Spreckels Distribution Center

NOISE AND VIBRATION ANALYSIS

CITY OF MANTECA

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LIST OF ABBREVIATED TERMS

(1)	Reference
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EIR	Environmental Impact Report
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
NAVISP	North Apple Valley Industrial Specific Plan
PPV	Peak Particle Velocity
Project	Spreckels 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 Spreckels Distribution Center development (Project) in the City of Manteca. The Project consists of 289,450 square feet (SF) of high-cube cold storage warehouse use. This noise study has been prepared to satisfy applicable City of Manteca 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	*Potentially Significant*	*Less Than Significant*
Construction Noise	10	*Potentially Significant*	*Less Than Significant*
Nighttime Concrete Pour		*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This Noise and Vibration Analysis has been completed to determine the noise impacts associated with the development of the Spreckels Distribution Center ("Project"). This noise and vibration analysis briefly describes the Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for noise analysis, evaluates the future exterior noise environment, potential off-site traffic impacts, the Project-related long-term stationary-source operational noise, and Project-related short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Spreckels Distribution Center (Project) is located at 407 Spreckels Avenue in the City of Manteca, as shown in Exhibit 1-A. The nearest existing noise-sensitive residential uses are located west of the Project site on Cowell Avenue. The land use to the north consists of medical offices and a cancer treatment center. The business names are as follows: Yosemite Medical Arts- Center for Sight, Orthopedic Surgeon, Pain Management, Quest Diagnostics, Dr. Rahul Patel, MD & Dr. Mir Hosseini - cardiologist, Manteca Imaging Center, and the Manteca Surgery Center.

1.2 PROJECT DESCRIPTION

The proposed Project consists of 289,450 square feet (SF) of high-cube cold storage warehouse use. A preliminary site plan for the proposed Project is shown in Exhibit 1-B. The proposed Project has an anticipated opening year of 2026.

