		45.00	a	6172356.75	2341034.07	45.00	0.00
								6172371.64	2341033.01	45.00	0.00
								6172371.64	2341069.17	45.00	0.00
								6172404.61	2341070.23	45.00	0.00
								6172404.61	2341073.42	45.00	0.00
								6172539.68	2341071.29	45.00	0.00
								6172539.68	2341029.81	45.00	0.00
								6173240.55	2341013.86	45.00	0.00
								6173241.62	2341065.97	45.00	0.00
								6173358.60	2341062.78	45.00	0.00
								6173359.67	2341057.47	45.00	0.00
								6173395.83	2341057.47	45.00	0.00
								6173393.70	2341017.05	45.00	0.00
								6173397.96	2341015.99	45.00	0.00
								6173395.83	2340960.68	45.00	0.00
								6173404.34	2340960.68	45.00	0.00
								6173392.64	2340369.36	45.00	0.00
								6173383.07	2340370.42	45.00	0.00
								6173379.88	2340284.27	45.00	0.00
								6173223.54	2340282.15	45.00	0.00
								6173224.60	2340335.32	45.00	0.00
								6172437.58	2340352.34	45.00	0.00
								6172436.52	2340300.23	45.00	0.00
								6172345.05	2340302.35	45.00	0.00

APPENDIX 10.1:

UNMITIGATED TYPICAL CONSTRUCTION NOISE CALCULATIONS

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13349 - Bridge Point Rancho Cucamonga

CadnaA Noise Prediction Model: 13349-11_ConstructionUnmitigated.cna
Date: 06.10.20
Analyst: S. Shami

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
1_RECEIVERS		PL_North	58.6	58.6	65.2	70.0	0.0	0.0				5.00	a	6172923.75	2341359.44	5.00
2_RECEIVERS		PL_South	59.1	59.1	65.8	70.0	0.0	0.0				5.00	a	6172814.86	2337923.52	5.00
3_RECEIVERS		PL_East	59.8	59.8	66.4	65.0	0.0	0.0				5.00	a	6173518.13	2339003.28	5.00
4_RECEIVERS		PL_West	61.1	61.1	67.8	70.0	0.0	0.0				5.00	a	6172303.77	2339093.93	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
BUILDING		BUILDING00001	115.9	115.9	115.9	67.5	67.5	67.5	Lw"	67.5					8
BUILDING		BUILDING00002	118.7	118.7	118.7	67.5	67.5	67.5	Lw"	67.5					8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING	8.00	a			6172358.79	2341047.88	8.00	0.00
					6172372.07	2341047.49	8.00	0.00
					6172372.28	2341083.95	8.00	0.00
					6172414.17	2341082.21	8.00	0.00
					6172414.17	2341086.12	8.00	0.00
					6172446.94	2341086.12	8.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6172446.94	2341098.06	8.00	0.00
					6172624.24	2341094.15	8.00	0.00
					6172622.94	2341042.72	8.00	0.00
					6173180.23	2341030.13	8.00	0.00
					6173181.96	2341083.08	8.00	0.00
					6173359.26	2341079.18	8.00	0.00
					6173359.48	2341074.62	8.00	0.00
					6173395.72	2341074.62	8.00	0.00
					6173394.85	2341033.60	8.00	0.00
					6173398.54	2341033.17	8.00	0.00
					6173397.89	2340976.31	8.00	0.00
					6173405.70	2340975.88	8.00	0.00
					6173394.64	2340386.47	8.00	0.00
					6173385.96	2340383.86	8.00	0.00
					6173384.05	2340328.48	8.00	0.00
					6173380.92	2340327.79	8.00	0.00
					6173379.19	2340297.58	8.00	0.00
					6173351.76	2340298.62	8.00	0.00
					6173351.41	2340294.80	8.00	0.00
					6173165.64	2340297.93	8.00	0.00
					6173165.99	2340350.01	8.00	0.00
					6172344.81	2340367.37	8.00	0.00
					6172343.77	2340367.72	8.00	0.00
BUILDING	8.00	a			6172518.86	2339911.60	8.00	0.00
					6172473.54	2339913.68	8.00	0.00
					6172477.19	2340081.91	8.00	0.00
					6173281.36	2340064.72	8.00	0.00
					6173277.71	2339895.45	8.00	0.00
					6173231.88	2339895.45	8.00	0.00
					6173203.71	2338420.84	8.00	0.00
					6173256.66	2338418.67	8.00	0.00
					6173251.45	2338205.13	8.00	0.00
					6173247.11	2338206.87	8.00	0.00
					6173247.98	2338167.80	8.00	0.00
					6173205.44	2338168.67	8.00	0.00
					6173203.71	2338166.07	8.00	0.00
					6173149.02	2338166.94	8.00	0.00
					6173149.02	2338153.92	8.00	0.00
					6172531.83	2338164.33	8.00	0.00
					6172530.10	2338178.22	8.00	0.00
					6172477.15	2338180.83	8.00	0.00
					6172477.15	2338185.17	8.00	0.00
					6172432.87	2338185.17	8.00	0.00
					6172436.35	2338220.76	8.00	0.00
					6172431.14	2338220.76	8.00	0.00
					6172435.48	2338436.03	8.00	0.00
					6172489.30	2338436.03	8.00	0.00

