Chino Distribution Center

NOISE AND VIBRATION ANALYSIS

CITY OF CHINO

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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
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak Particle Velocity
Project	Chino Distribution Center
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 noise exposure and the necessary noise mitigation measures for the proposed Chino Distribution Center development ("Project"). The Project site is located at 5088 Edison Avenue in the City of Chino. The Project consists of the development of a single 390,778-square-foot warehouse building. This noise study has been prepared to satisfy applicable City of Chino noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

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

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	9	*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	-
Construction Vibration		*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 Chino Distribution Center ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Project is located at 5088 Edison Avenue in the City of Chino, as shown on Exhibit 1-A. The site is currently occupied by a wood manufacturing facility (RedBuilt) and a storage container/ mobile office rental facility (United Rentals). The Project site is surrounded by industrial and commercial uses on all sides, with residential neighborhoods primarily situated further north of the site.

1.2 PROJECT DESCRIPTION

A preliminary site plan for the proposed Project is shown on Exhibit 1-B. Development of the Project is to include the construction of a 390,778 square foot warehouse. It should be noted that the square footage of the original Project has been updated. For the purposes of the off-site traffic noise analysis, the Project has been evaluated assuming 98,558 square feet of high-cube cold storage warehouse use and 295,672 square feet of warehousing use (25% and 75% of the overall square footage, respectively, for a total of 394,230 square feet). The site is currently occupied by an operational manufacturing facility.

It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2027. In addition, this analysis describes the typical Project-related stationary operational noise sources are expected to include: loading dock activity, tractor trailer storage activity, roof-top air conditioning units, parking lot vehicle movements, trash enclosure activity, and truck movements. This report assumes the Project-related operational noise source activity will function 24-hours daily for seven days per week. It is expected that the Project construction noise sources would include operations of tractors, excavators, graders, dozers, scrapers, forklifts, generator sets, welders, paving equipment, and air compressors.

EXHIBIT 1-A: LOCATION MAP

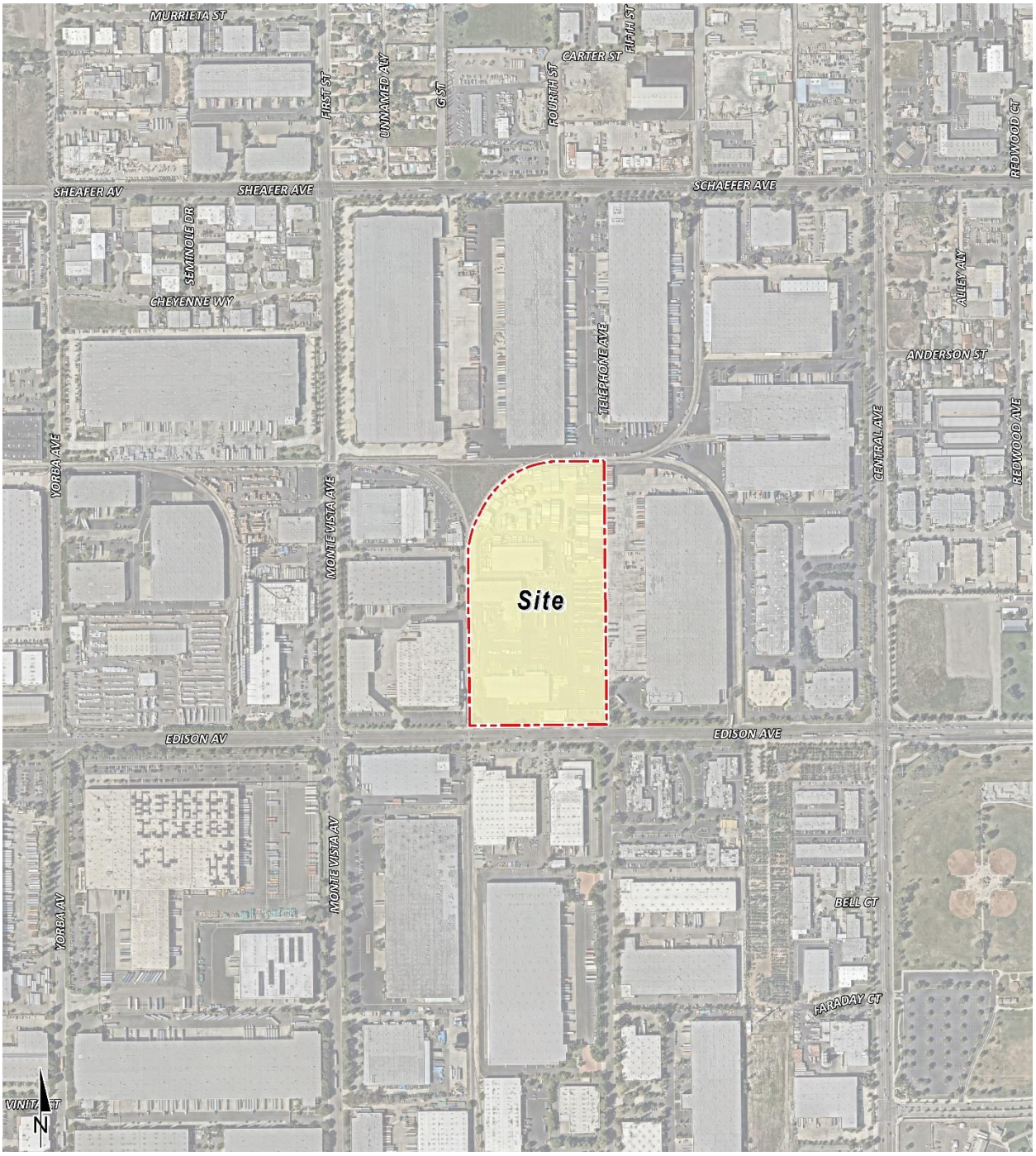
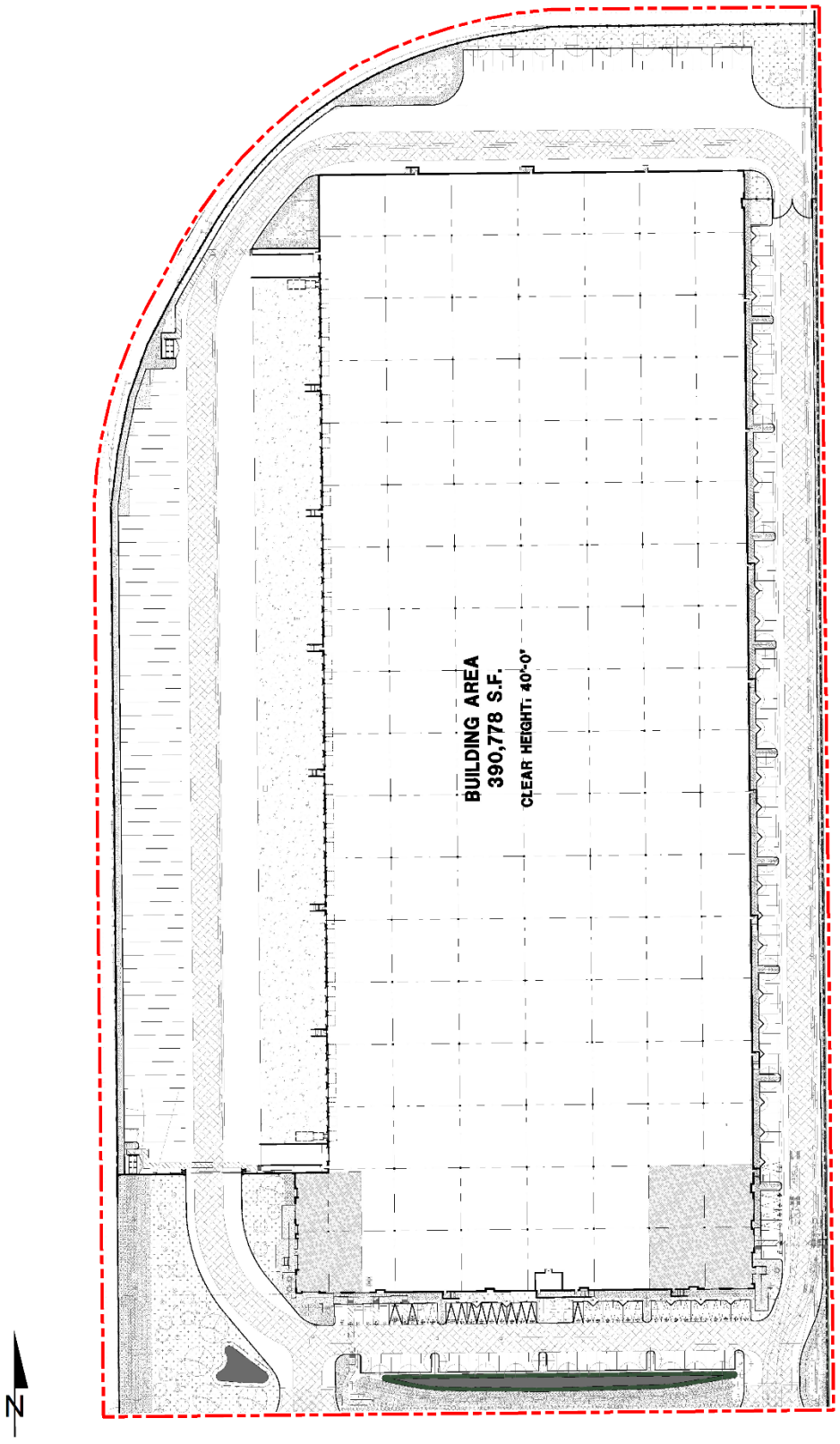


EXHIBIT 1-B: PRELIMINARY SITE PLAN



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

2.2 NOISE DESCRIPTORS

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

To describe the time-varying character of environmental noise, the City of Chino relies on the percentile noise levels to describe the stationary source noise level limits. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent, and 2 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_{50} describe the base or typical noise conditions. The City of Chino relies on the percentile noise levels to describe the stationary source noise level limits. While the L_{50} describes the noise levels occurring 50 percent of the time, the L_{eq} accounts for the equivalent or energy average observed for the entire hour.

Peak hour or equivalent noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Chino 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 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

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

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 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)

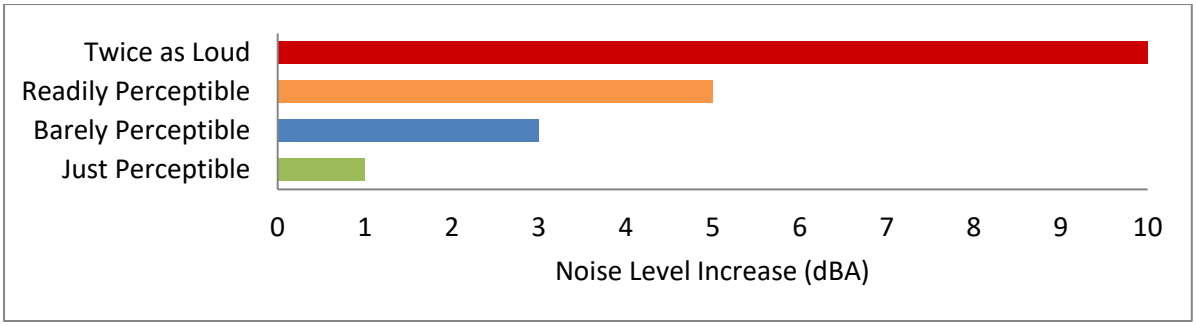
2.6 LAND USE COMPATIBILITY WITH NOISE

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

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment. Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 VIBRATION

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

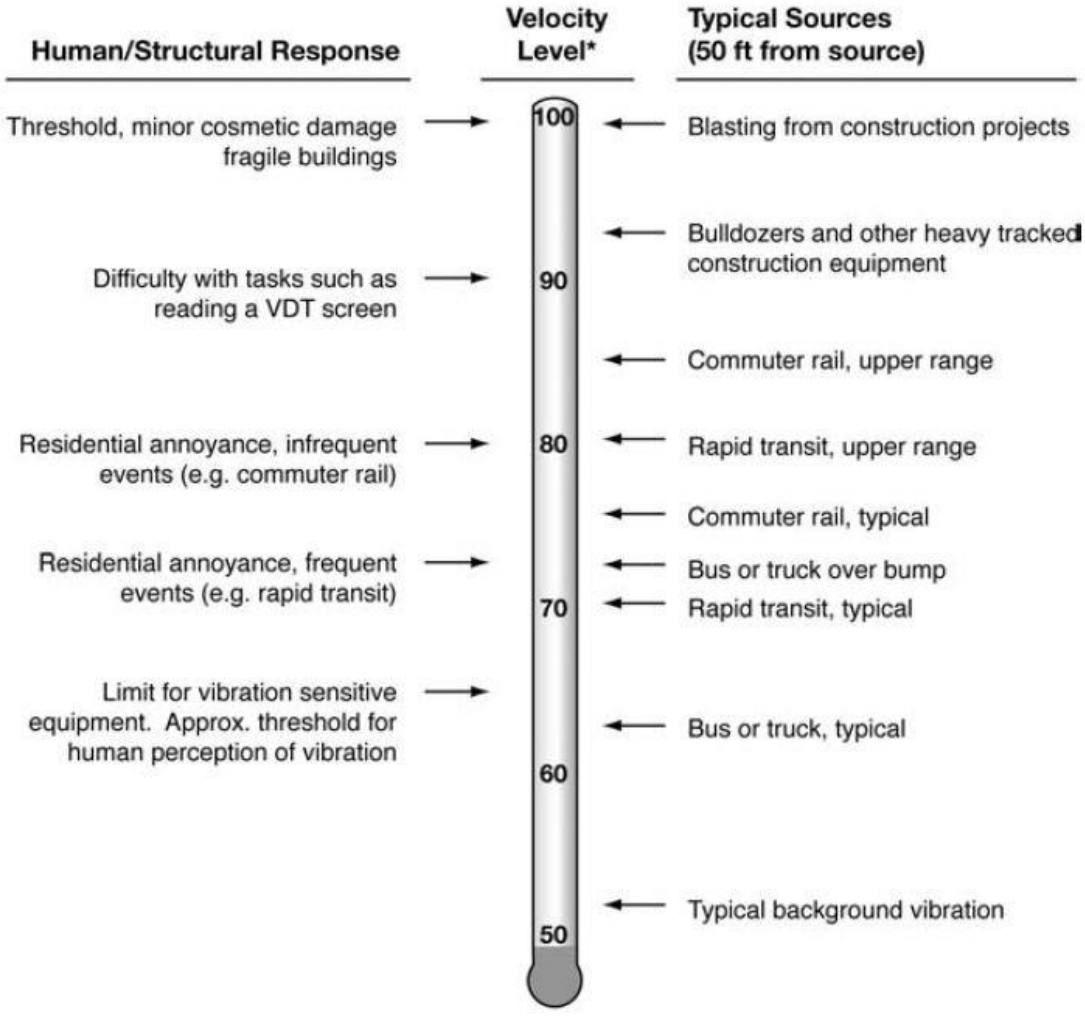
Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (8). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (8). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structurers reduce vibration levels due to the coupling of the building to the soil.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal (8). The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body (8). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (9). Thus, either can be used in the description of vibration impacts. While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide a background of common vibration levels and set vibration limits. (8) Decibel

notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

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

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



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

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

3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (10) OPR identifies suggested land use noise compatibility levels as part of its General Plan Guidelines. These suggested guidelines provide planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels. The guidelines identify normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for various land uses. The land use compatibility guidelines are intended to be an advisory resource when considering changes in land use and policies, such as zoning modifications. In addition, the State through the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF CHINO GENERAL PLAN NOISE ELEMENT

The City of Chino has adopted a Noise Element of the General Plan (11) to minimize problems from intrusive sound and to ensure that development does not expose people to unacceptable noise levels. The Noise Element specifies the maximum exterior and interior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies noise polices designed to protect, create, and maintain an environment free from noise that may jeopardize the health or welfare of sensitive receivers, or degrade quality of life. To protect Chino residents from unacceptable noise levels, the Noise Element contains the following three objectives:

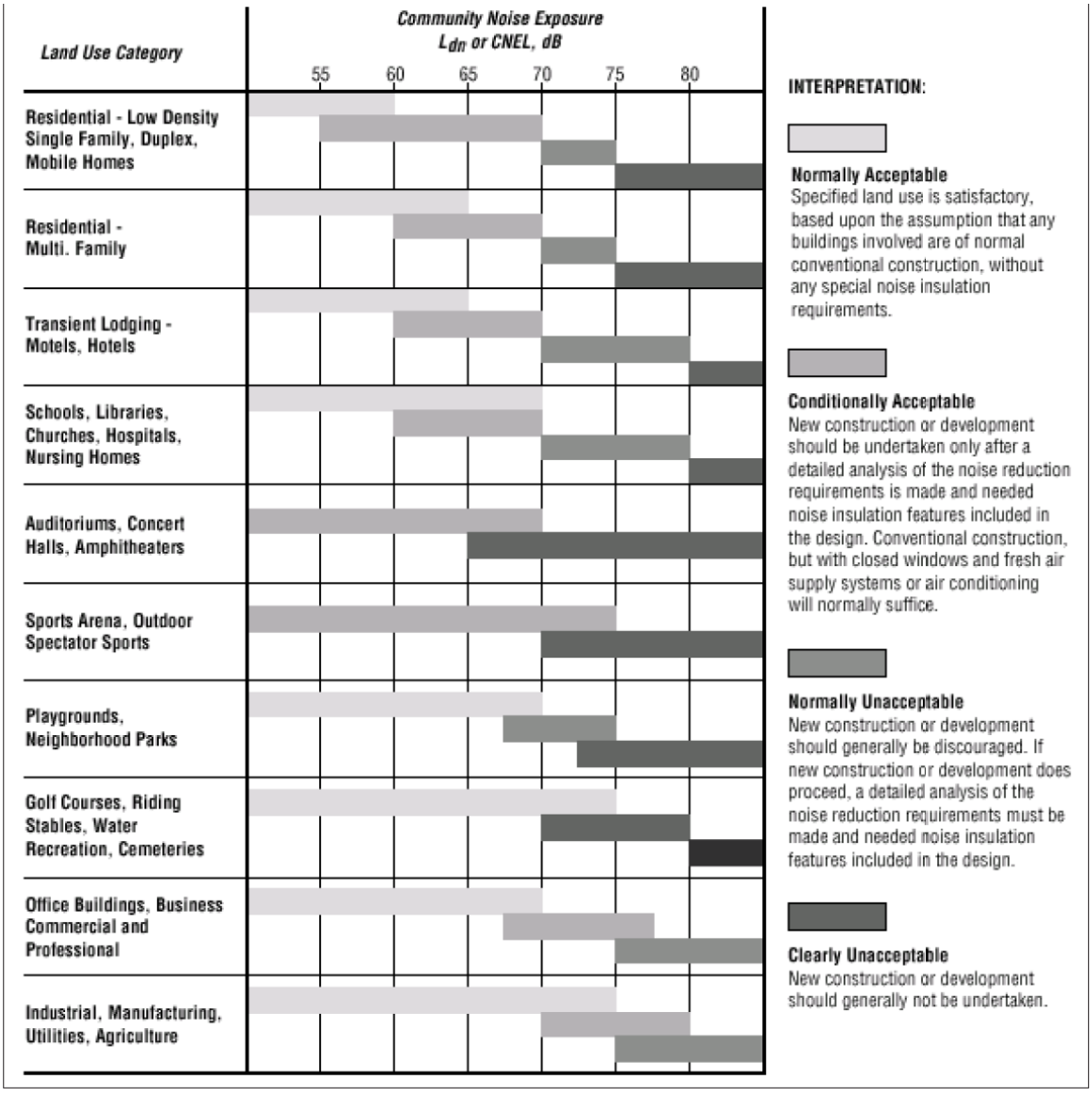
N-1.1. Ensure appropriate exterior and interior noise levels for existing and new land uses.
N-1.2 Reduce noise impacts from transportation.
N-1.3 Control sources of construction noise.