EXHIBIT 1-A: LOCATION MAP

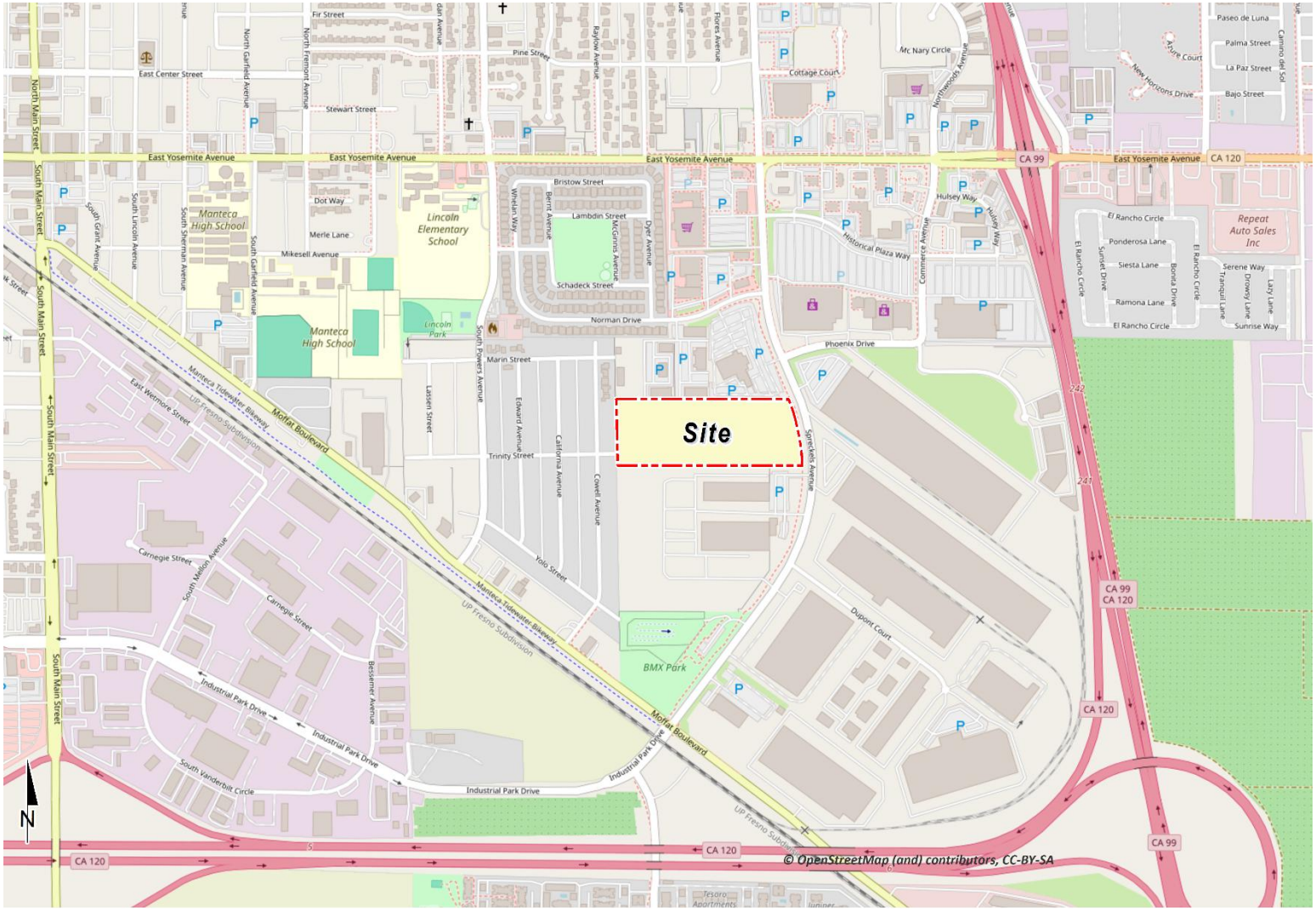
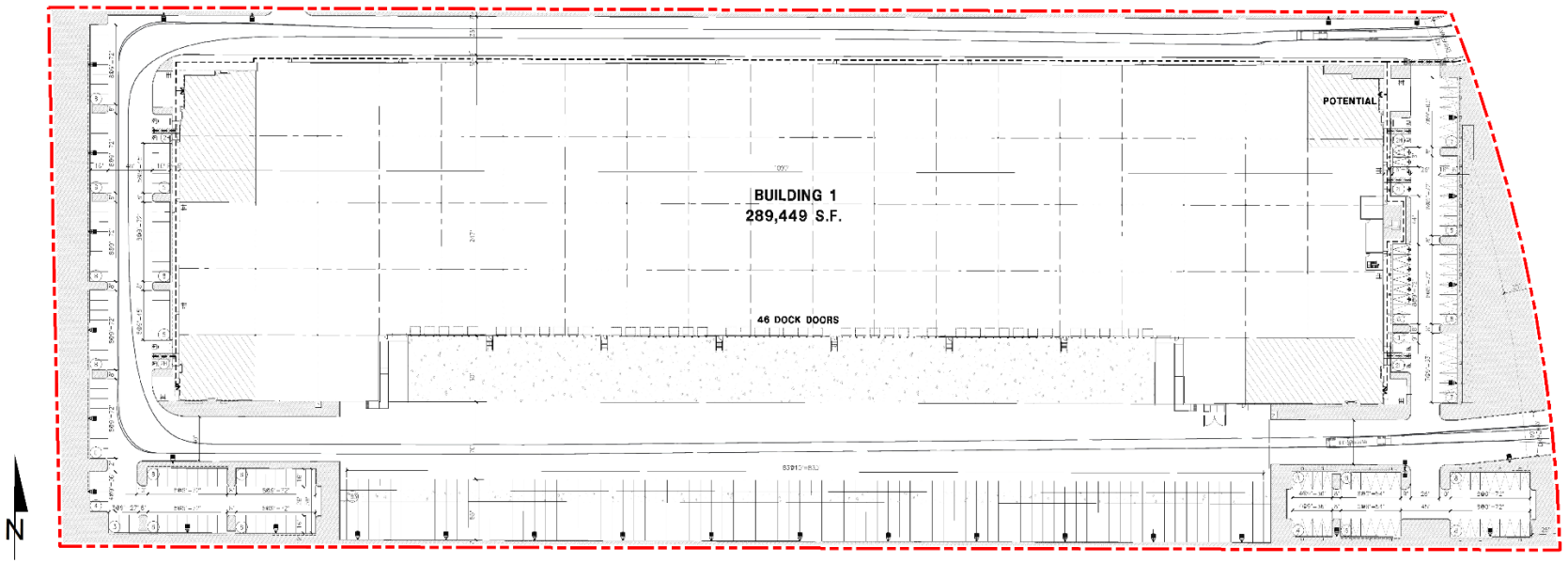