Barrier(s)

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

Building(s)

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

APPENDIX 10.2:

MITIGATED TYPICAL CONSTRUCTION NOISE CALCULATIONS

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13349 - Bridge Point Rancho Cucamonga

CadnaA Noise Prediction Model: 13349-11_ConstructionMitigated.cna
Date: 06.10.20
Analyst: S. Shami

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
1_RECEIVERS		PL_North	58.6	58.6	65.2	70.0	0.0	0.0				5.00	a	6172923.75	2341359.44	5.00
2_RECEIVERS		PL_South	59.1	59.1	65.8	70.0	0.0	0.0				5.00	a	6172814.86	2337923.52	5.00
3_RECEIVERS		PL_East	54.3	54.3	61.0	65.0	0.0	0.0				5.00	a	6173518.13	2339003.28	5.00
4_RECEIVERS		PL_West	61.1	61.1	67.8	70.0	0.0	0.0				5.00	a	6172303.77	2339093.93	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
BUILDING		BUILDING00001	115.9	115.9	115.9	67.5	67.5	67.5	Lw"	67.5					8
BUILDING		BUILDING00002	118.7	118.7	118.7	67.5	67.5	67.5	Lw"	67.5					8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING	8.00	a			6172358.79	2341047.88	8.00	0.00
					6172372.07	2341047.49	8.00	0.00
					6172372.28	2341083.95	8.00	0.00
					6172414.17	2341082.21	8.00	0.00
					6172414.17	2341086.12	8.00	0.00
					6172446.94	2341086.12	8.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6172446.94	2341098.06	8.00	0.00
					6172624.24	2341094.15	8.00	0.00
					6172622.94	2341042.72	8.00	0.00
					6173180.23	2341030.13	8.00	0.00
					6173181.96	2341083.08	8.00	0.00
					6173359.26	2341079.18	8.00	0.00
					6173359.48	2341074.62	8.00	0.00
					6173395.72	2341074.62	8.00	0.00
					6173394.85	2341033.60	8.00	0.00
					6173398.54	2341033.17	8.00	0.00
					6173397.89	2340976.31	8.00	0.00
					6173405.70	2340975.88	8.00	0.00
					6173394.64	2340386.47	8.00	0.00
					6173385.96	2340383.86	8.00	0.00
					6173384.05	2340328.48	8.00	0.00
					6173380.92	2340327.79	8.00	0.00
					6173379.19	2340297.58	8.00	0.00
					6173351.76	2340298.62	8.00	0.00
					6173351.41	2340294.80	8.00	0.00
					6173165.64	2340297.93	8.00	0.00
					6173165.99	2340350.01	8.00	0.00
					6172344.81	2340367.37	8.00	0.00
					6172343.77	2340367.72	8.00	0.00
BUILDING	8.00	a			6172518.86	2339911.60	8.00	0.00
					6172473.54	2339913.68	8.00	0.00
					6172477.19	2340081.91	8.00	0.00
					6173281.36	2340064.72	8.00	0.00
					6173277.71	2339895.45	8.00	0.00
					6173231.88	2339895.45	8.00	0.00
					6173203.71	2338420.84	8.00	0.00
					6173256.66	2338418.67	8.00	0.00
					6173251.45	2338205.13	8.00	0.00
					6173247.11	2338206.87	8.00	0.00
					6173247.98	2338167.80	8.00	0.00
					6173205.44	2338168.67	8.00	0.00
					6173203.71	2338166.07	8.00	0.00
					6173149.02	2338166.94	8.00	0.00
					6173149.02	2338153.92	8.00	0.00
					6172531.83	2338164.33	8.00	0.00
					6172530.10	2338178.22	8.00	0.00
					6172477.15	2338180.83	8.00	0.00
					6172477.15	2338185.17	8.00	0.00
					6172432.87	2338185.17	8.00	0.00
					6172436.35	2338220.76	8.00	0.00
					6172431.14	2338220.76	8.00	0.00
					6172435.48	2338436.03	8.00	0.00
					6172489.30	2338436.03	8.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIERS		PERIMETER FENCING						6.00	a			6173543.74	2340455.95	6.00	0.00
												6173501.69	2338379.54	6.00	0.00