The noise policies specified in the City of Chino Noise Element provide the guidelines necessary to satisfy these objectives. To ensure the appropriate exterior and interior noise levels for existing and new land uses (N-1.1), Table N-3 of the City of Chino General Plan Noise Element,

identifies a maximum allowable exterior noise level of 65 dBA CNEL and an interior noise level limit of 45 dBA CNEL for new residential developments impacted by transportation noise sources such as arterial roads, freeways, airports, railroads, and warehousing uses.

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

EXHIBIT 3-A: LAND USE/NOISE COMPATIBILITY CRITERIA



3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Project, operational noise that may include loading dock activity, tractor trailer storage activity, roof-top air conditioning units, parking lot vehicle movements, trash enclosure activity, and truck movements are typically evaluated against standards established under a City's Municipal Code. The City of Chino Noise Ordinance included in the Municipal Code (Chapter 9.40) establishes the maximum permissible noise level that may intrude into a neighbor's property. The Noise Ordinance (Section 9.40.040) establishes the exterior noise level criteria for residential properties affected by stationary noise sources. While the Municipal Code identifies noise zones for commercial (Zone II), manufacturing and industrial properties (Zone III), it only establishes exterior noise standards for residential property (Section 9.40.030).

For residential properties (Noise Zone 1), the exterior noise level shall not exceed 55 dBA L_{eq} during daytime hours (7:00 a.m. to 10:00 p.m.) and shall not exceed 50 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (12) These standards shall apply for a cumulative period of 30 minutes in any hour, as well as the standard plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time. Further, Section 9.40.040[E] indicates that if the existing ambient noise level already exceeds any of the exterior noise level limit categories, then the standard shall be adjusted to reflect the ambient conditions. The City of Chino Municipal Code operational noise level standards are shown on Table 3-1 and included in Appendix 3.1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

City	Land Use	Time Period	Exterior Noise Level Standards[1]				
			L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
Chino[2]	Residential	Daytime	55	60	65	70	75
		Nighttime	50	55	60	65	70

[1] The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{50} is the noise level exceeded 50% of the time.
[2] Source: City of Chino Municipal Code, Section 9.40.040 (Appendix 3.1).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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

conservatively relies on the average L_{eq} sound level limits to describe the Project operational noise levels.

3.4 CONSTRUCTION NOISE STANDARDS

The City of Chino has set restrictions to control noise impacts associated with construction activities throughout the City. Section 9.40.060[D] of the City's Noise Ordinance indicates that noise sources associated with construction, repair, remodeling, or grading of any real property, are exempt from the provisions of the noise ordinance, provided the construction activities take place between the hours of 7:00 a.m. and 8:00 p.m. Monday through Saturday, with no construction allowed on Sundays and Federal holidays (Section 15.44.030), and provided the noise levels exceeding 65 dBA when measured on residential property do not endanger the public health, welfare and safety. The city can authorize construction activities to occur outside of the hours specified above. The numerical noise standard of 65 dBA (with higher noise level allowances for short bursts of louder noise) established in the City of Chino Municipal Code, Section 9.40.06[(D] *Special Provisions*, is used in this analysis to determine the significance of construction noise on noise-sensitive receivers.

The reference construction noise limit of 65 dBA L_{eq} provides an acceptable numerical threshold for determining the relative significance of Project construction noise levels at nearby residential receivers. Note that pursuant to the City of Chino Municipal Code, Section 9.40.060[D], the noise limit of 65 dBA is the noise standard for a cumulative period of more than thirty minutes in any hour (L_{50}). In addition, the Municipal Code allows for short bursts or periods of increased construction-related noise as follows:

- 70 dBA for a cumulative period of no more than fifteen minutes in any hour (L_{25});
- 75 dBA for a cumulative period of no more than five minutes in any hour (L_8);
- 80 dBA for a cumulative period of more than one minute in any hour (L_2);
- Noise levels greater than 85 dBA experienced at a sensitive receiver for any period (L_{max}).

For the purposes of this analysis, the 65 dBA L_{eq} threshold is used to represent a single numerical average threshold to assess the potential construction noise level impacts at nearby sensitive receivers. While the L_{50} describes the median noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour during construction activities. Mobile construction equipment will operate throughout the Project site and will not remain stationary, and therefore, the stationary-source noise level limits of Section 9.40.040 of the City of Chino Municipal Code are not applied to Project construction noise levels. Moreover, since the City of Chino specifically identifies a 65 dBA exterior noise level limit for construction noise, the previously identified Municipal Code stationary-source noise level limits described in Section 3.3 for operational noise are not used in the evaluation of potential construction noise impacts.

According to the FTA *Transit Noise and Vibration Impact Assessment Manual,* local noise ordinances are typically not very useful in evaluating construction noise impacts. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project.

Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. (8 p. 172) Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq} (8 p. 179). However, consistent with the City of Chino Municipal Code, Section 9.40.060[D], a more conservative construction noise level threshold of 65 dBA L_{eq} is used in this analysis to assess the potential Project related construction impacts.

3.5 CONSTRUCTION VIBRATION STANDARDS

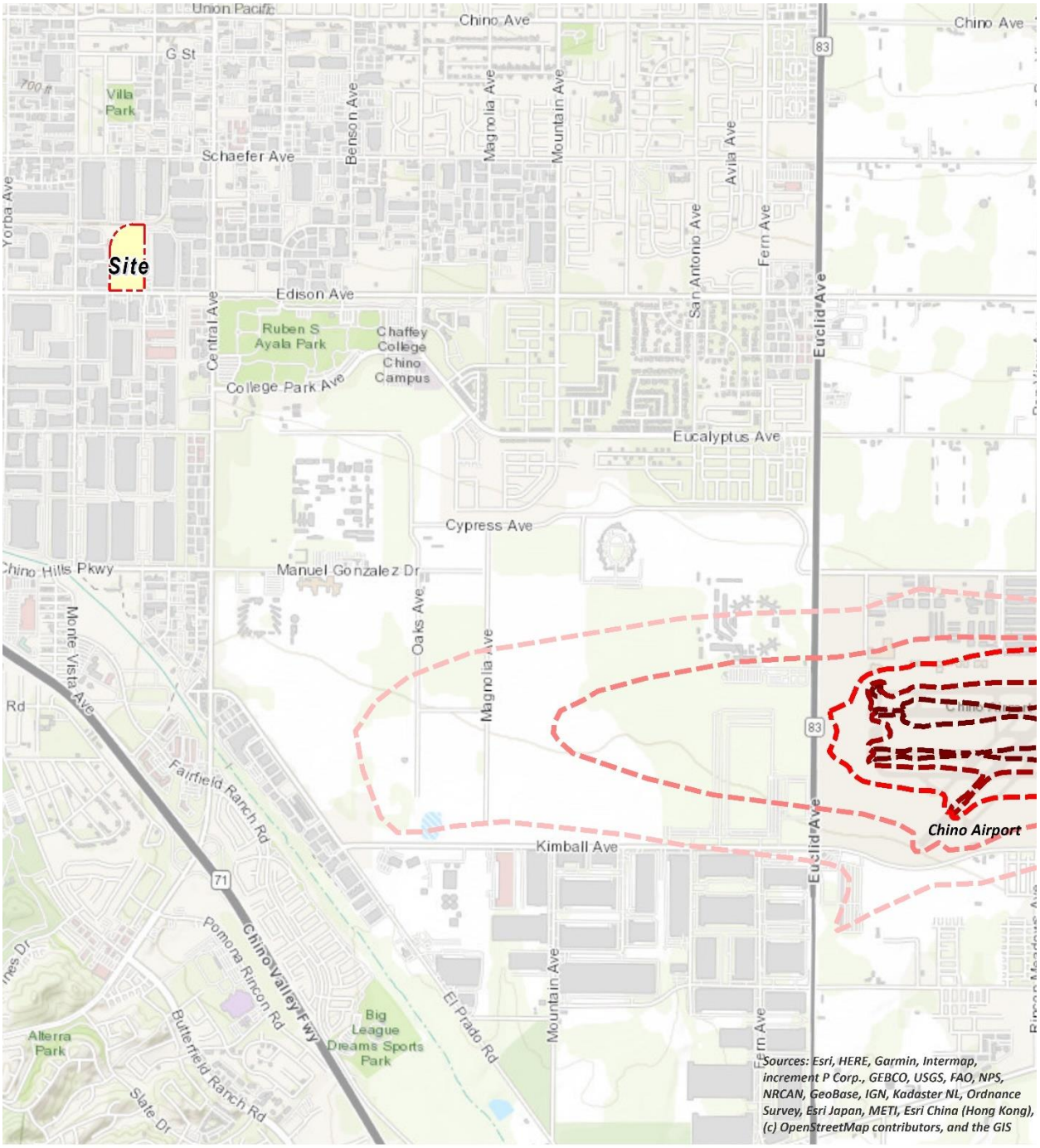
Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity. (8) The City of Chino Noise Ordinance Section 9.40.060[D] states that vibration created by construction activities are exempt from provisions of the Ordinance, if any construction-source vibration does not endanger the public health, welfare, and safety. Therefore, to determine if the vibration levels due to construction will endanger the public health, welfare, and safety of nearby sensitive receiver locations, the operational vibration level standard of 0.05 inches per second (RMS) is used per Section 9.40.110 of the City of Chino Municipal Code.

3.6 CHINO AIRPORT LAND USE COMPATIBILITY

The Project site is located approximately 3 miles northwest of Chino Airport. The *Chino Airport Master Plan*, (13) prepared by the County of San Bernardino, identifies noise compatibility policies based on the *Chino Airport Comprehensive Land Use Plan* (ACLUP). (14) The ACLUP establishes threshold for aircraft noise exposure for new developments. The *Chino Airport Master Plan* shows the noise contour boundaries for Year 2009, 2015, and 2030 conditions. Based on Year 2030 conditions, the Project site is located well outside the 55 dBA CNEL noise level contour boundaries, as shown on Exhibit 3-B.

Figure II-3 of the ALUCP indicates that exterior noise levels of up to 65 dBA CNEL are considered *normally acceptable* at the Project multi-family residential land use. The Project warehousing use is considered *normally acceptable* with exterior noise levels of up to 70 dBA CNEL. According to the ALUCP the residential Project use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements. Therefore, since the Project land uses are considered *normally acceptable,* and no exterior or interior noise mitigation is required, and the impacts due to aircraft noise will be *less than significant*. No further analysis is required or included in this noise study for the Chino Airport-related noise levels.

EXHIBIT 3-B: CHINO AIRPORT NOISE CONTOURS



LEGEND:

Unmitigated Noise Level Contour Boundaries

55 dBA CNEL 60 dBA CNEL 65 dBA CNEL 70 dBA CNEL 75 dBA CNEL

Sources: Chino Airport Master Plan, Exhibit B4 and the Riverside County Airport Land Use Compatibility Plan, Map CH-3.

4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the State CEQA Guidelines. (15) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

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

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

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

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders a noise impact significant.* (16) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

4.1.1 NOISE-SENSITIVE RECEIVERS

The Federal Interagency Committee on Noise (FICON) (17) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders a noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (16) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels

range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance at noise sensitive receiver locations are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (18 p. 2_48).

4.1.2 NON-NOISE-SENSITIVE RECEIVERS

Office of Planning and Research (OPR) land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix D: Noise Element Guidelines* is used to assess potential impacts at adjacent non-sensitive land uses. As shown previously on Exhibit 3-A, the *normally acceptable* exterior noise level for non-noise-sensitive land use, such as office commercial and industrial use, is 70 dBA CNEL. To determine if Project-related traffic noise level increases are potentially significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use/noise compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the *normally acceptable* 70 dBA CNEL exterior noise level criteria.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of the Project are evaluated based on the thresholds of significance outlined in the City of Chino Municipal Code Sections 9.40.060[D] and 9.40.110. These guidelines identify a vibration standard of 0.05 inches per second (in/sec) RMS, which is used in this noise study to assess potential impacts due to Project construction vibration levels.

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The closest airport which would require additional noise analysis under CEQA guideline C is Chino Airport. As previously indicated in Section 3.6, the Project site is located approximately 2.5 miles northwest of the Chino Airport and well outside the 55 dBA CNEL airport noise level contour

boundaries. Therefore, airport noise impacts are considered *less than significant,* and no further noise analysis is required under CEQA Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site	Noise-Sensitive[1]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[2]	If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational[3]	Noise-Sensitive[1]	Exterior Noise Level Standards[3]	55 dBA L_{eq}	50 dBA L_{eq}
		if ambient is < 60 dBA L_{eq}	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive[1]	Noise Level Threshold	65 dBA L_{eq}[4]	50 dBA L_{eq}[3]
		Vibration Level Threshold[5]	0.05 in/sec RMS	n/a

[1] FICON, 1992.
[2] Based on the land use compatibility criteria found in the Office of Planning and Research General Plan Guidelines, Figure 2.
[3] City of Chino Municipal Code, Section 9.40.040 (Appendix 3.1).
[4] City of Chino Municipal Code, Section 9.40.060[D].
[5] City of Chino Municipal Code, Sections 9.40.060[D] and 9.40.110.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "n/a" = construction activities are not planned during the nighttime hours; "RMS" = Root-mean-square velocity.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The noise level measurement locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, March 13, 2024. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (19)

5.2 NOISE MEASUREMENT LOCATIONS

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

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting 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. This approach is necessary to calculate the temporary or permanent increase in *ambient* noise levels as required by the CEQA Guidelines Environmental Checklist.

5.3 NOISE MEASUREMENT RESULTS

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

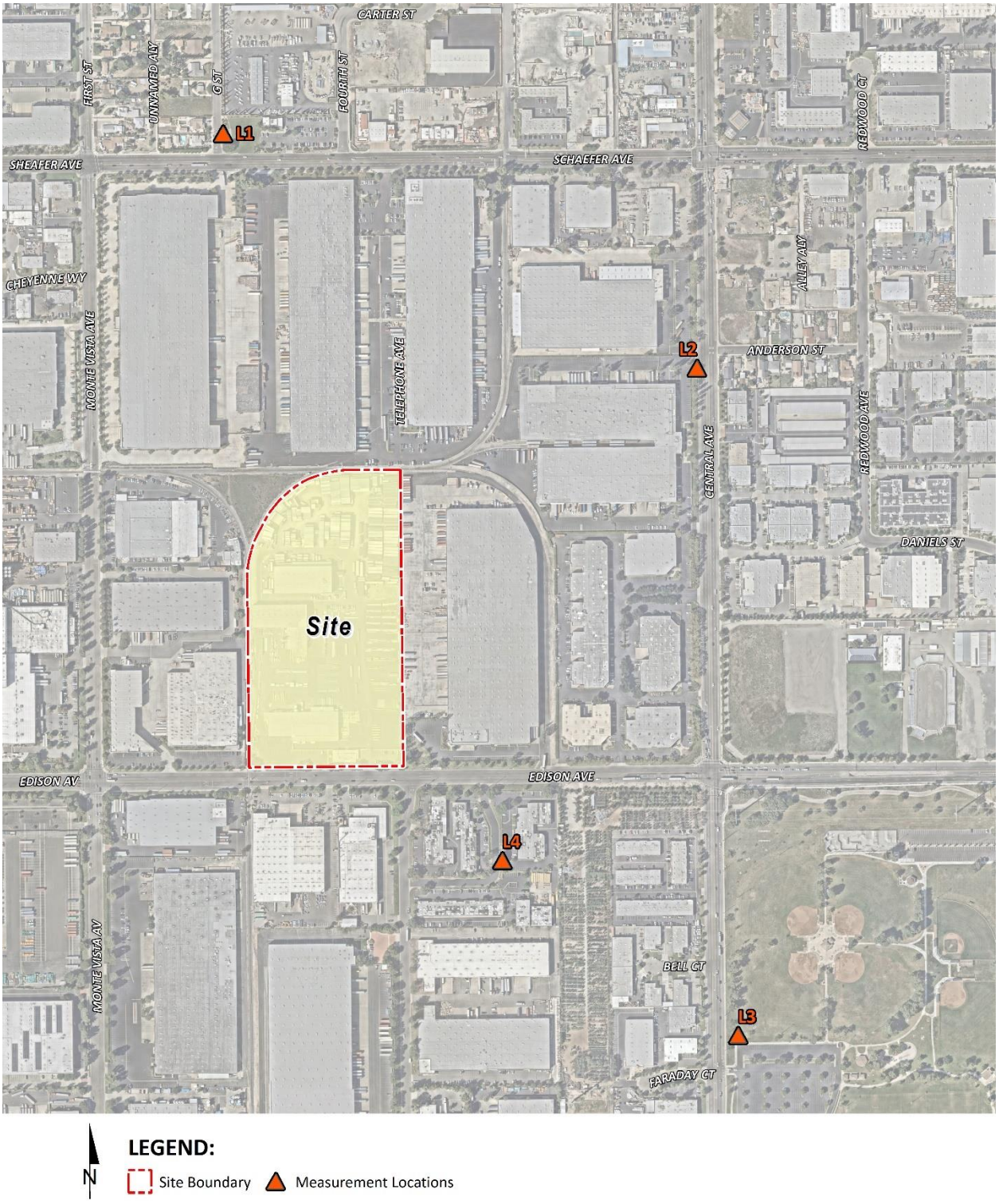
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located north of the site near the residence at 13688 3rd St.	60.3	55.8
L2	Located northeast of the site near the residence at 5311 Anderson St.	65.4	62.6
L3	Located southeast of the site near the Ayala Park at 14315 Central Ave.	69.7	65.6
L4	Located southeast of the site near the Church of Southland building at 5171 Edison Ave.	56.4	50.4

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

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with the land use/noise compatibility (see Exhibit 3-A), all transportation related noise levels are presented in terms of the 24-hour CNEL's. Unlike a simple arithmetic average noise level, CNEL represents the logarithmic summation of the equivalent hourly noise levels with evening and nighttime noise penalties recognizing that noise may have different impacts on people depending on when it occurs.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (20) This methodology is commonly used to describe the off-site traffic noise levels throughout southern California. The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL) by vehicle type. REMEL represents the maximum sound level (L_{max}) of individual vehicle "pass by" events by vehicle type when measured at a "reference distance" of 50 feet from the center of the travel lane.