EXHIBIT 1-B: PRELIMINARY SITE PLAN



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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 and is commonly used to describe the "average" noise levels within the environment.

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

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

2.3.2 GROUND ABSORPTION

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

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

2.3.3 ATMOSPHERIC EFFECTS

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

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

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

2.6 LAND USE COMPATIBILITY WITH NOISE

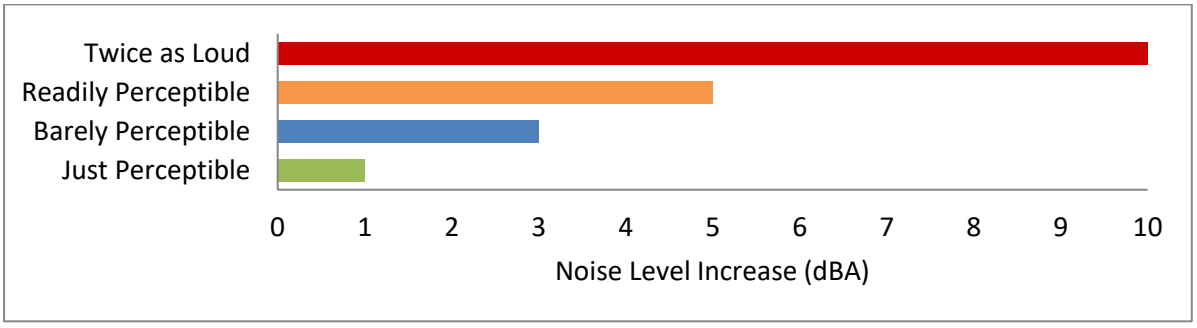
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development,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