Building(s)

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

APPENDIX 10.3:

UNMITIGATED CONCRETE CRUSHING NOISE CALCULATIONS

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13349 - Bridge Point Rancho Cucamonga

CadnaA Noise Prediction Model: 13349-11_ConcreteUnmitigated.cna
Date: 06.10.20
Analyst: S. Shami

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
1_RECEIVERS		PL_North	50.8	50.8	57.5	70.0	0.0	0.0				5.00	a	6172923.75	2341359.44	5.00
2_RECEIVERS		PL_South	51.8	51.8	58.4	70.0	0.0	0.0				5.00	a	6172814.86	2337923.52	5.00
3_RECEIVERS		PL_East	72.1	72.1	78.8	65.0	0.0	0.0				5.00	a	6173526.04	2339512.76	5.00
4_RECEIVERS		PL_West	55.5	55.5	62.2	70.0	0.0	0.0				5.00	a	6172303.77	2339093.93	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
CONCRETE		0	118.2	118.2	118.2	83.0	83.0	83.0	Lw''	83					8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
CONCRETE	8.00	a			6173269.68	2339622.47	8.00	0.00
					6173275.28	2339627.85	8.00	0.00
					6173281.69	2339632.23	8.00	0.00
					6173288.74	2339635.48	8.00	0.00
					6173296.23	2339637.51	8.00	0.00
					6173303.96	2339638.26	8.00	0.00
					6173311.71	2339637.72	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6173319.25	2339635.90	8.00	0.00
			6173326.39	2339632.84	8.00	0.00
			6173332.92	2339628.64	8.00	0.00
			6173338.66	2339623.41	8.00	0.00
			6173343.45	2339617.30	8.00	0.00
			6173347.15	2339610.47	8.00	0.00
			6173353.83	2339615.05	8.00	0.00
			6173361.18	2339618.47	8.00	0.00
			6173368.99	2339620.64	8.00	0.00
			6173377.04	2339621.50	8.00	0.00
			6173385.13	2339621.03	8.00	0.00
			6173393.03	2339619.23	8.00	0.00
			6173400.53	2339616.17	8.00	0.00
			6173407.42	2339611.91	8.00	0.00
			6173413.53	2339606.58	8.00	0.00
			6173418.67	2339600.32	8.00	0.00
			6173422.72	2339593.31	8.00	0.00
			6173425.57	2339585.72	8.00	0.00
			6173427.13	2339577.77	8.00	0.00
			6173427.36	2339569.67	8.00	0.00
			6173426.26	2339561.64	8.00	0.00
			6173432.71	2339549.21	8.00	0.00
			6173437.01	2339535.88	8.00	0.00
			6173439.04	2339522.03	8.00	0.00