In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (21) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (22)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 9 off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Chino General Plan Circulation Element, and the vehicle speeds. It is expected that the Project related off-site traffic noise level contributions on other roadway segments outside the Project study area will dissipate as traffic disperses on the roadway network. The analysis below provides off-site roadway segment analysis for the following traffic scenarios.

- Existing
- Existing with Project
- Opening Year Cumulative (OYC) (2027) without Project
- Opening Year Cumulative (OYC) (2027) with Project

To describe the Project off-site traffic impacts, the receiving land use adjacent to each roadway segment is identified as a sensitive or non-sensitive land use. Sensitive land uses are limited to the existing noise sensitive residential uses based on a review of aerial imagery. It is expected that only the existing receivers will experience a change in the ambient noise levels over time.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification[1]	Receiving Land Use[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Edison Av.	w/o Monte Vista Av.	Major	Non-Sensitive	60'	40
2	Edison Av.	e/o Monte Vista Av.	Major	Non-Sensitive	60'	40
3	Edison Av.	w/o Central Av.	Major	Non-Sensitive	60'	40
4	Edison Av.	e/o Central Av.	Major	Non-Sensitive	60'	40
5	Monte Vista Av.	n/o Edison Av.	Secondary	Non-Sensitive	44'	40
6	Monte Vista Av.	s/o Edison Av.	Secondary	Non-Sensitive	44'	40
7	Telephone Av.	s/o Edison Av.	Collector	Non-Sensitive	33'	35
8	Central Av.	n/o Edison Av.	Major	Non-Sensitive	60'	40
9	Central Av.	s/o Edison Av.	Major	Non-Sensitive	60'	40

[1] City of Chino General Plan Circulation Element functional roadway classifications.
[2] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[3] Distance to receiving land use is based upon the right-of-way distances.

The ADT volumes used in this study area presented on Table 6-2 are based on *Chino Distribution Center Traffic Analysis*, prepared by Urban Crossroads, Inc. (23) The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. In addition, the off-site traffic noise analysis maintains a peak hour to average daily traffic (peak-to-daily) relationship of approximately 8.67%. (23) To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]			
			Existing		OYC (2027)	
			Without Project	With Project	Without Project	With Project
1	Edison Av.	w/o Monte Vista Av.	20,031	20,202	23,537	23,709
2	Edison Av.	e/o Monte Vista Av.	19,420	19,784	22,871	23,236
3	Edison Av.	w/o Central Av.	19,143	19,452	22,578	22,887
4	Edison Av.	e/o Central Av.	22,107	22,215	25,890	25,998
5	Monte Vista Av.	n/o Edison Av.	6,446	6,493	6,945	6,991
6	Monte Vista Av.	s/o Edison Av.	5,420	5,566	5,872	6,019
7	Telephone Av.	s/o Edison Av.	842	888	893	940
8	Central Av.	n/o Edison Av.	24,515	24,608	26,455	26,548
9	Central Av.	s/o Edison Av.	26,166	26,274	28,172	28,280

[1] Chino Distribution Center Traffic Analysis, Urban Crossroads, Inc.

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Chino Distribution Center Traffic Analysis*. Table 6-3 presents the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-4 to 6-5 show the vehicle mixes used for the with Project traffic scenarios.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time of Day	Vehicle Mix			Time of Day Split
	Autos	Medium Trucks	Heavy Trucks	
Daytime	75.53%	0.16%	1.37%	77.07%
Evening	8.66%	0.01%	0.05%	8.72%
Nighttime	13.87%	0.02%	0.33%	14.22%
Daily	98.06%	0.18%	1.76%	100.00%

[1] Based on the April 4, 2024, 24-hour directional vehicle classification count collected on Edison Avenue west of Telephone Avenue.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: EXISTING WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Edison Av.	w/o Monte Vista Av.	97.58%	0.29%	2.13%	100.00%
2	Edison Av.	e/o Monte Vista Av.	97.20%	0.38%	2.42%	100.00%
3	Edison Av.	w/o Central Av.	97.70%	0.27%	2.03%	100.00%
4	Edison Av.	e/o Central Av.	97.90%	0.22%	1.88%	100.00%
5	Monte Vista Av.	n/o Edison Av.	98.08%	0.18%	1.74%	100.00%
6	Monte Vista Av.	s/o Edison Av.	96.74%	0.48%	2.78%	100.00%
7	Telephone Av.	s/o Edison Av.	98.16%	0.17%	1.66%	100.00%
8	Central Av.	n/o Edison Av.	98.07%	0.18%	1.75%	100.00%
9	Central Av.	s/o Edison Av.	97.93%	0.21%	1.86%	100.00%

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

TABLE 6-5: OYCP (2027) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Edison Av.	w/o Monte Vista Av.	97.65%	0.28%	2.08%	100.00%
2	Edison Av.	e/o Monte Vista Av.	97.33%	0.35%	2.32%	100.00%
3	Edison Av.	w/o Central Av.	97.76%	0.25%	1.99%	100.00%
4	Edison Av.	e/o Central Av.	97.92%	0.21%	1.86%	100.00%
5	Monte Vista Av.	n/o Edison Av.	98.08%	0.18%	1.74%	100.00%
6	Monte Vista Av.	s/o Edison Av.	96.84%	0.46%	2.70%	100.00%
7	Telephone Av.	s/o Edison Av.	98.16%	0.17%	1.67%	100.00%
8	Central Av.	n/o Edison Av.	98.07%	0.18%	1.75%	100.00%
9	Central Av.	s/o Edison Av.	97.94%	0.21%	1.85%	100.00%

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

7 OFF-SITE TRAFFIC NOISE ANALYSIS

As described in Section 4.1, the off-site traffic noise impacts are evaluated based on noise level increases resulting from the Project. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. To assess the off-site transportation CNEL noise level impacts associated with development of the Project, noise contours were developed for each of the Project conditions outlined in the *Chino Distribution Center Traffic Analysis* prepared by Urban Crossroads, Inc. (23)

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours included in Appendix 7.1 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 include noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 to 7-5 present a summary of the exterior traffic noise levels for each traffic condition.

7.2 OFF-SITE TRUCK TRAFFIC

Consistent with the *Chino Distribution Center Traffic Analysis,* the Project truck trips will be primarily limited to the major roadways that include Edison Avenue, Monte Vista Avenue and Central Avenue. The noise level calculations included in Appendix 7.1, present the maximum sound levels (L_{max}) of individual "pass by" events (REMEL) by vehicle type for each of the study area roadway segments. To demonstrate compliance with the *Land Use/Noise Compatibility Criteria* (see Exhibit 3-A), all exterior noise levels are first expressed using the equivalent hourly noise levels for the peak, daytime, evening, and nighttime hours. This approach permits the calculation of the 24-hour CNEL necessary to demonstrate compliance with the established thresholds of significance.

CNEL is commonly used for planning purposes and to assess changes in the long-term traffic noise exposure in a way that reflects its impact on communities over time, considering both daytime and nighttime periods when people may be more sensitive to noise. Since the CNEL noise levels include penalties for the evening and nighttime hours, the CNEL level will always be higher than any of the equivalent hourly noise levels. The *General Plan Guidelines* published by the Governor's Office of Planning and Research (OPR) (10) rely on the CNEL noise metric to assess land use noise compatibility.

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Edison Av.	w/o Monte Vista Av.	Non-Sensitive	70.2	62	133	287
2	Edison Av.	e/o Monte Vista Av.	Non-Sensitive	70.1	61	130	281
3	Edison Av.	w/o Central Av.	Non-Sensitive	70.0	60	129	278
4	Edison Av.	e/o Central Av.	Non-Sensitive	70.6	66	142	306
5	Monte Vista Av.	n/o Edison Av.	Non-Sensitive	66.2	RW	53	114
6	Monte Vista Av.	s/o Edison Av.	Non-Sensitive	65.5	RW	47	102
7	Telephone Av.	s/o Edison Av.	Non-Sensitive	57.8	RW	RW	RW
8	Central Av.	n/o Edison Av.	Non-Sensitive	71.1	71	152	328
9	Central Av.	s/o Edison Av.	Non-Sensitive	71.4	74	159	343

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

TABLE 7-2: EXISTING WITH PROJECT 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	Edison Av.	w/o Monte Vista Av.	Non-Sensitive	70.7	66	143	308
2	Edison Av.	e/o Monte Vista Av.	Non-Sensitive	70.9	69	148	318
3	Edison Av.	w/o Central Av.	Non-Sensitive	70.4	64	137	295
4	Edison Av.	e/o Central Av.	Non-Sensitive	70.8	68	146	314
5	Monte Vista Av.	n/o Edison Av.	Non-Sensitive	66.2	RW	53	114
6	Monte Vista Av.	s/o Edison Av.	Non-Sensitive	66.6	RW	57	122
7	Telephone Av.	s/o Edison Av.	Non-Sensitive	57.9	RW	RW	RW
8	Central Av.	n/o Edison Av.	Non-Sensitive	71.1	71	153	329
9	Central Av.	s/o Edison Av.	Non-Sensitive	71.5	75	163	350

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

TABLE 7-3: OYC (2027) 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	Edison Av.	w/o Monte Vista Av.	Non-Sensitive	70.9	69	148	319
2	Edison Av.	e/o Monte Vista Av.	Non-Sensitive	70.8	67	145	313
3	Edison Av.	w/o Central Av.	Non-Sensitive	70.7	67	144	311
4	Edison Av.	e/o Central Av.	Non-Sensitive	71.3	73	158	340
5	Monte Vista Av.	n/o Edison Av.	Non-Sensitive	66.5	RW	56	120
6	Monte Vista Av.	s/o Edison Av.	Non-Sensitive	65.8	RW	50	107
7	Telephone Av.	s/o Edison Av.	Non-Sensitive	58.0	RW	RW	RW
8	Central Av.	n/o Edison Av.	Non-Sensitive	71.4	74	160	345
9	Central Av.	s/o Edison Av.	Non-Sensitive	71.7	78	167	360

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

TABLE 7-4: OYCP (2027) WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Edison Av.	w/o Monte Vista Av.	Non-Sensitive	71.3	73	158	340
2	Edison Av.	e/o Monte Vista Av.	Non-Sensitive	71.5	75	162	349
3	Edison Av.	w/o Central Av.	Non-Sensitive	71.0	70	152	327
4	Edison Av.	e/o Central Av.	Non-Sensitive	71.4	75	161	348
5	Monte Vista Av.	n/o Edison Av.	Non-Sensitive	66.5	RW	56	120
6	Monte Vista Av.	s/o Edison Av.	Non-Sensitive	66.9	RW	59	127
7	Telephone Av.	s/o Edison Av.	Non-Sensitive	58.1	RW	RW	RW
8	Central Av.	n/o Edison Av.	Non-Sensitive	71.4	74	160	346
9	Central Av.	s/o Edison Av.	Non-Sensitive	71.8	79	171	367

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

7.2 EXISTING PROJECT 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 *Chino Distribution Center Traffic Impact Analysis*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 57.8 to 71.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 57.9 to 71.5 dBA CNEL. Table 7-5 shows that the Project off-site traffic noise level impacts will range from 0.0 to 1.1 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to existing with Project-related traffic noise level increases.

7.3 OYC (2027) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 shows the OYC without Project conditions CNEL noise levels. The OYC without Project exterior noise levels are expected to range from 58.0 to 71.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows that the OYC with Project conditions will range from 58.1 to 71.8 dBA CNEL. Table 7-6 shows that the OYC Project off-site traffic noise level impacts will range from 0.0 to 1.1 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to existing with Project-related traffic noise level increases.

8 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, four noise sensitive receiver locations in the vicinity of the Project site were identified. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the Project boundary to each receiver location.

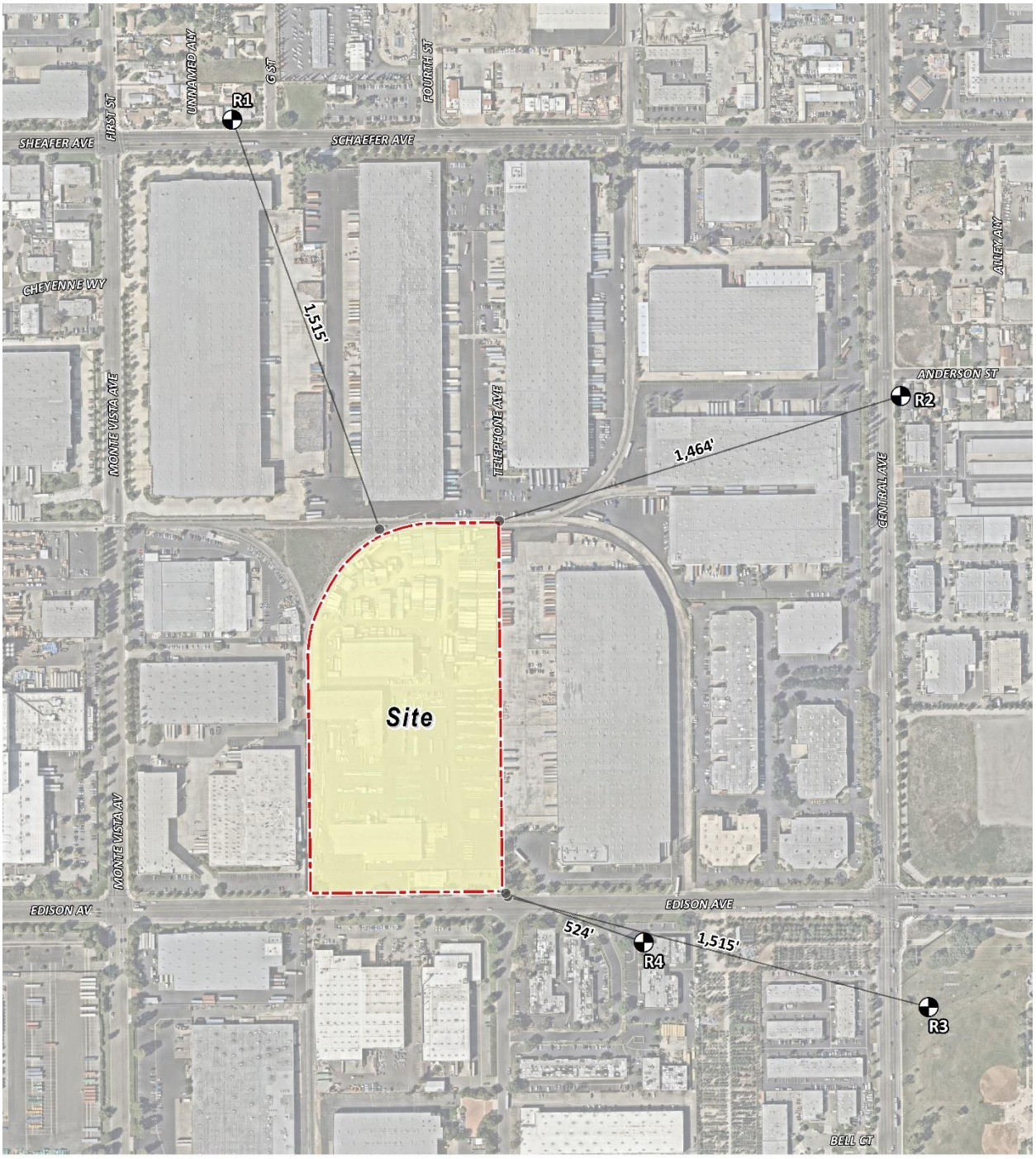
R1: Location R1 represents the existing residence at 13688 3rd Street, approximately 1,515 feet northwest of the Project site. Receiver R1 is placed in the private outdoor living areas (backyards) facing the Project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing residence at 5311 Anderson Street, approximately 1,464 feet northeast of the Project site. Receiver R2 is placed in the private outdoor living areas (backyards) facing the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents Ayala Park located at 14315 Central Avenue, approximately 1,515 feet southeast of the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the Church of Southland Chino Campus at 5171 Edison Avenue, approximately 524 feet southeast of the Project site. Since there are no outdoor living areas (backyards) facing the Project site, Receiver R4 is placed at the building façade. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

EXHIBIT 8-A: RECEIVER LOCATIONS



9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from the operation of the proposed Chino Distribution Center Project. To conservatively describe the potential worst-case noise environment, Exhibit 9-A presents the noise source activities used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the 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 and industrial 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: loading dock activity, tractor trailer storage activity, roof-top air conditioning units, parking lot vehicle movements, trash enclosure activity, and truck movements.