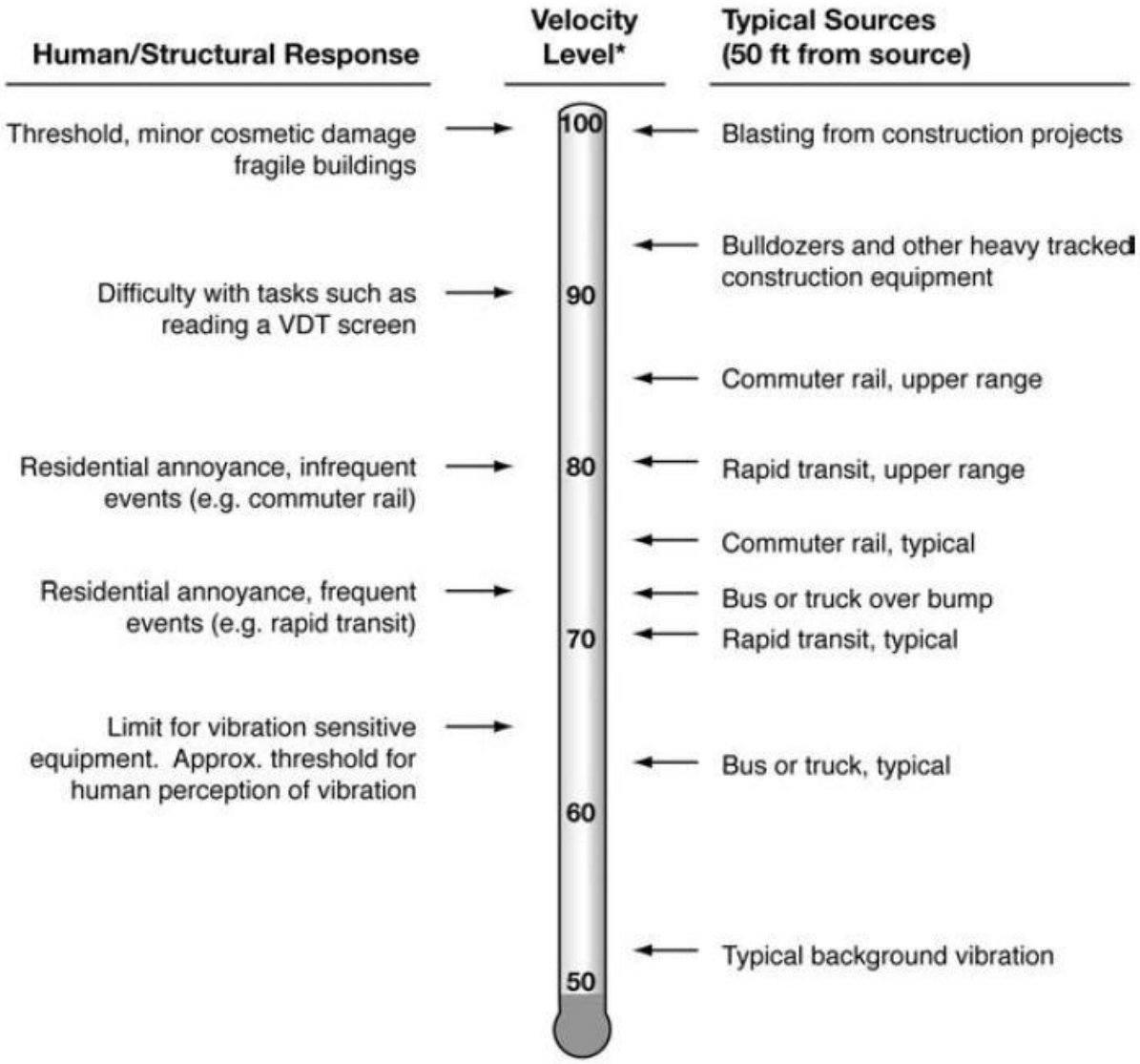
2.8 VIBRATION

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

3.2 CITY OF MANTECA GENERAL PLAN

The City of Manteca has adopted noise policies and implementation measures in the Safety chapter of the General Plan *to protect the quality of life by protecting the community from harmful and excessive noise*. (11) The state and federal government regulate sources of noise from transportation sources or the workplace. Therefore, the City of Manteca works to control noise through the following policies and implementation measures related to the Project:

POLICIES

S-6.1 Incorporate noise considerations into land use, transportation, and infrastructure planning decisions, and guide the location and design of noise-producing uses to minimize the effects of noise on adjacent noise-sensitive land uses, including residential uses and schools.

S-6.5 Require new stationary noise sources proposed adjacent to noise sensitive uses to incorporate noise-attenuating measures so as to not exceed the noise level performance standards in Table S-2, or a substantial increase in noise levels established through a detailed ambient noise survey.

S-6.6 Regulate construction-related noise to reduce impacts on adjacent uses to the criteria identified in Table S-2 or, if the criteria in Table S- 2 cannot be met, to the maximum level feasible using best management practices and complying with the MMC Chapter 9.52.

S-6.8 Apply noise level criteria applied to land uses other than residential or other noise-sensitive uses

consistent with noise performance levels of Table S-1 and Table S-2.

S-6.15 Recognizing that existing noise-sensitive uses may be exposed to increase noise levels due to circulation improvement projects associated with development under the General Plan and that it may not be feasible to reduce increased traffic noise levels to the criteria identified in Table S-1, the following criteria may be used to determine the significance of noise impacts associated with circulation improvement projects:

- Where existing traffic noise levels are less than 60 dB Ldn at the increase in noise levels due to roadway improvement projects will be considered significant; and
- • Where existing traffic noise levels range between 60 and 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +3 dB Ldn increase in noise levels due to roadway improvement projects will be considered significant; and
- • Where existing traffic noise levels are greater than 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB Ldn increase in noise levels due to roadway improvement projects will be considered significant.