			6173438.75	2339508.02	8.00	0.00
			6173436.13	2339494.27	8.00	0.00
			6173431.27	2339481.13	8.00	0.00
			6173424.29	2339468.99	8.00	0.00
			6173425.09	2339463.95	8.00	0.00
			6173425.03	2339458.86	8.00	0.00
			6173424.11	2339453.84	8.00	0.00
			6173422.36	2339449.06	8.00	0.00
			6173419.82	2339444.64	8.00	0.00
			6173416.57	2339440.71	8.00	0.00
			6173412.71	2339437.39	8.00	0.00
			6173408.34	2339434.77	8.00	0.00
			6173403.59	2339432.92	8.00	0.00
			6173398.59	2339431.90	8.00	0.00
			6173393.50	2339431.74	8.00	0.00
			6173388.45	2339432.45	8.00	0.00
			6173383.59	2339434.00	8.00	0.00
			6173379.07	2339436.34	8.00	0.00
			6173375.01	2339439.42	8.00	0.00
			6173365.92	2339434.18	8.00	0.00
			6173356.07	2339430.60	8.00	0.00
			6173345.75	2339428.79	8.00	0.00
			6173335.27	2339428.79	8.00	0.00
			6173324.94	2339430.60	8.00	0.00
			6173315.09	2339434.18	8.00	0.00
			6173306.01	2339439.42	8.00	0.00
			6173297.55	2339437.30	8.00	0.00
			6173288.86	2339436.60	8.00	0.00
			6173280.17	2339437.32	8.00	0.00
			6173271.72	2339439.46	8.00	0.00
			6173263.73	2339442.95	8.00	0.00
			6173256.42	2339447.70	8.00	0.00
			6173249.98	2339453.58	8.00	0.00
			6173244.60	2339460.43	8.00	0.00
			6173240.40	2339468.07	8.00	0.00
			6173237.51	2339476.30	8.00	0.00
			6173236.01	2339484.88	8.00	0.00
			6173235.93	2339493.60	8.00	0.00
			6173237.27	2339502.21	8.00	0.00
			6173232.81	2339515.44	8.00	0.00
			6173230.05	2339529.13	8.00	0.00
			6173229.05	2339543.05	8.00	0.00
			6173229.82	2339556.99	8.00	0.00
			6173230.22	2339565.63	8.00	0.00
			6173231.91	2339574.11	8.00	0.00
			6173234.85	2339582.25	8.00	0.00
			6173238.97	2339589.86	8.00	0.00
			6173244.18	2339596.76	8.00	0.00
			6173250.36	2339602.82	8.00	0.00
			6173257.37	2339607.88	8.00	0.00

Barrier(s)

APPENDIX 10.4:

MITIGATED CONCRETE CRUSHING NOISE CALCULATIONS

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13349 - Bridge Point Rancho Cucamonga

CadnaA Noise Prediction Model: 13349-11_ConcreteMitigated.cna
Date: 06.10.20
Analyst: S. Shami