9.2 REFERENCE NOISE LEVELS

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

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precision 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. (19)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

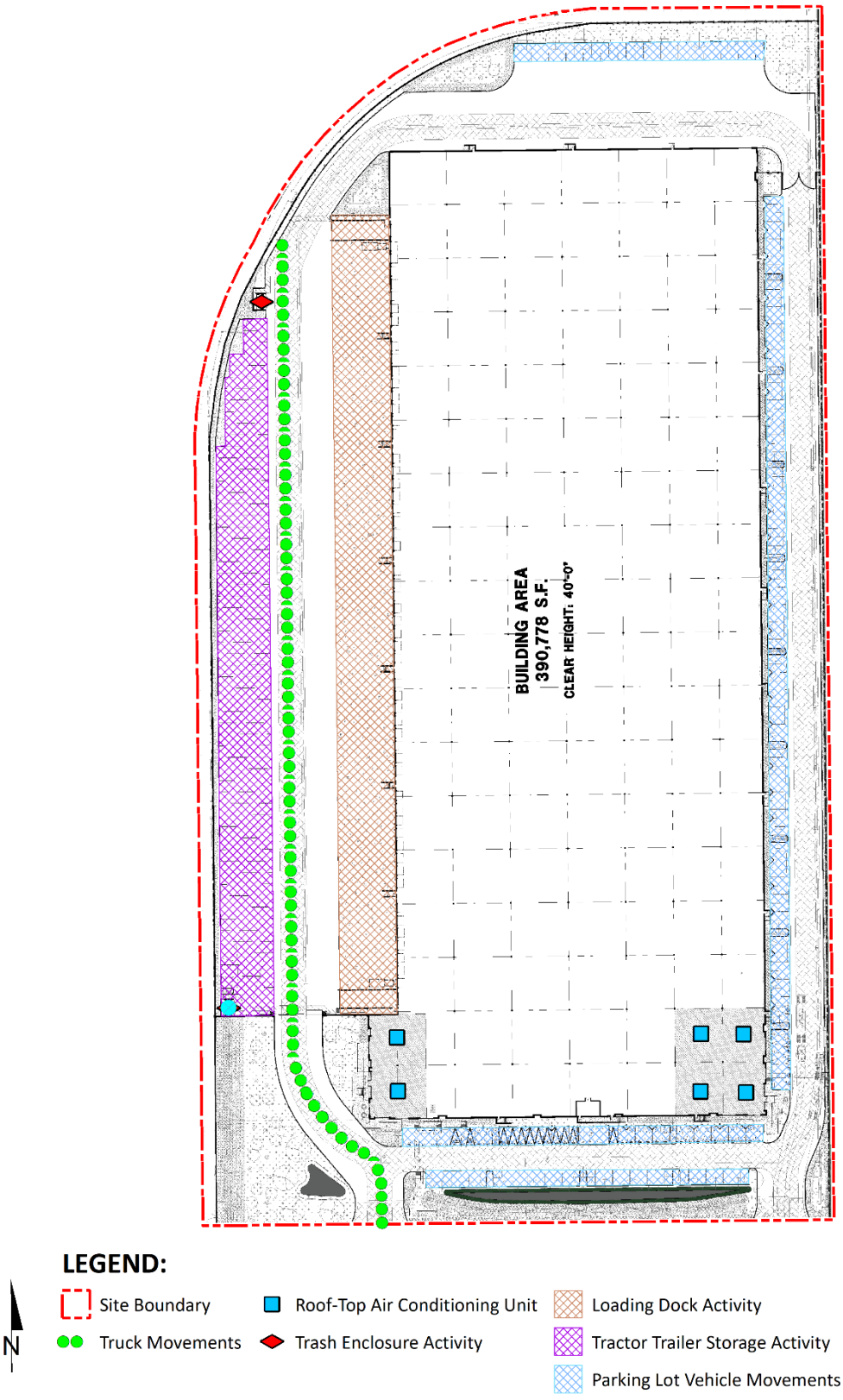


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Reference Noise Source	Noise Source Height (Feet)	Min./ Hour[1]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[2]
		Day	Night		
Loading Dock Activity	8'	60	60	65.7	111.5
Tractor Trailer Storage Activity	8'	60	60	62.8	103.4
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Parking Lot Vehicle Movements	5'	60	60	52.6	81.1
Trash Enclosure Activity	5'	60	30	57.3	89.0
Truck Movements	8'	60	60	59.8	93.2

[1] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

[2] 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.

9.2.2 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical outdoor operational noise activities associated with the Project. This includes truck idling, reefer activity (refrigerator truck/cold storage), deliveries, backup alarms, trailer docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background operation activities. Since the noise levels generated by cold storage loading dock activity can be slightly higher due to the use of refrigerated trucks or reefers, this reference noise level conservatively assumes that all loading dock activity is associated with cold storage facilities, even though only 25 percent cold storage is anticipated. (23) 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 TRACTOR TRAILER STORAGE ACTIVITY

To evaluate the noise levels associated with truck idling, backup alarms, trailer movements and storage activities, Urban Crossroads collected a reference noise level measurement at an existing parcel hub facility to describe the potential operational noise levels associated with Project tractor trailer storage activities. The measured reference noise level at 50 feet from activity was measured at 62.8 dBA L_{eq}. The reference noise level measurement includes a semi-truck with trailer pass-by event, background switcher cab trailer towing, drop-off, idling, and backup alarm events. Tractor trailer activity is estimated during all the daytime, evening, and nighttime hours.

9.2.4 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise level is 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

9.2.5 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity, a long-term 29-hour reference noise level measurement was collected in the center of activity within the staff parking lot of a warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 52.6 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due to cars pulling in and out of parking spaces in combination with car doors opening and closing.

9.2.6 TRASH ENCLOSURE ACTIVITY

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

9.2.7 TRUCK MOVEMENTS

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

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels. Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source.

Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 9.1 includes the detailed noise dBA L_{eq} model inputs used to estimate the Project operational noise levels presented in this section.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, tractor trailer storage activity, roof-top air conditioning units, parking lot vehicle movements, trash enclosure activity, and truck movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 9-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 27.0 to 43.9 dBA L_{eq} at the existing noise sensitive receiver locations.

TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Cold Storage Loading Dock Activity	43.2	20.1	19.3	24.9
Tractor Trailer Storage Activity	34.9	19.6	19.4	21.7
Roof-Top Air Conditioning Units	21.9	24.2	26.3	33.9
Parking Lot Vehicle Movements	13.3	15.9	17.3	24.3
Trash Enclosure Activity	23.1	6.8	6.0	9.8
Truck Movements	24.4	6.8	17.2	23.4
Total (All Noise Sources)	**43.9**	**27.0**	**28.5**	**35.3**

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

Table 9-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 25.9 to 43.9 dBA L_{eq} at the existing noise sensitive receiver locations. The differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 9-1 and Appendix 9.1.

TABLE 9-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Cold Storage Loading Dock Activity	43.2	20.1	19.3	24.9
Tractor Trailer Storage Activity	34.9	19.6	19.4	21.7
Roof-Top Air Conditioning Units	19.5	21.8	23.9	31.5
Parking Lot Vehicle Movements	13.3	15.9	17.3	24.3
Trash Enclosure Activity	19.1	2.8	2.0	5.8
Truck Movements	24.4	6.8	17.2	23.4
Total (All Noise Sources)	**43.9**	**25.9**	**27.2**	**33.7**

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

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Chino exterior noise level standards at nearby noise-sensitive receiver locations. Table 9-4 shows the operational noise levels associated with Chino Distribution Center Project will not exceed the applicable City of Chino 55 dBA L_{eq} daytime and 50 dBA L_{eq} nighttime exterior noise level standards. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-4: 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	43.9	43.9	55	50	No	No
R2	27.0	25.9	55	50	No	No
R3	28.5	27.2	55	50	No	No
R4	35.3	33.7	55	50	No	No

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

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

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

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 9-5 and 9-6, respectively. As indicated on Table 9-5, the Project will generate a daytime operational noise level increase ranging from 0.0 to 0.1 dBA L_{eq} at the nearest receiver locations. Table 9-6 shows that the Project will generate a nighttime operational noise level increase ranging from 0.0 to 0.3 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases will not exceed the operational noise level increase significance criteria presented in Table 4-1. Therefore, Project related operational noise level increases at the sensitive receiver locations will be *less than significant.*

TABLE 9-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	43.9	L1	60.3	60.4	0.1	5.0	No
R2	27.0	L2	65.4	65.4	0.0	1.5	No
R3	28.5	L3	69.7	69.7	0.0	1.5	No
R4	35.3	L4	56.4	56.4	0.0	5.0	No

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

TABLE 9-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	43.9	L1	55.8	56.1	0.3	5.0	No
R2	25.9	L2	62.6	62.6	0.0	5.0	No
R3	27.2	L3	65.6	65.6	0.0	1.5	No
R4	33.7	L4	50.4	50.5	0.1	5.0	No

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

10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8. To prevent high levels of construction noise from impacting noise-sensitive land uses, Section 9.40.060[D] of the City's Noise Ordinance indicates that noise sources associated with construction, repair, remodeling, or grading of any real property, are exempt from the provisions of the noise ordinance, provided the construction activities take place between the hours of 7:00 a.m. and 8:00 p.m. Monday through Saturday, with no construction allowed on Sundays and Federal holidays (Section 15.44.030), and provided the noise levels exceeding 65 dBA when measured on residential property do not endanger the public health, welfare and safety. While the FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable construction noise threshold for noise sensitive residential land use, a more conservative construction noise level threshold of 65 dBA L_{eq} consistent with the City of Chino Municipal Code, Section 9.40.060[D], is used in this analysis to assess the potential Project related construction impacts.

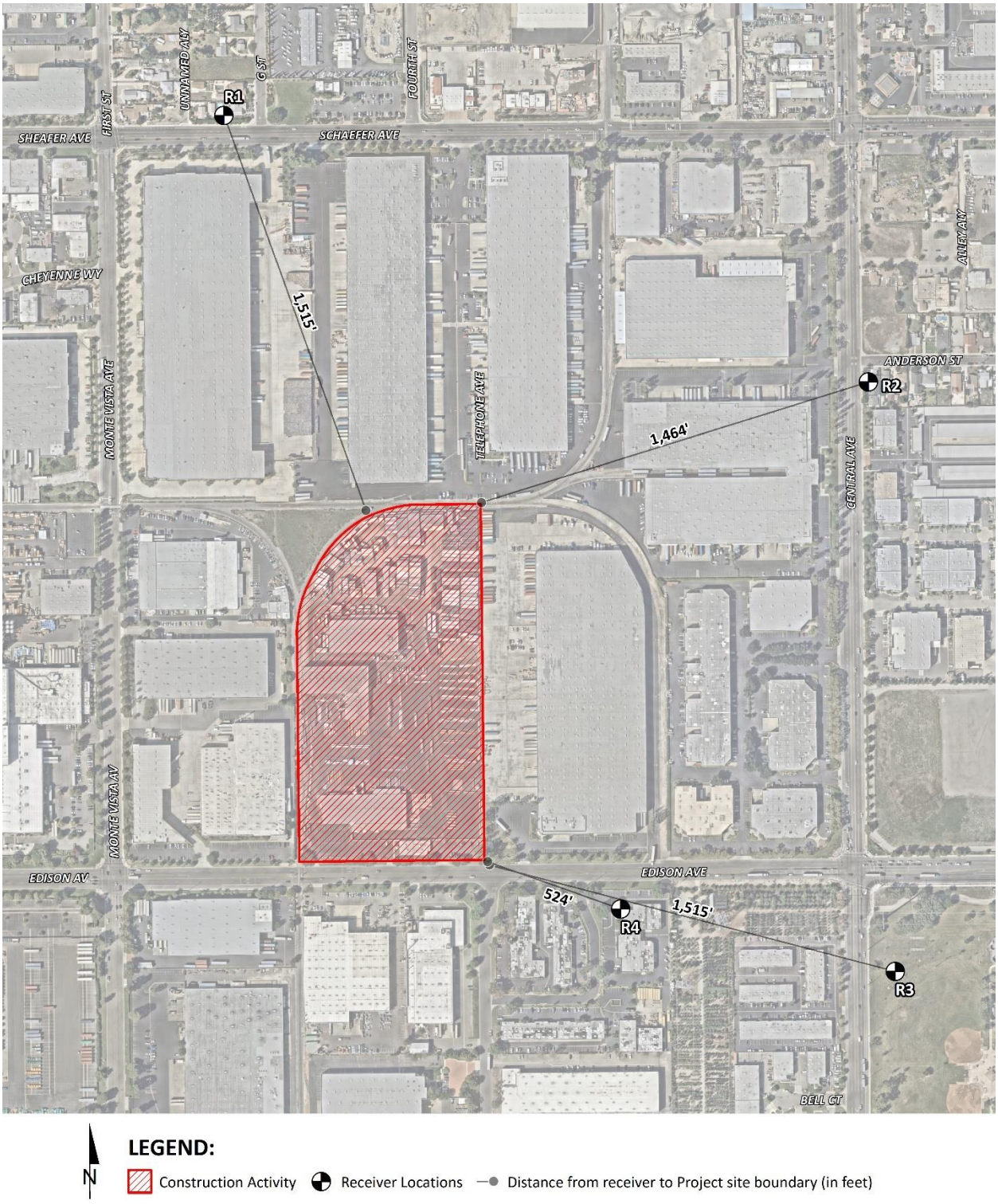
10.1 CONSTRUCTION NOISE LEVELS

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

- Demolition/Crushing
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

Construction trips would occur throughout the construction period and would be associated with the delivery of building materials, supplies, and concrete to the Project Site. The construction trips will consist mostly of individual worker vehicles. However, it is expected that the individual worker vehicle construction noise source activities will be overshadowed by the construction noise source activities outlined above.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS



10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (26) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 10-1 presents the combined noise levels for the loudest construction equipment, assuming all equipment operates at the same time.

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Equipmnet[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Composite Reference Noise Level (dBA L_{eq})[2]	Reference Power Level (dBA L_w)[3]
Demolition/ Crushing	Concrete Saw	83	86.8	118.4
	Grapple (on backhoe)	83		
	Gradall	79		
Site Preparation	Tractor	80	84.0	115.6
	Backhoe	74		
	Grader	81		
Grading	Scraper	80	83.3	114.9
	Excavator	77		
	Dozer	78		
Building Construction	Crane	73	80.6	112.2
	Generator	78		
	Front End Loader	75		
Paving	Paver	74	77.8	109.5
	Dump Truck	72		
	Roller	73		
Architectural Coating	Man Lift	68	76.2	107.8
	Compressor (air)	74		
	Generator (<25kVA)	70		

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

To account for the dynamic nature of construction activities, the CadnaA construction noise analysis evaluates the equipment as multiple moving point sources within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown on Table 10-2, the construction noise levels are expected to range from 49.2 to 63.2 dBA L_{eq} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	57.0	56.3	53.6	50.9	49.2	57.0
R2	57.4	56.7	54.0	51.3	49.6	57.4
R3	57.2	56.5	53.8	51.1	49.4	57.2
R4	63.2	62.5	59.8	57.1	55.4	63.2

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

10.4 PROJECT SITE CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, the City of Chino construction-related daytime noise level threshold of 65 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the daytime 65 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 10-3: PROJECT SITE CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	57.0	75	No
R2	57.4	75	No
R3	57.2	75	No
R4	63.2	75	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 10-2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities will occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad area. Since the nighttime concrete pours will take place outside the hours permitted by Section 9.40.060[D] of the City's Municipal Code, the Project Applicant will be required to obtain authorization for nighttime work from the City of Chino. Any nighttime construction noise activities are evaluated against the City of Chino nighttime exterior noise level threshold of 50 dBA L_{eq} for noise sensitive residential land use.

10.5.1 NIGHTTIME CONCRETE POUR REFERENCE NOISE LEVEL MEASUREMENTS

To estimate the noise levels due to nighttime concrete pouring activities, sample reference noise level measurements were taken during a nighttime concrete pouring at a construction site. Urban Crossroads, Inc. collected short-term nighttime concrete pour reference noise level measurements during the noise-sensitive nighttime hours between 1:00 a.m. to 2:00 a.m. at 27334 San Bernardino Avenue in the City of Redlands. The reference noise levels describe the expected concrete pour noise sources that may include concrete mixer truck movements and pouring activities, concrete paving equipment, rear mounted concrete mixer truck backup alarms, engine idling, air brakes, generators, and workers communicating/whistling. To describe the nighttime concrete pour noise levels associated with the construction of the Chino Distribution Center, this analysis relies on reference sound pressure level of 67.7 dBA L_{eq} at 50 feet representing a sound power level of 100.3 dBA L_w. While the Project noise levels will depend on the actual duration of activities and specific equipment fleet in use at the time of construction, the reference sound power level of 100.3 dBA L_w is used to describe the expected Project nighttime concrete pour noise activities.

10.5.2 NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

As shown on Table 10-4, the noise levels associated with the nighttime concrete pour activities are estimated to range from 38.6 to 45.1 dBA L_{eq} at the existing noise sensitive receiver locations. The analysis shows that the nighttime concrete pour activities will not exceed the 50 dBA L_{eq} nighttime residential noise level threshold at all the nearest noise sensitive receiver locations. Therefore, the noise impacts due to Project construction nighttime concrete pour noise activity are considered *less than significant* at all receiver locations with prior authorization for nighttime work from the City of Chino. Appendix 10.2 includes the CadnaA nighttime concrete pour noise model inputs.