IMPLEMENTATION

S-6a Require an acoustical analysis that complies with the requirements of S-6.7 where:

- Noise sensitive land uses are proposed in areas exposed to existing or projected noise levels exceeding the levels specified in Table S-1 or S-2.
- Proposed transportation projects are likely to produce noise levels exceeding the levels specified in Table S-1 or S-2 at existing or planned noise sensitive uses.

S-6c Update the City's Noise Ordinance (Chapter 9.52) to reflect the noise standards established in this Safety Element and proactively enforce the City's Noise Ordinance, including requiring the following measures for construction:

- Restrict construction activities to the hours of 7:00 a.m. to 7:00 p.m. on Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays. No construction shall be permitted outside of these hours or on Sundays or federal holidays, without a specific exemption issued by the City. No exemption shall be issued for construction within 200 feet of residential uses.
- A Construction Noise Management Plan shall be submitted by the applicant for construction projects that exceed ambient noise levels by more than 12dBA or produce perceptible vibrations at any off-site structures. The Construction Noise Management Plan shall include proper posting of construction schedules, appointment of a noise disturbance coordinator, methods for assisting in noise reduction measures, and shall establish allowed truck routes to access the site that minimize exposure of residential areas to heavy truck traffic.
- Noise reduction measures shall include, but are not limited to, the following:
    a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) wherever

feasible.

b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. This muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available. This would achieve a reduction of up to 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.

c. Temporary power poles or zero-emission power sources shall be used instead of generators where feasible.

d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.

e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented. f. Delivery of materials shall observe the hours of operation described above. g. Truck traffic shall avoid residential areas to the greatest extent feasible.

S-6d In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels are have a substantial increase. Generally, a 3 dB increase in noise levels is barely perceptible, and a 5 dB increase in noise levels is clearly perceptible. Therefore, increases in noise levels shall be considered to be substantial when the following occurs:

<u>Transportation Noise</u>

- When existing noise levels are less than 60 dB, a 5 dB increase in noise will be considered substantial;
- When existing noise levels are between 60 dB and 65 dB, a 3 dB increase in noise will be considered substantial;
- When existing noise levels exceed 65 dB, a 1.5 dB increase in noise will be considered substantial.

<u>Non-Transportation Noise</u>

- An 5dB increase in noise will be considered substantial.

<u>Construction Noise</u>

- An increase in 12dBA in noise will be considered substantial.

S-6e Control noise at the source through use of insulation, berms, building design and orientation, buffer space, staggered operating hours, and similar techniques. Where such techniques would not meet acceptable levels, use noise barriers to attenuate noise associated with new noise sources to acceptable levels.

S-6f Require that all noise-attenuating features, including soundwalls and quieter pavements, are designed to be attractive and to minimize maintenance.

3.3 LAND USE COMPATIBILITY

Table S-1: Maximum Allowable Noise Exposure from Mobile Noise Sources identified in the City of Manteca General Plan Safety Element are guidelines to evaluate the land use compatibility of transportation or mobile noise source activities. The criteria provides the city with a planning tool to gauge the compatibility of land uses relative to maximum exterior noise levels. Table S-1 identifies a maximum exterior noise level of 60 dBA CNEL for noise sensitive residential land use. The maximum acceptable exterior noise level for the non-noise sensitive Project industrial land use is 75 dBA CNEL. (11)

TABLE S-1: MAXIMUM ALLOWABLE NOISE EXPOSURE FROM MOBILE NOISE SOURCES

Land Use[1]	Outdoor Activity Areas[2,3]	Interior Spaces	
		Ldn/ CNEL, dBA	Leq, dBA[4]
Residential	60	45	-
Motels/Hotels	65	45	-
Mixed-Use	65	45	
Hospitals, Nursing Homes	60	45	-
Theaters, Auditoriums	-	-	35
Churches	60	-	40
Office Buildings	65	-	45
Schools, Libraries, Museums	70	-	45
Playgrounds, Neighborhood Parks	70	-	-
Industrial	75	-	45
Golf Courses, Water Recreation	70	-	-

[1]Where a proposed use is not specifically listed, the use shall comply with the standards for the most similar use as determined by the City.