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
1_RECEIVERS		PL_North	50.8	50.8	57.5	70.0	0.0	0.0				5.00	a	6172923.75	2341359.44	5.00
2_RECEIVERS		PL_South	51.8	51.8	58.4	70.0	0.0	0.0				5.00	a	6172814.86	2337923.52	5.00
3_RECEIVERS		PL_East	64.7	64.7	71.4	65.0	0.0	0.0				5.00	a	6173526.04	2339512.76	5.00
4_RECEIVERS		PL_West	55.5	55.5	62.2	70.0	0.0	0.0				5.00	a	6172303.77	2339093.93	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
CONCRETE		0	118.2	118.2	118.2	83.0	83.0	83.0	Lw''	83					8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
CONCRETE	8.00	a			6173269.68	2339622.47	8.00	0.00
					6173275.28	2339627.85	8.00	0.00
					6173281.69	2339632.23	8.00	0.00
					6173288.74	2339635.48	8.00	0.00
					6173296.23	2339637.51	8.00	0.00
					6173303.96	2339638.26	8.00	0.00
					6173311.71	2339637.72	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6173319.25	2339635.90	8.00	0.00
			6173326.39	2339632.84	8.00	0.00
			6173332.92	2339628.64	8.00	0.00
			6173338.66	2339623.41	8.00	0.00
			6173343.45	2339617.30	8.00	0.00
			6173347.15	2339610.47	8.00	0.00
			6173353.83	2339615.05	8.00	0.00
			6173361.18	2339618.47	8.00	0.00
			6173368.99	2339620.64	8.00	0.00
			6173377.04	2339621.50	8.00	0.00
			6173385.13	2339621.03	8.00	0.00
			6173393.03	2339619.23	8.00	0.00
			6173400.53	2339616.17	8.00	0.00
			6173407.42	2339611.91	8.00	0.00
			6173413.53	2339606.58	8.00	0.00
			6173418.67	2339600.32	8.00	0.00
			6173422.72	2339593.31	8.00	0.00
			6173425.57	2339585.72	8.00	0.00
			6173427.13	2339577.77	8.00	0.00
			6173427.36	2339569.67	8.00	0.00
			6173426.26	2339561.64	8.00	0.00
			6173432.71	2339549.21	8.00	0.00
			6173437.01	2339535.88	8.00	0.00
			6173439.04	2339522.03	8.00	0.00
			6173438.75	2339508.02	8.00	0.00
			6173436.13	2339494.27	8.00	0.00
			6173431.27	2339481.13	8.00	0.00
			6173424.29	2339468.99	8.00	0.00
			6173425.09	2339463.95	8.00	0.00
			6173425.03	2339458.86	8.00	0.00
			6173424.11	2339453.84	8.00	0.00
			6173422.36	2339449.06	8.00	0.00
			6173419.82	2339444.64	8.00	0.00
			6173416.57	2339440.71	8.00	0.00
			6173412.71	2339437.39	8.00	0.00
			6173408.34	2339434.77	8.00	0.00
			6173403.59	2339432.92	8.00	0.00
			6173398.59	2339431.90	8.00	0.00
			6173393.50	2339431.74	8.00	0.00
			6173388.45	2339432.45	8.00	0.00
			6173383.59	2339434.00	8.00	0.00
			6173379.07	2339436.34	8.00	0.00
			6173375.01	2339439.42	8.00	0.00
			6173365.92	2339434.18	8.00	0.00
			6173356.07	2339430.60	8.00	0.00
			6173345.75	2339428.79	8.00	0.00
			6173335.27	2339428.79	8.00	0.00
			6173324.94	2339430.60	8.00	0.00
			6173315.09	2339434.18	8.00	0.00
			6173306.01	2339439.42	8.00	0.00
			6173297.55	2339437.30	8.00	0.00
			6173288.86	2339436.60	8.00	0.00
			6173280.17	2339437.32	8.00	0.00
			6173271.72	2339439.46	8.00	0.00
			6173263.73	2339442.95	8.00	0.00
			6173256.42	2339447.70	8.00	0.00
			6173249.98	2339453.58	8.00	0.00
			6173244.60	2339460.43	8.00	0.00
			6173240.40	2339468.07	8.00	0.00
			6173237.51	2339476.30	8.00	0.00
			6173236.01	2339484.88	8.00	0.00
			6173235.93	2339493.60	8.00	0.00
			6173237.27	2339502.21	8.00	0.00
			6173232.81	2339515.44	8.00	0.00
			6173230.05	2339529.13	8.00	0.00
			6173229.05	2339543.05	8.00	0.00
			6173229.82	2339556.99	8.00	0.00
			6173230.22	2339565.63	8.00	0.00
			6173231.91	2339574.11	8.00	0.00
			6173234.85	2339582.25	8.00	0.00
			6173238.97	2339589.86	8.00	0.00
			6173244.18	2339596.76	8.00	0.00
			6173250.36	2339602.82	8.00	0.00
			6173257.37	2339607.88	8.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIERS		PERIMETER FENCING						6.00	a			6173543.74	2340455.95	6.00	0.00
												6173501.69	2338379.54	6.00	0.00

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