TABLE 10-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Concrete Pour Construction Noise Levels (dBA L_{eq})		
	Exterior Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	38.9	60	No
R2	39.3	60	No
R3	39.1	60	No
R4	45.1	60	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Nighttime Concrete Pour noise model inputs are included in Appendix 10.2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.6 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 10-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 10-6 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 524 to 1,515 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.000 to 0.001 in/sec RMS. Based on maximum acceptable continuous vibration threshold of 0.05 in/sec RMS, the typical Project construction vibration levels will not exceed the vibration thresholds at all the sensitive receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site.

TABLE 10-6: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Receiver Levels (in/sec) RMS[2]					Threshold (in/sec) RMS[4]	Threshold Exceeded?[5]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration		
R1	1,515'	0.000	0.000	0.000	0.000	0.000	0.05	No
R2	1,464'	0.000	0.000	0.000	0.000	0.000	0.05	No
R3	1,515'	0.000	0.000	0.000	0.000	0.000	0.05	No
R4	524'	0.000	0.000	0.001	0.001	0.001	0.05	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 10-4. Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, April 2020.
[3] Source: City of Chino Municipal Code Section 9.40.110
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

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11 REFERENCES

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

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Chino Distribution Center 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 San Diego • March, 2018
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 CHINO MUNICIPAL CODE

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Chapter 9.40 - NOISE*

Sections:

9.40.010 - Definitions.

The following words, phrases and terms as used in this chapter shall have the meanings as indicated here:

"Agricultural property" means a parcel of real property which is undeveloped for any use other than agricultural purposes.

"Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

"A-weighted sound level" means the total sound level meter with a reference pressure of twenty micro-pascals using the A-weighted network (scale) at slow response. The unit of measurement shall be defined as dBA.

"Commercial property" means a parcel of real property which is developed and used as either in or part or in whole for commercial purposes.

"Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

"Decibel (dB)" means a unit which denotes the ratio between two quantities which are proportional to power: the number of decibels corresponding to the ratio of two amounts of power is ten times the logarithm to the base ten of this ratio.

"Director of community development" means the director of community development of the city of Chino or his/her duly authorized deputy.

"Dwelling unit" means a single unit providing complete independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

"Emergency machinery, vehicle, work or alarm" means any machinery, vehicle, work or alarm used, employed, performed or operated in an effort to protect, provide or restore safety conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

"Fixed noise source" means a stationary device which creates sounds while fixed or motionless including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

"Grading" means any excavating of filling of earth material or any combination thereof conducted at a site to prepare said site for construction or other improvements thereon.

"Hertz (Hz)" means the unit which describes the frequency of a function periodic in time which is the reciprocal of the period.

"Health care institution" means any hospital, convalescent home or other similar facility excluding residential.

"Impulsive noise" means a noise of short duration usually less than one second and of high intensity, with an abrupt onset and rapid decay.

"Industrial property" means a parcel of real property which is developed and used either in part or in whole for manufacturing purposes.

"Intruding noise level" means the total sound level, in decibels, created, caused, maintained or originating from an alleged offensive source at a specified location while the alleged offensive source is in operation.

"Licensed" means the issuance of a formal license or permit by the appropriate jurisdictional authority, or where no permits or licenses are issued, the sanctioning of the activity by the jurisdiction as noted in public record.

"Major roadway" means any street, avenue, boulevard or highway used for motor vehicle traffic which is owned or controlled by a public government entity.

"Mobile noise source" means any noise source other than a fixed noise source.

"Person" means a person, firm, association, co-partnership, joint venture, corporation or any entity, public or private in nature.

"Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels, and residential care facilities.

"Simple tone noise" means a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished. If measured, simple tone noise shall exist if the one-third octave band sound pressure levels in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two continuous one-third octave bands as follows: 5 dB for frequencies of 500 Hertz (Hz) and above or; by 15 dB for frequencies less than equal to 125 Hz.

"Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 or most recent revision thereof for Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

"Sound pressure level" of a sound, in decibels, means twenty times the logarithm to the base 10 of the ratio of the pressure of the sound to a reference pressure shall be explicitly stated.

"Vibration" means any movement of the earth, ground or other similar surface created by a temporal and spacial oscillation device or equipment located upon, affixed in conjunction with that surface.

(Ord. 95-10 § 1 (part), 1995.)

9.40.020 - Decibel measurement criteria.

Any decibel measurement made pursuant to the provisions of this chapter shall be based on a reference sound pressure of twenty micro-pascals as measured with a sound level meter using the A-weighted network (scale) at slow response.

(Ord. 95-10 § 1 (part), 1995.)

9.40.030 - Designated noise zones.

The properties hereinafter described are assigned to the following noise zones:

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

Noise Zone II: All commercial properties.

Noise Zone III: All manufacturing or industrial properties.

(Ord. 95-10 § 1 (part), 1995.)

9.40.040 - Exterior noise standards.

The following noise standards, unless otherwise specifically indicated, shall apply to all residential property with a designated noise zone:

These criteria are given in terms of allowable noise levels for a given period of time at the residential property boundary. Higher noise levels are permitted during the day (seven a.m. to ten p.m.) than the night (ten p.m. to seven a.m.). The table below shows the acceptable levels at residential land uses during the daytime and nighttime.

city of Chino Exterior Noise Ordinance Criteria for Residential Properties (Zone 1)			
Maximum Time of Exposure	**Noise Metric**	**Noise Level Not to Exceed** 7 am—10 pm	10 pm—7 am
30 min/hr	L50	55 dBA	50 dBA
15 min/hr	L25	60 dBA	55 dBA
5 min/hr	L8.3	65 dBA	60 dBA
1 min/hr	L1.7	70 dBA	65 dBA
Any period of time	Lmax	75 dBA	70 dBA

Each of the noise limits specified here shall be reduced by five dBA for impulse or simple tone noises, or for noises consisting of speech or music; provided, however, that if the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property, to exceed:

A. The noise standard for a cumulative period of more than thirty minutes in any hour; or

B. The noise standard plus five dBA for a cumulative period of more than fifteen minutes in any hour; or

C. The noise standard plus ten dBA for a cumulative period of more than five minutes in any hour; or

D. The noise standard plus fifteen dBA for a cumulative period of more than one minute in any hour; or

E. The noise standard plus twenty dBA for any period of time.

In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulativeperiod applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

If the measurement location is on boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

If the intruding noise source is continuous and cannot be reasonably discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the source is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of the day the noise level is measured.

A. The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the director or his/her duly authorized deputy for the purpose of establishing the existing ambient noise level at the measurement location.

(Ord. 95-10 § 1 (part), 1995.)

9.40.050 - Interior noise standards.

The following noise standard, unless otherwise specifically indicated, shall apply to all residential property within all noise zones:

Each of the noise limits specified above shall be reduced by five dBA for impulse or simple tone noises or for noises consisting of speech or music provided, however, if the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

It is unlawful for any person at any location within the incorporated area of the city to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such a person which causes the noise level when measured within any other residential dwelling unit in any noise zone to exceed:

A. The noise standard for cumulative period of more than five minutes in any hour; or

B. The noise standard plus 5 dBA for a cumulative period of more than one minute in any hour; or

C. The noise standard plus ten dBA for any period of time.

In the event the ambient noise level exceeds any of the first two noise limit categories above, the noise standard applicable to said category shall be increased to reflect the maximum ambient noise level.

If the measurement location is on a boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

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 same procedures specified in Section 9.40.040(E), shall be deemed proper to enforce the provisions of this section.

(Ord. 95-10 § 1 (part), 1995.)

9.40.060 - Special provisions.

The following activities shall be exempted from the provisions of this chapter:

A. Activities conducted on public parks, public playgrounds and public or private school grounds including school athletic and school entertainment events that are conducted under the sanction of the school or which a license or permit has been duly issued pursuant to any provision of the city code;

B. Occasional outdoor gatherings, public dances, show, sporting and entertainment events, provided said events are conducted pursuant to a permit or license issued by the appropriate jurisdiction relative to the staging of said events. Such permits and licenses may restrict noise;

C. 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 thirty minutes in any hour of its being activated;

D. 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 do not take place outside the hours for construction as defined in Section 15.44.030 of this code, and provided the noise standard of sixty-five dBA plus the limits specified in Section 9.40.040(B) as measured on residential property and any vibration created does not endanger the public health, welfare and safety;

E. All mechanical devices, apparatus or equipment associated with agriculture operations provided:

1. Operations do not take place between eight p.m. and seven a.m. on weekdays, including Saturday, or at any time Sunday or a Federal holiday, or

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

3. 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 California Department of Agriculture,

4. Noise sources associated with the maintenance of real property, provided said activities take place between the hours of seven a.m. to eight p.m. on any day except Sunday, or between the hours of nine a.m. and eight p.m. on Sunday,

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

NOTE: Preemption may include motor vehicle, aircraft in flight, and railroad noise regulations.

(Ord. 2004-23 § 59, 2004; Ord. 95-10 § 1 (part), 1995.)

9.40.070 - Schools, churches, libraries, health care institutions—Special provisions.

It shall be deemed 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 Section 9.40.040 prescribed for the assigned noise zone level, unreasonably interferes with the use of such institutions, or which unreasonably disturbs or annoys patients in a hospital, convalescent home or other similar health care institutions, provided conspicuous signs are displayed in three separate locations within one-tenth-mile of the institution or facility indicating a quiet zone.

(Ord. 95-10 § 1 (part), 1995.)

9.40.080 - Air conditioning and refrigeration—Special provisions.

Until January 1, 1996, the noise standards enumerated in Section 9.40.040 and 9.40.050 shall be increased five dBA where the alleged intruding noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of the ordinance codified in this chapter.

(Ord. 95-10 § 1 (part), 1995.)

9.40.090 - Noise sources generated on publicly owned property.

Notwithstanding any other provision of this code and in addition thereto, it is unlawful for any person to permit or cause any noise, sound, music or program to be emitted from any radio, tape player, tape recorder, record player, television outdoors, or any other mode on or in any publicly owned property, park or place when such noise, sound, music or program is audible to a person of normal hearing sensitivity one hundred feet from said radio, tape player, tape recorder, record player or television.

A. As used herein, "a person of normal hearing sensitivity" means a person who has a hearing threshold level of between zero decibels and twenty-five decibels HL averaged over the frequencies 500, 1,000 and 2,000 Hertz.

B. Notwithstanding any other provision of this code, any person violating this section shall be guilty of an infraction and upon conviction thereof, is punishable by a fine not exceeding fifty dollars, for a first violation; a fine not exceeding one hundred dollars for a second violation of this section within one year; a fine not exceeding two hundred fifty dollars for each additional violation of this section within one year. A person who violates the provisions of this section shall be deemed to be guilty of a separate offense for each day, or portion thereof, during which the violation continues or is repeated.

C. Notwithstanding any other provision of this code, no citation or notice to appear shall be issued or criminal complaint shall be filed for a violation of this section unless the offending party is first given a verbal or written notification of violation by any peace officer, public officer, park ranger or other person charged with enforcing this section and the offending party given an opportunity to correct said violation.

D. This section shall not apply to broadcasting from any aircraft, vehicle or stationary sound amplifying equipment or to the use of radios, tape players, tape recorders, record players or televisions in the course of an assembly or festival for which a license has been issued or a parade for which a permit has been issued pursuant to or any other activity, assembly or function for which a permit or license has been duly issued pursuant to any provision of the city code.

(Ord. 95-10 § 1 (part), 1995.)

9.40.100 - Noise level measurement.

The location selected for measuring exterior noise levels shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor nearest the noise source with windows in an open position depending on the normal seasonal ventilation requirements.

(Ord. 95-10 § 1 (part), 1995.)

9.40.110 - Vibration.

Notwithstanding other sections of this chapter, it is unlawful for any person to create, maintain or cause any ground vibration which is perceptible without instruments at any point on any affected property adjoining the property on which the vibration source is located. For the purpose of this chapter, the perception threshold shall be presumed to be more than 0.05 inches per second RMS vertical velocity.

(Ord. 95-10 § 1 (part), 1995.)

9.40.120 - Proposed developments.

Each department whose duty it is to review and approve new projects or changes to existing projects that result or may result in the creation of noise shall consult with the director prior to any such approval. If at any time the director of community development has reason to believe that a standard, regulation,

action, proposed standard, regulation or action of any department respecting noise does not conform to the provisions as specified in this chapter, the director may request such department to consult with them on the advisability of revising such standard or regulation to obtain uniformity.

(Ord. 95-10 § 1 (part), 1995.)

9.40.130 - Variance procedure.

The variance procedure process shall remain as specified in the city's zoning code (Title 20).

(Ord. 95-10 § 1 (part), 1995.)

9.40.140 - Planning commission.

The planning commission shall evaluate all applications for variance from the requirements of this chapter and may grant said variances with respect to time for compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this chapter. Said terms, conditions and requirements may include, but shall not be limited to, limitation on noise levels and operating hours. Each such variance shall set forth in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment. In its determinations, the commission shall consider the following:

A. The magnitude of nuisance caused by the offensive noise;

B. The uses of property within the area of impingement by the noise;

C. The time factors related to study, design, financing and construction of remedial work;

D. The economic factors related to age and useful life of the equipment;

E. The general public interest, welfare and safety.

Any variance granted by the commission shall be by resolution and shall be transmitted to the director of community development for enforcement. Any violation of the terms of said variance shall be unlawful.

The planning commission may require additional acoustical studies based on the individual circumstances of each case. Such studies must be performed by a person qualified in acoustical engineering with the state of California.

Meetings of the planning commission shall be held at the call of the secretary and at such times and locations as the commission shall determine. All such meetings shall be open to the public.

(Ord. 95-10 § 1 (part), 1995.)

9.40.150 - Appeals.

The appeal procedure process shall remain as specified in the city's zoning code (Title 20).

(Ord. 95-10 § 1 (part), 1995.)

9.40.160 - Prima facie violation.

Any noise exceeding the noise level standard as specified in Section 9.40.040 and 9.40.050 or vibration exceeding the standard as specified in Section 9.40.110 of this chapter, shall be deemed to be prima facie evidence of a violation of the provisions of this chapter.

(Ord. 95-10 § 1 (part), 1995.)

9.40.170 - Violations/misdemeanors.

Any persons violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined in an amount not to exceed an amount as specified by city council resolution, or be imprisoned in the Jail for a period not to exceed six months or by both such fine and imprisonment. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

(Ord. 95-10 § 1 (part), 1995.)

9.40.180 - Violations/additional remedies— Injunctions.

As an additional remedy, the operation or maintenance of any device, instrument, vehicle or machinery in violation of any provisions of this chapter which operation or maintenance causes or creates sound levels or vibration exceeding the allowable standards as specified in this chapter shall be deemed and is hereby declared to be a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction.

Any violation of this chapter is declared to be a public nuisance and may be abated in accordance with law. The expense of this chapter is declared to be public nuisance and may be by resolution of the city council declared to be a lien against the property on which such nuisance is maintained, and such lien shall be made a personal obligation of the property owner.

(Ord. 95-10 § 1 (part), 1995.)

9.40.190 - Manner of enforcement.

The director is directed to enforce the provisions of this chapter and is authorized and may cite at his/her discretion, any person without a warrant who has reasonable cause to believe that such person has committed a misdemeanor in his/her presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his/her duty.

Violations of this chapter shall be prosecuted in the same manner as other misdemeanor violations pursuant to Chapter 1.12; provided, however, that in the event of an initial violation of the provisions of this chapter, a written notice shall be given the alleged violator which specifies the time by which the condition shall be corrected or an application for variance shall be received by the event the cause of the violation has been removed, the condition abated or fully corrected within the time period specified in the written notice.

In the event the alleged violated cannot be located in order to serve the notice of intention to prosecute, the notice as required herein shall be deemed to be given upon mailing such notice to registered or certified mail to the alleged violator at his last known address or at the place where the violation occurred in which event the specified time period for abating the violation or applying for a variance shall commence at the date of the day following the mailing of such notice. Subsequent violations of the same offense shall result in the immediate filing of a misdemeanor complaint.

(Ord. 95-10 § 1 (part), 1995.)

9.40.200 - Delay in implementation—Fixed noise sources.

None of the provisions of this chapter shall apply to a fixed sound source during the period commencing the effective date of this chapter and terminating one-hundred eighty days thereafter.

(Ord. 95-10 § 1 (part), 1995.)

15.44.030 - Construction hours.

A. Construction shall occur only between the hours of 7:00 a.m. and 8:00 p.m. Monday through Saturday, with no construction allowed on Sundays and federal holidays. For the purposes of this section, construction shall mean any manmade change to improved or unimproved real estate, including, but not limited to, buildings or other structures, streets and other paving, utilities, filling, grading, excavation, mining, dredging, drilling operations, or pile driving.

B. The director of development services may approve exceptions to the hours of construction noted in Subsection A of this section, provided that the change in hours does not adversely impact the adjacent neighborhood.

(Ord. 2022-015 , § 1, 7-19-2022.)