[2]Outdoor activity areas for residential development are considered to be the back yard patios or decks of single family units and the common areas where people generally congregate for multi-family developments. Where common outdoor activity areas for multi-family developments comply with the outdoor noise level standard, the standard will not be applied at patios or decks of individual units provided noise-reducing measures are incorporated (e.g., orientation of patio/deck, screening of patio with masonry or other noise-attenuating material). Outdoor activity areas for non-residential developments are the common areas where people generally congregate, including pedestrian plazas, seating areas, and outside lunch facilities; not all residential developments include outdoor activity areas.

[3]In areas where it is not possible to reduce exterior noise levels to achieve the outdoor activity area standard w using a practical application of the best noise-reduction technology, an increase of up to 5 Ldn over the standard will be allowed provided that available exterior noise reduction measures have been implemented and interior noise levels are in compliance with this table

[4]Determined for a typical worst-case hour during periods of use.

3.4 OPERATIONAL NOISE STANDARDS (ABSOLUTE)

To analyze noise impacts originating from a designated fixed location or private property such as the Spreckels Distribution Center Project, stationary-source (operational) noise such as the expected cold storage 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 jurisdiction's Municipal Code or General Plan. While the General Plan establishes a city's broad planning goals and policies, the municipal code translates those policies into legally binding enforceable rules and regulations.

The City of Manteca Municipal Code (MMC) Table 17.58.050-1 outlines the maximum allowable stationary source noise levels by receiving land use categories. These exterior noise level limits are summarized below on Table 3-1 using the L_{eq} noise metric to accurately describe the hourly daytime and nighttime conditions. For noise-sensitive residential properties, the MMC identifies a daytime (7:00 a.m. to 10:00 p.m.) exterior noise level limit of 60 dBA L_{eq} and 50 dBA L_{eq} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. Since the exterior noise levels presented on Table 17.58.050-1 are intended to describe the hourly daytime and nighttime noise levels limits, Table 3 presents the maximum allowable noise levels using the dBA L_{eq} noise descriptor. The MMC Section 17.100.060 defines the CNEL as the average noise level during a 24-hour period, in decibels, weighted to account for the lower tolerance of people to noise during evening (7:00 p.m. to 10:00 p.m.) and night (10:00 p.m. to 7:00 a.m.) hours relative to daytime hours.

TABLE 3-1: CITY OF MANTECA STAIONARY SOURCE NOISE STANDARDS

Receiving Land Use Category	Time Period	Maximum Allowable Noise Levels (dBA L_{eq})[1]
Single-Family Residential and Limited Multiple-Family	Daytime	60
	Nighttime	50
Multiple-Family, Public Institution, and Neighborhood Commercial	Daytime	60
	Nighttime	55
Medium and Heavy Commercial	Daytime	65
	Nighttime	60
Light Industrial	Anytime	70
Heavy Industrial	Anytime	75

[1] City of Manteca Municipal Code Table 17.58.050-1 Maximum Permissible Sound Pressure Levels (Appendix 3.1). "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

In addition, Section 17.58.050[E][1] Loading and Unloading Activities limits *Loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects on private property between the hours of 10:00 p.m. and 7:00 a.m. in a manner to cause a noise disturbance.*