APPENDIX 5.1:

STUDY AREA PHOTOS

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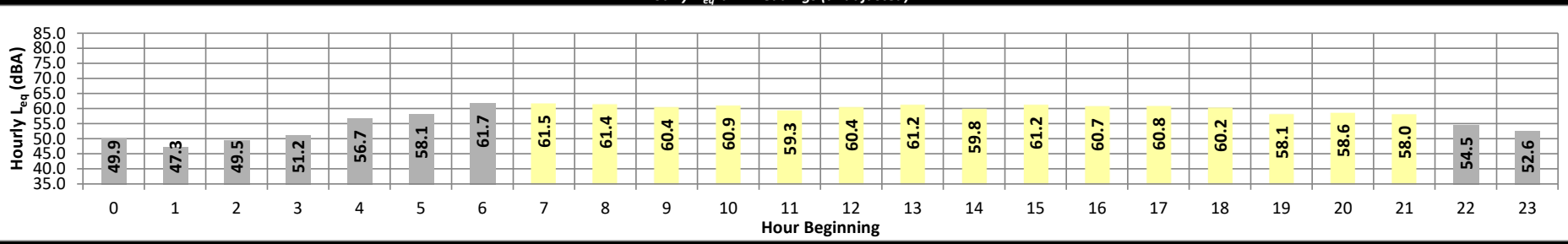
24-Hour Noise Level Measurement Summary

Date: Wednesday, March 13, 2024 *Location:* L1 - Located north of the site near the residence at 13688 3rd *Meter:* Piccolo II *JN:* 14835

Project: 5088 Edison *Source:* St. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	49.9	61.1	38.0	60.8	59.9	57.1	55.2	48.2	43.0	38.9	38.6	38.2	49.9	10.0	59.9
	1	47.3	59.4	35.4	59.0	58.1	54.7	52.4	43.9	39.2	36.0	35.8	35.5	47.3	10.0	57.3
	2	49.5	61.5	37.3	61.1	60.2	56.7	54.3	47.4	42.2	38.4	37.8	37.4	49.5	10.0	59.5
	3	51.2	62.3	36.6	61.8	61.0	58.6	56.7	49.8	43.7	38.0	37.4	36.8	51.2	10.0	61.2
	4	56.7	66.2	43.7	65.8	64.8	63.1	61.9	57.2	52.6	45.6	44.6	43.8	56.7	10.0	66.7
	5	58.1	66.4	43.8	66.0	65.5	64.0	63.0	59.4	54.9	45.8	44.6	43.9	58.1	10.0	68.1
	6	61.7	73.4	47.8	73.0	72.0	68.3	65.9	60.9	56.9	49.7	48.7	48.0	61.7	10.0	71.7
Day	7	61.5	71.7	49.6	70.8	69.5	66.8	65.1	62.2	59.3	52.5	51.0	49.8	61.5	0.0	61.5
	8	61.4	69.9	49.3	69.6	69.0	67.0	65.6	62.3	59.0	51.7	50.4	49.5	61.4	0.0	61.4
	9	60.4	70.4	48.6	69.8	69.1	66.3	64.4	60.9	57.4	50.8	49.7	48.8	60.4	0.0	60.4
	10	60.9	72.5	47.3	72.0	70.7	66.8	64.2	60.8	56.8	49.3	48.3	47.5	60.9	0.0	60.9
	11	59.3	68.0	48.8	67.6	67.1	65.3	63.6	59.8	56.8	50.8	49.8	48.9	59.3	0.0	59.3
	12	60.4	69.8	48.7	69.2	68.6	66.9	65.5	60.2	57.3	51.0	50.0	48.9	60.4	0.0	60.4
	13	61.2	73.1	49.2	72.3	71.1	67.3	64.6	60.6	57.4	51.4	50.3	49.4	61.2	0.0	61.2
	14	59.8	68.5	49.7	68.1	67.3	65.3	63.8	60.6	57.6	51.8	50.7	49.9	59.8	0.0	59.8
	15	61.2	71.9	50.5	71.3	70.1	66.5	64.3	61.3	58.6	52.8	51.8	50.7	61.2	0.0	61.2
	16	60.7	69.9	49.8	69.5	68.5	65.8	64.3	61.3	58.6	52.2	51.0	50.0	60.7	0.0	60.7
	17	60.8	67.2	51.6	66.9	66.4	65.2	64.4	62.2	59.5	53.6	52.5	51.8	60.8	0.0	60.8
	18	60.2	67.2	50.5	66.8	66.2	64.9	64.2	61.7	58.4	52.6	51.6	50.7	60.2	0.0	60.2
	19	58.1	66.3	47.6	66.0	65.3	63.6	62.6	59.3	55.3	49.0	48.3	47.8	58.1	5.0	63.1
	20	58.6	69.4	47.4	68.8	67.8	64.9	62.9	58.4	54.4	48.9	48.2	47.6	58.6	5.0	63.6
	21	58.0	69.3	45.0	68.7	67.3	64.2	62.3	57.9	53.2	46.7	45.9	45.2	58.0	5.0	63.0
Night	22	54.5	64.0	41.7	63.7	63.0	61.1	59.9	54.4	49.4	43.2	42.5	41.9	54.5	10.0	64.5
	23	52.6	63.5	40.4	63.1	62.4	60.0	57.8	51.4	46.3	41.6	41.0	40.5	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	58.0	66.3	45.0	66.0	65.3	63.6	62.3	57.9	53.2	46.7	45.9	45.2
	Max	61.5	73.1	51.6	72.3	71.1	67.3	65.6	62.3	59.5	53.6	52.5	51.8
Energy Average		60.3	Average:		69.1	68.3	65.8	64.1	60.6	57.3	51.0	50.0	49.1
Night	Min	47.3	59.4	35.4	59.0	58.1	54.7	52.4	43.9	39.2	36.0	35.8	35.5
	Max	61.7	73.4	47.8	73.0	72.0	68.3	65.9	60.9	56.9	49.7	48.7	48.0
Energy Average		55.8	Average:		63.8	63.0	60.4	58.6	52.5	47.6	41.9	41.2	40.7

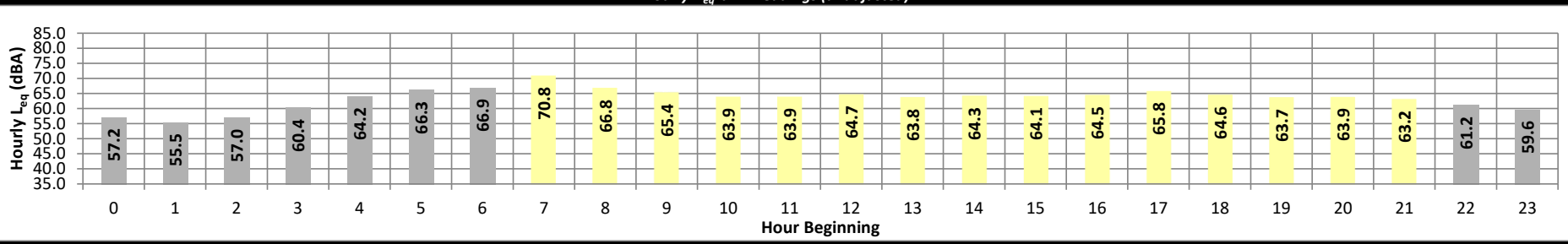
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
63.6	**60.3**	**55.8**

24-Hour Noise Level Measurement Summary

Date: Wednesday, March 13, 2024 *Location:* L2 - Located northeast of the site near the residence at 5311 *Meter:* Piccolo II *JN:* 14835

Project: 5088 Edison *Source:* Anderson St. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	57.2	68.8	40.8	68.2	67.6	65.1	62.7	55.2	47.5	41.7	41.2	40.9	57.2	10.0	67.2
	1	55.5	67.2	40.3	66.6	65.9	63.0	60.9	53.8	47.2	41.4	40.9	40.5	55.5	10.0	65.5
	2	57.0	69.2	40.4	68.6	67.9	64.9	62.4	53.9	46.0	41.2	40.9	40.5	57.0	10.0	67.0
	3	60.4	70.9	41.1	70.2	69.6	67.7	66.3	60.3	51.4	42.7	41.9	41.2	60.4	10.0	70.4
	4	64.2	72.9	47.2	72.3	71.8	70.5	69.5	65.3	59.9	49.4	48.4	47.4	64.2	10.0	74.2
	5	66.3	74.7	49.7	74.2	73.6	72.2	71.2	67.6	62.8	52.5	51.1	50.0	66.3	10.0	76.3
	6	66.9	74.2	54.3	73.8	73.3	72.0	71.0	68.4	64.9	56.9	55.5	54.6	66.9	10.0	76.9
Day	7	70.8	81.6	61.7	80.6	79.4	76.4	74.1	70.9	68.3	63.5	62.7	61.9	70.8	0.0	70.8
	8	66.8	73.9	54.9	73.5	73.0	71.6	70.8	68.4	64.9	57.9	56.4	55.0	66.8	0.0	66.8
	9	65.4	73.2	52.0	72.8	72.3	70.9	69.9	66.6	63.1	54.6	53.2	52.3	65.4	0.0	65.4
	10	63.9	72.0	51.2	71.5	70.8	69.3	68.4	65.0	61.5	54.3	52.6	51.4	63.9	0.0	63.9
	11	63.9	71.6	52.1	71.2	70.7	69.1	68.1	65.3	61.7	54.5	53.3	52.2	63.9	0.0	63.9
	12	64.7	72.8	52.3	72.3	71.8	70.2	69.1	65.9	62.2	54.8	53.6	52.5	64.7	0.0	64.7
	13	63.8	71.2	53.3	70.7	70.2	68.8	67.8	65.0	62.0	55.8	54.5	53.5	63.8	0.0	63.8
	14	64.3	72.4	54.0	71.9	71.3	69.8	68.6	65.2	62.0	55.9	55.0	54.2	64.3	0.0	64.3
	15	64.1	71.2	54.0	70.8	70.3	68.9	68.0	65.6	62.3	56.2	55.0	54.2	64.1	0.0	64.1
	16	64.5	72.0	55.5	71.5	71.0	69.5	68.4	65.7	62.7	57.6	56.6	55.8	64.5	0.0	64.5
	17	65.8	73.5	55.7	73.0	72.3	70.7	69.5	66.9	64.1	57.9	56.9	56.0	65.8	0.0	65.8
	18	64.6	72.4	53.7	71.9	71.4	69.7	68.5	65.9	62.5	56.3	55.1	54.0	64.6	0.0	64.6
	19	63.7	71.7	51.7	71.2	70.6	69.1	68.1	64.9	61.2	54.2	52.8	51.9	63.7	5.0	68.7
	20	63.9	72.3	51.4	71.9	71.3	69.6	68.5	65.1	60.7	53.3	52.4	51.6	63.9	5.0	68.9
	21	63.2	71.7	48.5	71.2	70.6	69.1	68.0	64.5	60.0	50.8	49.5	48.7	63.2	5.0	68.2
Night	22	61.2	71.1	47.9	70.5	69.7	67.7	66.1	61.7	56.2	49.5	48.6	48.0	61.2	10.0	71.2
	23	59.6	69.2	46.6	68.6	68.0	66.3	65.0	60.1	54.1	47.8	47.1	46.7	59.6	10.0	69.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.2	71.2	48.5	70.7	70.2	68.8	67.8	64.5	60.0	50.8	49.5	48.7
	Max	70.8	81.6	61.7	80.6	79.4	76.4	74.1	70.9	68.3	63.5	62.7	61.9
Energy Average		65.4	Average:		72.4	71.8	70.2	69.0	66.0	62.6	55.8	54.6	53.7
Night	Min	55.5	67.2	40.3	66.6	65.9	63.0	60.9	53.8	46.0	41.2	40.9	40.5
	Max	66.9	74.7	54.3	74.2	73.6	72.2	71.2	68.4	64.9	56.9	55.5	54.6
Energy Average		62.6	Average:		70.3	69.7	67.7	66.1	60.7	54.4	47.0	46.2	45.5

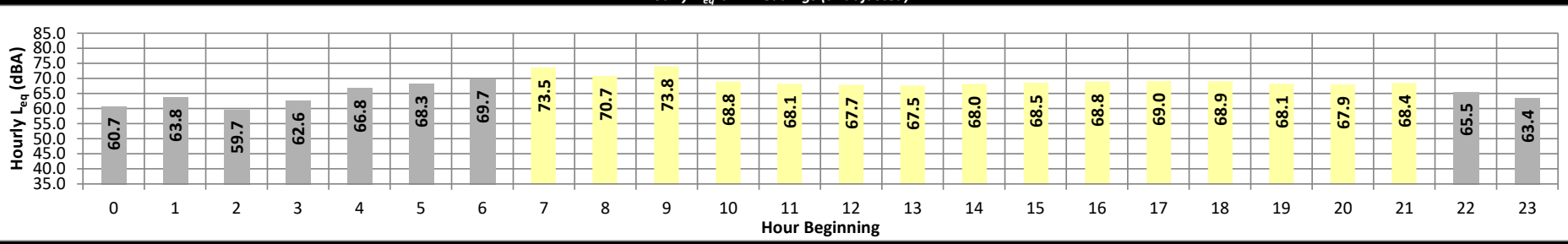
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
69.8	**65.4**	**62.6**

24-Hour Noise Level Measurement Summary

Date: Wednesday, March 13, 2024 *Location:* L3 - Located southeast of the site near the Ayala Park at 14315 *Meter:* Piccolo II *JN:* 14835

Project: 5088 Edison *Source:* Central Ave. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	60.7	71.0	49.2	70.6	69.9	67.6	66.3	60.4	53.7	49.9	49.6	49.3	60.7	10.0	70.7
	1	63.8	77.0	48.8	76.6	75.7	71.8	67.8	57.7	51.7	49.3	49.2	48.9	63.8	10.0	73.8
	2	59.7	70.7	48.7	70.3	69.4	67.1	65.3	58.1	52.2	49.3	49.1	48.9	59.7	10.0	69.7
	3	62.6	72.4	48.9	72.0	71.4	69.5	68.2	62.8	55.9	49.8	49.4	49.0	62.6	10.0	72.6
	4	66.8	74.9	52.4	74.6	74.1	72.8	72.0	68.1	62.6	54.2	53.1	52.5	66.8	10.0	76.8
	5	68.3	75.4	53.3	75.2	74.7	73.7	73.1	69.9	65.3	56.5	55.0	53.5	68.3	10.0	78.3
	6	69.7	76.1	56.2	75.8	75.3	74.4	73.8	71.5	68.2	59.3	57.6	56.5	69.7	10.0	79.7
Day	7	73.5	85.3	59.5	84.3	83.1	79.0	76.3	73.1	70.1	63.0	61.5	59.8	73.5	0.0	73.5
	8	70.7	76.5	58.5	76.2	75.9	75.0	74.4	72.2	69.8	61.9	60.2	58.8	70.7	0.0	70.7
	9	73.8	87.0	56.4	86.2	85.3	81.3	76.5	70.8	67.5	59.1	57.7	56.6	73.8	0.0	73.8
	10	68.8	76.4	55.7	75.9	75.2	73.8	72.8	70.3	66.9	58.6	57.1	55.9	68.8	0.0	68.8
	11	68.1	74.6	57.1	74.3	73.8	72.7	72.0	69.6	66.8	59.7	58.5	57.2	68.1	0.0	68.1
	12	67.7	73.8	56.4	73.5	73.1	72.2	71.6	69.4	66.4	58.8	57.6	56.6	67.7	0.0	67.7
	13	67.5	73.8	56.3	73.5	73.0	72.0	71.4	69.1	66.1	58.7	57.6	56.5	67.5	0.0	67.5
	14	68.0	74.4	58.5	74.1	73.6	72.4	71.7	69.5	66.7	60.1	59.3	58.6	68.0	0.0	68.0
	15	68.5	74.1	58.8	73.9	73.6	72.6	71.9	70.1	67.3	61.5	60.2	59.0	68.5	0.0	68.5
	16	68.8	74.8	58.4	74.5	74.1	72.9	72.2	70.4	67.8	61.3	60.0	58.7	68.8	0.0	68.8
	17	69.0	75.3	59.5	74.9	74.4	72.9	72.2	70.3	68.0	62.3	61.0	59.8	69.0	0.0	69.0
	18	68.9	74.9	58.7	74.6	74.1	73.2	72.4	70.4	67.9	61.2	60.0	59.0	68.9	0.0	68.9
	19	68.1	75.2	56.7	74.7	74.1	72.7	71.9	69.7	66.4	59.1	57.7	56.9	68.1	5.0	73.1
	20	67.9	75.7	56.4	75.3	74.6	73.2	72.0	69.0	66.1	59.0	57.5	56.6	67.9	5.0	72.9
	21	68.4	78.8	55.5	78.1	77.0	74.5	72.1	68.9	65.2	57.8	56.6	55.7	68.4	5.0	73.4
Night	22	65.5	73.4	52.3	73.1	72.6	71.4	70.5	66.8	62.1	54.5	53.4	52.5	65.5	10.0	75.5
	23	63.4	73.0	51.1	72.7	72.0	70.1	68.7	63.8	58.3	52.2	51.7	51.2	63.4	10.0	73.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	67.5	73.8	55.5	73.5	73.0	72.0	71.4	68.9	65.2	57.8	56.6	55.7
	Max	73.8	87.0	59.5	86.2	85.3	81.3	76.5	73.1	70.1	63.0	61.5	59.8
Energy Average		69.7	Average:		76.3	75.7	74.0	72.8	70.2	67.3	60.1	58.8	57.7
Night	Min	59.7	70.7	48.7	70.3	69.4	67.1	65.3	57.7	51.7	49.3	49.1	48.9
	Max	69.7	77.0	56.2	76.6	75.7	74.4	73.8	71.5	68.2	59.3	57.6	56.5
Energy Average		65.6	Average:		73.4	72.8	70.9	69.5	64.3	58.9	52.8	52.0	51.4

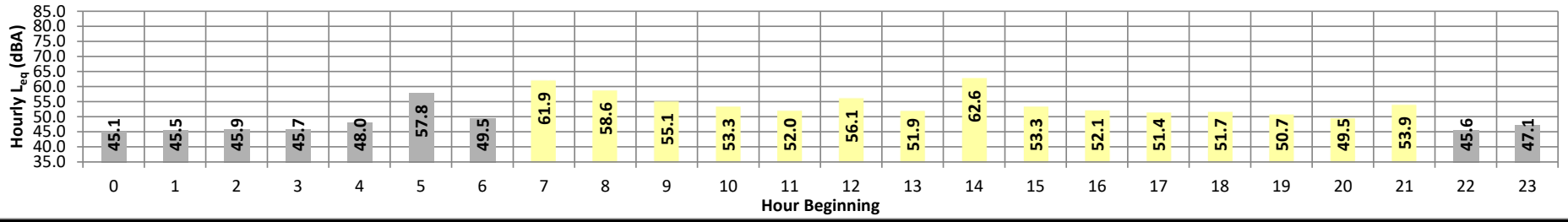
24-Hour CNEL	*Leq (dBA)* *Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
73.3	**69.7**	**65.6**

24-Hour Noise Level Measurement Summary

Date: Wednesday, March 13, 2024 | *Location:* L4 - Located southeast of the site near the Church of | *Meter:* Piccolo II | *JN:* 14835

Project: 5088 Edison | *Source:* Southland building at 5171 Edison Ave. | *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	45.1	47.2	43.6	47.0	46.8	46.5	46.3	45.6	45.0	44.1	43.9	43.7	45.1	10.0	55.1
	1	45.5	49.5	43.5	49.2	48.8	48.0	47.2	45.8	45.0	44.0	43.8	43.6	45.5	10.0	55.5
	2	45.9	48.6	44.2	48.4	48.2	47.6	47.3	46.2	45.5	44.7	44.5	44.3	45.9	10.0	55.9
	3	45.7	48.6	43.7	48.3	48.1	47.6	47.2	46.2	45.4	44.4	44.2	43.8	45.7	10.0	55.7
	4	48.0	51.0	45.9	50.8	50.5	49.9	49.6	48.7	47.7	46.5	46.3	46.0	48.0	10.0	58.0
	5	57.8	66.9	47.5	66.7	66.5	65.9	65.5	55.3	51.1	48.2	47.9	47.6	57.8	10.0	67.8
	6	49.5	54.8	46.5	54.4	54.0	52.6	51.6	50.0	48.7	47.2	46.9	46.6	49.5	10.0	59.5
Day	7	61.9	73.6	48.7	73.2	72.7	70.5	67.3	57.6	53.8	49.6	49.3	48.9	61.9	0.0	61.9
	8	58.6	68.0	48.5	67.5	67.1	65.4	63.8	58.6	53.2	49.5	49.0	48.6	58.6	0.0	58.6
	9	55.1	62.9	47.4	62.5	62.1	61.4	60.5	55.8	51.2	48.4	48.0	47.5	55.1	0.0	55.1
	10	53.3	60.2	49.2	59.5	58.8	57.4	56.5	54.0	52.0	49.9	49.7	49.4	53.3	0.0	53.3
	11	52.0	59.1	48.4	58.6	57.9	56.3	55.0	52.2	50.6	49.0	48.8	48.5	52.0	0.0	52.0
	12	56.1	65.1	48.6	64.7	64.4	63.1	61.6	54.9	51.5	49.4	49.1	48.8	56.1	0.0	56.1
	13	51.9	59.1	48.3	58.6	58.0	56.6	55.3	51.9	50.5	49.0	48.7	48.4	51.9	0.0	51.9
	14	62.6	74.9	48.9	74.3	73.5	71.2	68.6	57.3	52.5	49.7	49.4	49.1	62.6	0.0	62.6
	15	53.3	63.5	47.9	62.7	61.6	59.1	57.7	52.6	50.0	48.5	48.3	48.0	53.3	0.0	53.3
	16	52.1	58.8	48.3	58.2	57.5	55.9	54.9	52.8	50.7	48.9	48.6	48.4	52.1	0.0	52.1
	17	51.4	55.1	49.7	54.5	54.0	53.2	52.8	51.8	51.1	50.2	50.0	49.8	51.4	0.0	51.4
	18	51.7	55.7	49.8	55.2	54.7	53.7	53.2	52.1	51.3	50.3	50.1	49.9	51.7	0.0	51.7
	19	50.7	53.8	49.3	53.4	53.1	52.4	52.1	51.0	50.4	49.7	49.6	49.4	50.7	5.0	55.7
	20	49.5	51.8	48.2	51.6	51.3	50.7	50.4	49.8	49.4	48.7	48.5	48.3	49.5	5.0	54.5
	21	53.9	57.0	51.6	56.5	56.1	55.6	55.3	54.2	53.7	53.0	52.8	51.9	53.9	5.0	58.9
Night	22	45.6	50.4	42.9	50.0	49.7	48.6	47.8	46.0	44.9	43.5	43.2	43.0	45.6	10.0	55.6
	23	47.1	50.4	45.0	50.1	49.8	49.1	48.6	47.6	46.8	45.7	45.5	45.2	47.1	10.0	57.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.5	51.8	47.4	51.6	51.3	50.7	50.4	49.8	49.4	48.4	48.0	47.5
	Max	62.6	74.9	51.6	74.3	73.5	71.2	68.6	58.6	53.8	53.0	52.8	51.9
Energy Average		56.4	Average:		60.7	60.2	58.8	57.7	53.8	51.5	49.6	49.3	49.0
Night	Min	45.1	47.2	42.9	47.0	46.8	46.5	46.3	45.6	44.9	43.5	43.2	43.0
	Max	57.8	66.9	47.5	66.7	66.5	65.9	65.5	55.3	51.1	48.2	47.9	47.6
Energy Average		50.4	Average:		51.7	51.4	50.6	50.1	47.9	46.7	45.4	45.1	44.9

24-Hour CNEL	*Leq (dBA)* *Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
58.6	**56.4**	**50.4**

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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14835_L1_H 1.North
34, 0' 17.560000", 117, 41' 45.710000"

14835_L1_H 2.South
34, 0' 17.320000", 117, 41' 45.710000"

14835_L1_H 3.East
34, 0' 17.320000", 117, 41' 45.710000"

14835_L1_H 4.West
34, 0' 17.340000", 117, 41' 45.710000"

14835_L2_J 1.North
34, 0' 7.750000", 117, 41' 21.430000"

14835_L2_J 2.South
34, 0' 7.720000", 117, 41' 21.430000"

14835_L2_J 3.East
34, 0' 7.720000", 117, 41' 21.370000"

14835_L2_J 4.West
34, 0' 7.730000", 117, 41' 21.400000"

14835_L3_K 1.North
33, 59' 39.220000", 117, 41' 19.480000"

14835_L3_K 2.South
33, 59' 39.110000", 117, 41' 19.390000"

14835_L3_K 3.East
33, 59' 39.110000", 117, 41' 19.370000"

14835_L3_K 4.West
33, 59' 39.100000", 117, 41' 19.450000"

14835_L4_L 1.North
33, 59' 46.460000", 117, 41' 30.660000"

14835_L4_L 2.South
33, 59' 46.460000", 117, 41' 30.710000"

14835_L4_L 3.East
33, 59' 46.460000", 117, 41' 30.710000"

14835_L4_L 4.West
33, 59' 46.460000", 117, 41' 30.740000"

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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

Scenario: E | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: w/o Monte Vista Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,031 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,737 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.99	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-26.33	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-16.49	0.37	-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:	66.6	65.3	61.9	59.2	67.0	67.4
Medium Trucks:	50.6	49.8	41.4	41.4	50.0	50.2
Heavy Trucks:	65.7	64.4	56.2	59.5	66.8	66.9
Vehicle Noise:	69.3	68.0	63.0	62.4	70.0	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	277	596
CNEL:	62	133	287	618

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

Scenario: EP | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: w/o Monte Vista Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,202 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,752 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.58%
Medium Trucks:	87.5%	3.1%	9.4%	0.29%
Heavy Trucks:	78.3%	2.9%	18.8%	2.13%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.00	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-24.25	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.60	0.37	-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:	66.7	65.3	62.0	59.2	67.0	67.4
Medium Trucks:	52.6	51.9	43.4	43.4	52.1	52.3
Heavy Trucks:	66.6	65.3	57.0	60.4	67.7	67.8
Vehicle Noise:	69.7	68.4	63.2	62.9	70.4	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	138	298	642
CNEL:	66	143	308	664

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

Scenario: OYC | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: w/o Monte Vista Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,537 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,041 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.69	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.63	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.79	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.3	66.0	62.6	59.9	67.7	68.1
Medium Trucks:	51.3	50.5	42.1	42.1	50.7	50.9
Heavy Trucks:	66.4	65.1	56.9	60.2	67.5	67.6
Vehicle Noise:	70.0	68.7	63.7	63.1	70.7	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	143	308	664
CNEL:	69	148	319	688

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

Scenario: OYCP | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: w/o Monte Vista Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,709 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,056 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.65%
Medium Trucks:	87.5%	3.1%	9.4%	0.28%
Heavy Trucks:	78.3%	2.9%	18.8%	2.08%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.70	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-23.80	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.02	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	66.0	62.7	59.9	67.7	68.1
Medium Trucks:	53.1	52.3	43.9	43.9	52.6	52.7
Heavy Trucks:	67.1	65.9	57.6	60.9	68.2	68.4
Vehicle Noise:	70.3	69.1	63.9	63.5	71.1	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	152	328	707
CNEL:	73	158	340	732

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

Scenario: E | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: e/o Monte Vista Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,420 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,684 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.85	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-26.46	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-16.62	0.37	-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:	66.5	65.2	61.8	59.1	66.9	67.2
Medium Trucks:	50.4	49.7	41.2	41.2	49.9	50.1
Heavy Trucks:	65.5	64.3	56.0	59.4	66.7	66.8
Vehicle Noise:	69.1	67.9	62.9	62.3	69.8	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	584
CNEL:	61	130	281	605

Wednesday, July 3, 2024

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

Scenario: EP | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: e/o Monte Vista Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,784 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,715 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.20%
Medium Trucks:	87.5%	3.1%	9.4%	0.38%
Heavy Trucks:	78.3%	2.9%	18.8%	2.42%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.89	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-23.22	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.14	0.37	-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:	66.5	65.2	61.9	59.1	66.9	67.3
Medium Trucks:	53.7	52.9	44.5	44.5	53.1	53.3
Heavy Trucks:	67.0	65.8	57.5	60.8	68.1	68.2
Vehicle Noise:	69.9	68.7	63.3	63.1	70.7	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	143	308	664
CNEL:	69	148	318	686

Wednesday, July 3, 2024

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

Scenario: OYC | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: e/o Monte Vista Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,871 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,983 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.56	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.75	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.91	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	65.9	62.5	59.8	67.6	67.9
Medium Trucks:	51.1	50.4	41.9	41.9	50.6	50.8
Heavy Trucks:	66.2	65.0	56.7	60.1	67.4	67.5
Vehicle Noise:	69.8	68.6	63.6	63.0	70.5	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	140	302	652
CNEL:	67	145	313	675

Wednesday, July 3, 2024

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

Scenario: OYCP | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: e/o Monte Vista Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,236 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,015 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.33%
Medium Trucks:	87.5%	3.1%	9.4%	0.35%
Heavy Trucks:	78.3%	2.9%	18.8%	2.32%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.60	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-22.87	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-14.62	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.3	65.9	62.6	59.8	67.6	68.0
Medium Trucks:	54.0	53.3	44.8	44.8	53.5	53.6
Heavy Trucks:	67.5	66.3	58.0	61.3	68.7	68.8
Vehicle Noise:	70.5	69.2	63.9	63.7	71.3	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	338	728
CNEL:	75	162	349	752

Wednesday, July 3, 2024

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

Scenario: E | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: w/o Central Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,143 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,660 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.79	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-26.52	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-16.68	0.37	-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:	66.4	65.1	61.8	59.0	66.8	67.2
Medium Trucks:	50.4	49.6	41.2	41.2	49.8	50.0
Heavy Trucks:	65.5	64.2	56.0	59.3	66.6	66.7
Vehicle Noise:	69.1	67.8	62.8	62.2	69.8	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	579
CNEL:	60	129	278	599

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

Scenario: EP | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: w/o Central Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,452 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,687 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.70%
Medium Trucks:	87.5%	3.1%	9.4%	0.27%
Heavy Trucks:	78.3%	2.9%	18.8%	2.03%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.84	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-24.82	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.98	0.37	-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:	66.5	65.2	61.8	59.1	66.9	67.2
Medium Trucks:	52.1	51.3	42.9	42.9	51.5	51.7
Heavy Trucks:	66.2	65.0	56.7	60.0	67.3	67.4
Vehicle Noise:	69.4	68.2	63.0	62.6	70.2	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	286	615
CNEL:	64	137	295	636

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

Scenario: OYC | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: w/o Central Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,578 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,957 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.51	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.81	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.97	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	65.9	62.5	59.7	67.5	67.9
Medium Trucks:	51.1	50.3	41.9	41.9	50.5	50.7
Heavy Trucks:	66.2	65.0	56.7	60.0	67.3	67.4
Vehicle Noise:	69.8	68.5	63.5	62.9	70.5	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	139	300	646
CNEL:	67	144	311	669

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

Scenario: OYCP | Project Name: Chino Distribution Center
Road Name: Edison Av. | Job Number: 14835
Road Segment: w/o Central Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,887 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,984 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.76%
Medium Trucks:	87.5%	3.1%	9.4%	0.25%
Heavy Trucks:	78.3%	2.9%	18.8%	1.99%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.55	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-24.32	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.36	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	65.9	62.5	59.8	67.6	67.9
Medium Trucks:	52.6	51.8	43.4	43.4	52.0	52.2
Heavy Trucks:	66.8	65.6	57.3	60.6	67.9	68.0
Vehicle Noise:	70.1	68.8	63.7	63.3	70.8	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	316	681
CNEL:	70	152	327	704

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

Scenario: E
Road Name: Edison Av.
Road Segment: e/o Central Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,107 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,917 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.41	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.90	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-16.06	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	65.8	62.4	59.7	67.5	67.8
Medium Trucks:	51.0	50.2	41.8	41.8	50.5	50.6
Heavy Trucks:	66.1	64.9	56.6	59.9	67.2	67.3
Vehicle Noise:	69.7	68.4	63.4	62.8	70.4	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	137	296	637
CNEL:	66	142	306	660

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

Scenario: EP
Road Name: Edison Av.
Road Segment: e/o Central Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,215 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	1,926 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.90%
Medium Trucks:	87.5%	3.1%	9.4%	0.22%
Heavy Trucks:	78.3%	2.9%	18.8%	1.88%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.43	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.08	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.74	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	65.8	62.4	59.7	67.5	67.8
Medium Trucks:	51.8	51.1	42.6	42.6	51.3	51.4
Heavy Trucks:	66.4	65.2	56.9	60.2	67.5	67.6
Vehicle Noise:	69.8	68.6	63.5	63.0	70.6	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	141	304	654
CNEL:	68	146	314	677

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

Scenario: OYC
Road Name: Edison Av.
Road Segment: e/o Central Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,890 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,245 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.10	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.21	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.37	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.4	63.1	60.3	68.1	68.5
Medium Trucks:	51.7	50.9	42.5	42.5	51.1	51.3
Heavy Trucks:	66.8	65.6	57.3	60.6	67.9	68.0
Vehicle Noise:	70.4	69.1	64.1	63.5	71.1	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	152	328	708
CNEL:	73	158	340	733

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

Scenario: OYCP
Road Name: Edison Av.
Road Segment: e/o Central Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,998 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,254 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.92%
Medium Trucks:	87.5%	3.1%	9.4%	0.21%
Heavy Trucks:	78.3%	2.9%	18.8%	1.86%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.11	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-24.50	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.10	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.5	63.1	60.3	68.1	68.5
Medium Trucks:	52.4	51.6	43.2	43.2	51.9	52.0
Heavy Trucks:	67.1	65.8	57.6	60.9	68.2	68.3
Vehicle Noise:	70.5	69.2	64.2	63.7	71.2	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	156	336	724
CNEL:	75	161	348	750

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

Scenario: E
Road Name: Monte Vista Av.
Road Segment: n/o Edison Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,446 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	559 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.94	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-31.25	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.41	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	61.3	58.0	55.2	63.0	63.4
Medium Trucks:	46.6	45.8	37.4	37.4	46.0	46.2
Heavy Trucks:	61.7	60.5	52.2	55.5	62.8	62.9
Vehicle Noise:	65.3	64.0	59.0	58.4	66.0	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	51	110	237
CNEL:	25	53	114	246

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

Scenario: EP
Road Name: Monte Vista Av.
Road Segment: n/o Edison Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,493 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	563 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.08%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.74%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.91	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-31.25	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.41	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	61.4	58.0	55.3	63.1	63.4
Medium Trucks:	46.6	45.8	37.4	37.4	46.0	46.2
Heavy Trucks:	61.7	60.5	52.2	55.5	62.8	62.9
Vehicle Noise:	65.3	64.0	59.0	58.4	66.0	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	51	110	238
CNEL:	25	53	114	246

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

Scenario: OYC
Road Name: Monte Vista Av.
Road Segment: n/o Edison Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,945 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	602 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.61	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-30.93	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.09	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.7	58.3	55.6	63.4	63.7
Medium Trucks:	46.9	46.1	37.7	37.7	46.4	46.5
Heavy Trucks:	62.0	60.8	52.5	55.8	63.1	63.2
Vehicle Noise:	65.6	64.3	59.3	58.7	66.3	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	54	116	249
CNEL:	26	56	120	258

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

Scenario: OYCP
Road Name: Monte Vista Av.
Road Segment: n/o Edison Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,991 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	606 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.08%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.74%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.58	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-30.93	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.09	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.7	58.3	55.6	63.4	63.7
Medium Trucks:	46.9	46.1	37.7	37.7	46.4	46.5
Heavy Trucks:	62.0	60.8	52.5	55.8	63.1	63.2
Vehicle Noise:	65.6	64.3	59.4	58.8	66.3	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	54	116	250
CNEL:	26	56	120	259

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

Scenario: E | Project Name: Chino Distribution Center
Road Name: Monte Vista Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,420 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	470 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.69	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-32.01	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.16	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.9	60.6	57.2	54.5	62.3	62.6
Medium Trucks:	45.8	45.1	36.6	36.6	45.3	45.5
Heavy Trucks:	60.9	59.7	51.4	54.8	62.1	62.2
Vehicle Noise:	64.5	63.2	58.3	57.7	65.2	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	46	98	211
CNEL:	22	47	102	219

Wednesday, July 3, 2024

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

Scenario: EP | Project Name: Chino Distribution Center
Road Name: Monte Vista Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,566 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	483 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	96.74%
Medium Trucks:	87.5%	3.1%	9.4%	0.48%
Heavy Trucks:	78.3%	2.9%	18.8%	2.78%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.63	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-27.69	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.06	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	60.6	57.3	54.5	62.3	62.7
Medium Trucks:	50.1	49.4	40.9	40.9	49.6	49.8
Heavy Trucks:	63.0	61.8	53.5	56.9	64.2	64.3
Vehicle Noise:	65.7	64.4	58.9	58.9	66.4	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	55	118	255
CNEL:	26	57	122	263