Table S-2 of the recently updated City of Manteca General Plan Safety Element establishes hourly stationary noise source dBA L_{eq} exterior noise level limits. For affected projects potentially impacted by Spreckels Distribution Center, the General Plan identifies a daytime (7:00 a.m. to 10:00 p.m.) exterior noise level limit of 55 dBA L_{eq} and 45 dBA L_{eq} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. However, this performance standard has not yet been adopted in a revised noise ordinance consistent with General Plan Policy Implementation Measure S-6c. Nevertheless, this analysis relies on the more restrictive exterior noise level standards outlined in General Plan Policy Implementation Measure S-6c, to evaluate potential Project-related operational noise limits for noise sensitive residential land uses, instead of the higher exterior noise level limits outlined in the MMC Table 17.58.050-1. This is consistent with MMC Section 17.58.050[A][2] stating that the purpose of the noise standards is to *implement the goals and policies of the General Plan Noise Element.*

TABLE S-2: PERORMANCE STANDARDS FOR STATIONARY NOISE SOURCES

Noise Level Descriptor	Daytime	Nighttime
	7 am to 10 pm	10 pm to 7 am
Hourly Leq, dBA	55	45

[1]*Each of the noise levels specified above should be lowered by 5 dB for simple noise tones, noises consisting primarily of speech or music, or recurring impulsive noises. Such noises are generally considered to be particularly annoying and are a primary source of noise complaints.*

[2]*No standards have been included for interior noise levels. Standard construction practices should, with the exterior noise levels identified, result in acceptable interior noise levels.*

[3]*Stationary noise sources which are typically of concern include, but are not limited to, the following:*

HVAC Systems	*Cooling Towers/Evaporative Condensers*
Pump Stations	*Lift Stations*
Emergency Generators	*Boilers*
Steam Valves	*Steam Turbines*
Generators	*Fans*
Air Compressors	*Heavy Equipment*
Conveyor Systems	*Transformers*
Pile Drivers	*Grinders*
Drill Rigs	*Gas or Diesel Motors*
Welders	*Cutting Equipment*
Outdoor Speakers	*Blowers*

[4]*The types of uses which may typically produce the noise sources described above include but are not limited to: industrial facilities, pump stations, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, and athletic fields.*

3.5 CONSTRUCTION NOISE STANDARDS (ABSOLUTE)

To control noise impacts associated with the construction of the proposed Project, the City of Manteca has established limits to the hours of operation. Section 17.58.050[E][1] Construction Noise indicates that *operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work daily between the hours of 7:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.* However, neither the City of Manteca General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or permanent increase in ambient noise levels*.

According to Caltrans guidance, which is often cited as reference in CEQA documents, construction noise impacts shall not exceed 86 dBA L_{max} at 50 feet from the job site activities between the hours of 9:00 p.m. to 6:00 a.m. (12) Equipment and operations are usually at or less than that level, except for blasting, pile drivers (impact or vibratory), hoe rams, pavement breakers for crack-and-seat operations, and other impact equipment. (2) The Caltrans guidance also suggests that detailed discussions of typical construction equipment noise levels are probably not necessary unless the project involves unusually sensitive receptors or nighttime work or if the project is controversial. (2) Since this limitation is only associated with nighttime activities and does not address the noise level at the point of concern, e.g., a residence, Caltrans construction criteria was similarly not considered as the appropriate threshold for environmental review. Further research indicated U.S. Department of Transportation guidance for construction published by the Federal Transit Administration (FTA) is appropriate and based on well documented studies of the effects of construction noise. 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 assessments. The FTA identifies two types of construction noise assessment criteria, general and detailed. For general construction noise assessments, the analysis is limited to the two noisiest pieces of equipment with an hourly daytime exterior noise level threshold for residential land use of 90 dBA $L_{eq(1hr)}$. (8 p. 179) However, for long-term construction projects that would expose sensitive receivers to noise for extended periods of time, the FTA considers a daytime 8-hour average exterior construction noise level of 80 dBA $L_{eq(8hr)}$. The absolute FTA thresholds are intended to account for reasonable expectations regarding construction noise during the daytime hours and are intended to protect human health.