Wednesday, July 3, 2024

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

Scenario: OYC | Project Name: Chino Distribution Center
Road Name: Monte Vista Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,872 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	509 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.34	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-31.66	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.81	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.2	60.9	57.6	54.8	62.6	63.0
Medium Trucks:	46.2	45.4	37.0	37.0	45.6	45.8
Heavy Trucks:	61.3	60.1	51.8	55.1	62.4	62.5
Vehicle Noise:	64.9	63.6	58.6	58.0	65.6	65.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	103	223
CNEL:	23	50	107	231

Wednesday, July 3, 2024

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

Scenario: OYCP | Project Name: Chino Distribution Center
Road Name: Monte Vista Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,019 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	522 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	96.84%
Medium Trucks:	87.5%	3.1%	9.4%	0.46%
Heavy Trucks:	78.3%	2.9%	18.8%	2.70%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.29	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-27.55	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.84	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.3	61.0	57.6	54.9	62.7	63.0
Medium Trucks:	50.3	49.5	41.1	41.1	49.7	49.9
Heavy Trucks:	63.3	62.0	53.8	57.1	64.4	64.5
Vehicle Noise:	65.9	64.7	59.2	59.2	66.7	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	57	123	266
CNEL:	27	59	127	274

Wednesday, July 3, 2024

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

Scenario: E | Project Name: Chino Distribution Center
Road Name: Telephone Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	842 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	73 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	22 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	31.512
Medium Trucks:	31.230
Heavy Trucks:	31.257

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-12.20	2.90	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-39.51	2.96	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.67	2.96	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.8	52.5	49.1	46.4	54.2	54.5
Medium Trucks:	38.0	37.2	28.8	28.8	37.5	37.6
Heavy Trucks:	53.7	52.4	44.1	47.5	54.8	54.9
Vehicle Noise:	56.8	55.5	50.3	50.0	57.5	57.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	23	49
CNEL:	5	11	23	50

Wednesday, July 3, 2024

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

Scenario: EP | Project Name: Chino Distribution Center
Road Name: Telephone Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	888 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	77 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	22 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.16%
Medium Trucks:	87.5%	3.1%	9.4%	0.17%
Heavy Trucks:	78.3%	2.9%	18.8%	1.66%

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:	31.512
Medium Trucks:	31.230
Heavy Trucks:	31.257

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-11.96	2.90	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-39.51	2.96	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.67	2.96	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.0	52.7	49.4	46.6	54.4	54.8
Medium Trucks:	38.0	37.2	28.8	28.8	37.5	37.6
Heavy Trucks:	53.7	52.4	44.1	47.5	54.8	54.9
Vehicle Noise:	56.9	55.7	50.5	50.1	57.7	57.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	23	50
CNEL:	5	11	24	51

Wednesday, July 3, 2024

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

Scenario: OYC | Project Name: Chino Distribution Center
Road Name: Telephone Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	893 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	77 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	22 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	31.512
Medium Trucks:	31.230
Heavy Trucks:	31.257

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-11.94	2.90	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-39.25	2.96	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.41	2.96	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.1	52.8	49.4	46.6	54.4	54.8
Medium Trucks:	38.3	37.5	29.1	29.1	37.7	37.9
Heavy Trucks:	53.9	52.7	44.4	47.7	55.0	55.1
Vehicle Noise:	57.1	55.8	50.6	50.3	57.8	58.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	24	51
CNEL:	5	11	24	52

Wednesday, July 3, 2024

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

Scenario: OYCP | Project Name: Chino Distribution Center
Road Name: Telephone Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	940 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	81 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	22 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	33.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.0%	8.8%	14.1%	98.16%
Medium Trucks:	87.5%	3.1%	9.4%	0.17%
Heavy Trucks:	78.3%	2.9%	18.8%	1.67%

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:	31.512
Medium Trucks:	31.230
Heavy Trucks:	31.257

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-11.72	2.90	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-39.25	2.96	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.41	2.96	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.3	53.0	49.6	46.9	54.7	55.0
Medium Trucks:	38.3	37.5	29.1	29.1	37.7	37.9
Heavy Trucks:	53.9	52.7	44.4	47.7	55.0	55.1
Vehicle Noise:	57.2	55.9	50.8	50.4	57.9	58.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	24	52
CNEL:	5	11	25	53

Wednesday, July 3, 2024

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

Scenario: E
Road Name: Central Av.
Road Segment: n/o Edison Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,515 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,125 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.86	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.45	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.61	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	66.2	62.8	60.1	67.9	68.3
Medium Trucks:	51.4	50.7	42.2	42.2	50.9	51.1
Heavy Trucks:	66.6	65.3	57.0	60.4	67.7	67.8
Vehicle Noise:	70.1	68.9	63.9	63.3	70.8	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	317	682
CNEL:	71	152	328	707

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

Scenario: EP
Road Name: Central Av.
Road Segment: n/o Edison Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,608 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,134 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.07%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.75%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.88	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.45	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.61	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	66.2	62.8	60.1	67.9	68.3
Medium Trucks:	51.4	50.7	42.2	42.2	50.9	51.1
Heavy Trucks:	66.6	65.3	57.0	60.4	67.7	67.8
Vehicle Noise:	70.1	68.9	63.9	63.3	70.8	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	317	683
CNEL:	71	153	329	708

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

Scenario: OYC
Road Name: Central Av.
Road Segment: n/o Edison Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,455 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,294 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.19	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.12	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.28	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.5	63.2	60.4	68.2	68.6
Medium Trucks:	51.8	51.0	42.6	42.6	51.2	51.4
Heavy Trucks:	66.9	65.6	57.4	60.7	68.0	68.1
Vehicle Noise:	70.5	69.2	64.2	63.6	71.2	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	155	333	718
CNEL:	74	160	345	744

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

Scenario: OYCP
Road Name: Central Av.
Road Segment: n/o Edison Av.
Project Name: Chino Distribution Center
Job Number: 14835

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,548 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,302 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.07%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.75%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.21	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.12	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.28	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	66.6	63.2	60.4	68.2	68.6
Medium Trucks:	51.8	51.0	42.6	42.6	51.2	51.4
Heavy Trucks:	66.9	65.6	57.4	60.7	68.0	68.1
Vehicle Noise:	70.5	69.2	64.2	63.6	71.2	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	155	334	719
CNEL:	74	160	346	745

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

Scenario: E | Project Name: Chino Distribution Center
Road Name: Central Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,166 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,269 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.15	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-25.17	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.33	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.5	63.1	60.4	68.2	68.5
Medium Trucks:	51.7	51.0	42.5	42.5	51.2	51.3
Heavy Trucks:	66.8	65.6	57.3	60.6	67.9	68.0
Vehicle Noise:	70.4	69.1	64.2	63.6	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	154	331	713
CNEL:	74	159	343	738

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

Scenario: EP | Project Name: Chino Distribution Center
Road Name: Central Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,274 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,278 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.93%
Medium Trucks:	87.5%	3.1%	9.4%	0.21%
Heavy Trucks:	78.3%	2.9%	18.8%	1.86%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.16	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-24.46	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.05	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.5	63.1	60.4	68.2	68.5
Medium Trucks:	52.4	51.7	43.2	43.2	51.9	52.1
Heavy Trucks:	67.1	65.9	57.6	60.9	68.2	68.3
Vehicle Noise:	70.6	69.3	64.2	63.7	71.3	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	338	729
CNEL:	75	163	350	755

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

Scenario: OYC | Project Name: Chino Distribution Center
Road Name: Central Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,172 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,443 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	98.06%
Medium Trucks:	87.5%	3.1%	9.4%	0.18%
Heavy Trucks:	78.3%	2.9%	18.8%	1.76%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.47	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-24.85	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-15.00	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.8	63.4	60.7	68.5	68.9
Medium Trucks:	52.0	51.3	42.8	42.8	51.5	51.7
Heavy Trucks:	67.2	65.9	57.6	61.0	68.3	68.4
Vehicle Noise:	70.7	69.5	64.5	63.9	71.4	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	161	348	749
CNEL:	78	167	360	776

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

Scenario: OYCP | Project Name: Chino Distribution Center
Road Name: Central Av. | Job Number: 14835
Road Segment: s/o Edison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,280 vehicles
Peak Hour Percentage:	8.67%
Peak Hour Volume:	2,452 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	76 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:	77.0%	8.8%	14.1%	97.94%
Medium Trucks:	87.5%	3.1%	9.4%	0.21%
Heavy Trucks:	78.3%	2.9%	18.8%	1.85%

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:	46.701
Medium Trucks:	46.511
Heavy Trucks:	46.530

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.48	0.34	-1.20	-4.69	0.000	0.000
Medium Trucks:	77.72	-24.19	0.37	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-14.75	0.37	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.8	63.4	60.7	68.5	68.9
Medium Trucks:	52.7	51.9	43.5	43.5	52.2	52.3
Heavy Trucks:	67.4	66.2	57.9	61.2	68.5	68.6
Vehicle Noise:	70.9	69.6	64.5	64.0	71.6	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	165	355	765
CNEL:	79	171	367	792

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APPENDIX 9.1:

OPERATIONAL NOISE MODEL INPUTS

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14835 - Chino Distribution Center

CadnaA Noise Prediction Model: 14835-03.cna
Date: 19.08.24
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**3048.00**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	43.9	43.9	50.6	55.0	50.0	0.0				5.00	a	6653655.32	1824233.99	5.00
RECEIVERS		R2	27.0	25.9	32.6	55.0	50.0	0.0				5.00	a	6655953.47	1823283.80	5.00
RECEIVERS		R3	28.5	27.2	33.9	55.0	50.0	0.0				5.00	a	6656049.01	1821181.74	5.00
RECEIVERS		R4	35.3	33.7	40.4	55.0	50.0	0.0				5.00	a	6655070.27	1821404.82	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6654443.81	1821713.92	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6654491.28	1821712.84	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6654488.58	1821773.80	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6654444.35	1821774.34	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6654127.28	1821714.26	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6654126.20	1821770.30	50.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6653984.36	1822539.74	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6653950.19	1821801.44	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		TRUCK01	93.2	93.2	93.2	68.1	68.1	68.1	Lw	93.2									8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRUCK01	8.00	a			6654110.49	1821575.70	8.00	0.00
						6654109.49	1821619.88	8.00	0.00
						6654108.26	1821626.55	8.00	0.00
						6654105.94	1821632.91	8.00	0.00
						6654102.60	1821638.81	8.00	0.00
						6654098.34	1821644.08	8.00	0.00
						6654093.26	1821648.57	8.00	0.00
						6654087.52	1821652.16	8.00	0.00
						6654081.26	1821654.76	8.00	0.00
						6654066.50	1821666.91	8.00	0.00
						6654053.18	1821680.62	8.00	0.00
						6654041.46	1821695.72	8.00	0.00
						6654031.48	1821712.02	8.00	0.00
						6654023.38	1821729.33	8.00	0.00
						6654017.24	1821747.44	8.00	0.00
						6654005.69	1822604.78	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		COLD01	111.5	111.5	111.5	74.8	74.8	74.8	Lw	111.5					8	a
AREASOURCE		DRY01	103.4	103.4	103.4	67.9	67.9	67.9	Lw	103.4					8	a
AREASOURCE		CAR01	81.1	81.1	81.1	53.0	53.0	53.0	Lw	81.1					5	a
AREASOURCE		CAR02	81.1	81.1	81.1	54.0	54.0	54.0	Lw	81.1					5	a
AREASOURCE		CAR03	81.1	81.1	81.1	48.8	48.8	48.8	Lw	81.1					5	a
AREASOURCE		CAR04	81.1	81.1	81.1	54.4	54.4	54.4	Lw	81.1					5	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	COLD01	8.00	a			6654057.72	1822630.28	8.00	0.00
						6654117.63	1822630.52	8.00	0.00
						6654126.36	1821795.12	8.00	0.00
						6654066.82	1821795.12	8.00	0.00
AREASOURCE	DRY01	8.00	a			6653990.29	1822522.42	8.00	0.00
						6653997.84	1821793.55	8.00	0.00
						6653942.41	1821792.57	8.00	0.00
						6653937.07	1822388.48	8.00	0.00
						6653946.84	1822388.68	8.00	0.00
						6653946.24	1822460.43	8.00	0.00
						6653951.22	1822461.03	8.00	0.00
						6653951.42	1822485.15	8.00	0.00
						6653965.77	1822485.15	8.00	0.00
						6653965.37	1822520.82	8.00	0.00
AREASOURCE	CAR01	5.00	a			6654131.75	1821675.36	5.00	0.00
						6654508.78	1821679.34	5.00	0.00
						6654509.11	1821661.74	5.00	0.00
						6654131.75	1821656.42	5.00	0.00
AREASOURCE	CAR02	5.00	a			6654156.33	1821631.18	5.00	0.00
						6654493.50	1821632.84	5.00	0.00
						6654493.83	1821617.56	5.00	0.00
						6654157.00	1821613.57	5.00	0.00
AREASOURCE	CAR03	5.00	a			6654511.45	1822649.29	5.00	0.00
						6654530.20	1822649.29	5.00	0.00
						6654538.01	1821715.55	5.00	0.00
						6654517.41	1821716.88	5.00	0.00
AREASOURCE	CAR04	5.00	a			6654249.09	1822809.22	5.00	0.00
						6654511.80	1822812.53	5.00	0.00
						6654508.97	1822792.72	5.00	0.00
						6654248.62	1822790.83	5.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		45.00	a	6654119.03	1822698.36	45.00	0.00
									6654504.69	1822702.02	45.00	0.00
									6654512.02	1821691.61	45.00	0.00
									6654097.48	1821685.33	45.00	0.00
									6654097.48	1821793.76	45.00	0.00
									6654126.36	1821795.12	45.00	0.00

APPENDIX 10.1:

CONSTRUCTION NOISE MODEL INPUTS

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14835 - Chino Distribution Center

CadnaA Noise Prediction Model: 14835-02_Construction.cna
Date: 03.07.24
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**3048.00**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	57.0	-50.0	54.0	55.0	50.0	0.0				5.00	a	6653655.32	1824233.99	5.00
RECEIVERS		R2	57.4	-49.6	54.4	55.0	50.0	0.0				5.00	a	6655953.47	1823283.80	5.00
RECEIVERS		R3	57.2	-49.8	54.2	55.0	50.0	0.0				5.00	a	6656049.01	1821181.74	5.00
RECEIVERS		R4	63.2	-43.8	60.1	55.0	50.0	0.0				5.00	a	6655070.27	1821404.82	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	125.4	18.4	18.4	76.7	-30.3	-30.3	PWL-Pt	118.4					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	8.00	a			6654570.44	1822848.69	8.00	0.00
						6654583.45	1821579.52	8.00	0.00
						6653923.21	1821573.34	8.00	0.00
						6653914.78	1822399.70	8.00	0.00
						6653917.25	1822430.14	8.00	0.00
						6653921.88	1822460.32	8.00	0.00
						6653928.64	1822490.09	8.00	0.00
						6653937.49	1822519.32	8.00	0.00
						6653948.40	1822547.83	8.00	0.00
						6653961.31	1822575.50	8.00	0.00
						6653976.15	1822602.19	8.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6653991.10	1822631.97	8.00	0.00
				6654008.32	1822660.49	8.00	0.00
				6654027.72	1822687.57	8.00	0.00
				6654049.17	1822713.07	8.00	0.00
				6654072.55	1822736.80	8.00	0.00
				6654097.71	1822758.65	8.00	0.00
				6654124.50	1822778.46	8.00	0.00
				6654152.75	1822796.12	8.00	0.00
				6654180.32	1822809.31	8.00	0.00
				6654208.71	1822820.63	8.00	0.00
				6654237.79	1822830.03	8.00	0.00
				6654267.43	1822837.48	8.00	0.00
				6654297.51	1822842.93	8.00	0.00
				6654327.88	1822846.37	8.00	0.00

APPENDIX 10.2:

CONCRETE POUR NOISE MODEL INPUTS

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14835 - Chino Distribution Center

CadnaA Noise Prediction Model: 14835-02_Pour.cna
Date: 03.07.24
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**3048.00**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	38.9	-67.9	35.9	55.0	50.0	0.0				5.00	a	6653655.32	1824233.99	5.00
RECEIVERS		R2	39.3	-67.5	36.3	55.0	50.0	0.0				5.00	a	6655953.47	1823283.80	5.00
RECEIVERS		R3	39.1	-67.7	36.1	55.0	50.0	0.0				5.00	a	6656049.01	1821181.74	5.00
RECEIVERS		R4	45.1	-61.9	42.0	55.0	50.0	0.0				5.00	a	6655070.27	1821404.82	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		POUR	107.3	0.3	0.3	58.6	-48.4	-48.4	PWL-Pt	100.3					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	POUR	8.00	a			6654570.44	1822848.69	8.00	0.00
						6654583.45	1821579.52	8.00	0.00
						6653923.21	1821573.34	8.00	0.00
						6653914.78	1822399.70	8.00	0.00
						6653917.25	1822430.14	8.00	0.00
						6653921.88	1822460.32	8.00	0.00
						6653928.64	1822490.09	8.00	0.00
						6653937.49	1822519.32	8.00	0.00
						6653948.40	1822547.83	8.00	0.00
						6653961.31	1822575.50	8.00	0.00
						6653976.15	1822602.19	8.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6653991.10	1822631.97	8.00	0.00
				6654008.32	1822660.49	8.00	0.00
				6654027.72	1822687.57	8.00	0.00
				6654049.17	1822713.07	8.00	0.00
				6654072.55	1822736.80	8.00	0.00
				6654097.71	1822758.65	8.00	0.00
				6654124.50	1822778.46	8.00	0.00
				6654152.75	1822796.12	8.00	0.00
				6654180.32	1822809.31	8.00	0.00
				6654208.71	1822820.63	8.00	0.00
				6654237.79	1822830.03	8.00	0.00
				6654267.43	1822837.48	8.00	0.00
				6654297.51	1822842.93	8.00	0.00
				6654327.88	1822846.37	8.00	0.00