Therefore, to evaluate whether the Project will generate potentially significant short-term noise levels at nearby noise sensitive residential receiver locations, a daytime exterior construction noise level of 80 dBA L_{eq} is used as a reasonable threshold to assess construction noise level impacts based on the FTA detailed analysis construction noise criteria with a nighttime exterior construction noise level of 70 dBA L_{eq}. (8 p. 179)

3.6 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. (8) To analyze vibration impacts originating from the operation and construction of the Spreckels Distribution Center, vibration-generating activities are evaluated against standards established by the Caltrans *Transportation and Construction Vibration Guidance Manual*, Table 19 and 20. The Caltrans' vibration thresholds for building damage and human annoyance are used in this noise study to assess potential operational and temporary construction-related impacts at adjacent receiver locations. To assess the potential for building damage, the 0.5 in/sec PPV threshold for *modern industrial/commercial buildings* and the 0.3 in/sec PPV threshold for older residential buildings are used in this analysis. (9)

4 SIGNIFICANCE CRITERIA

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

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

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

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

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (13) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. The MMC Section 17.100.060 defines the *ambient noise level* as the composite of noise from all sources, excluding the alleged offensive noise. In this context, it represents the normal or existing level of environmental noise at a given location for a specified time of day or night.

4.1.1 TRANSPORTATION NOISE (SUBSTANTIAL PERMANENT NOISE LEVEL INCREASE)

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

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

noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. The FICON levels of increases and their perceived acceptance at noise sensitive receiver locations are consistent with guidance outlined in the City of Manteca General Plan Implementation Policy S-6d, the Federal Highway Administration (4 p. 9) and Caltrans (15 p. 2_48).

4.1.2 NON-TRANSPORTATION NOISE (SUBSTANTIAL PERMANENT NOISE LEVEL INCREASE)

To determine if Project-related stationary source (operational) noise level increases are significant at off-site receiver locations, a *readily perceptible* 5 dBA criteria is used. The non-transportation noise level increases used to determine significant impacts is consistent with the City of Manteca General Plan Implementation Policy S.6d.

4.1.3 CONSTRUCTION NOISE (SUBSTANTIAL TEMPORARY NOISE LEVEL INCREASE)

To control the noise-generating construction activities, the temporary noise level increases over the existing *ambient* conditions must be considered under CEQA Significance Threshold A. In California a *substantial* noise increase is considered to occur when the project's predicted noise level exceeds the existing noise level by 12 dBA or more. (16) Therefore, consistent with City of Manteca General Plan Implementation Policy S.6d, if the Project-related construction noise levels generate a temporary noise level increase above the existing ambient noise levels of up to 12 dBA L_{eq}, then the Project construction noise level increases will be considered a *potentially significant impact*.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of the Spreckels Distribution Center, vibration-generating activities are appropriately evaluated using standards established by the Caltrans *Transportation and Construction Vibration Guidance Manual*, Table 19 and 20. The Caltrans' vibration thresholds for building damage and human annoyance are used in this noise study to assess potential operational and temporary construction-related impacts at adjacent receiver locations. To assess the potential for building damage, the 0.5 in/sec PPV threshold for *modern industrial/commercial buildings* and the 0.3 in/sec PPV threshold for older residential buildings are used in this analysis. (9)

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or airstrips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest airport is the Stockton Metropolitan Airport (SCK), located over 6 miles north of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	**Nighttime**
Off-Site Traffic[1,2]	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	
Stationary Source (Operational)	Exterior Noise Level Standards[3]	55 dBA L_{eq}	45 dBA L_{eq}
	Exterior Noise Level Increase[2]	5 dBA L_{eq}	
Construction	Noise Level Threshold[4]	80 dBA L_{eq}	70 dBA L_{eq}
	Exterior Noise Level Increase[2]	12 dBA L_{eq}	
	Vibration Level Threshold[5]	0.3 - 0.5 PPV (in/sec)	

[1] FICON, 1992
[2] City of Manteca General Plan Implementation Policy S-6d.
[3] City of Manteca General Plan Implementation Policy S-6c.
[4] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual. Typical noise level is described over an 8-hour duration $L_{eq(8hr)}$ and the peak hour or loudest equipment are described over one hour $L_{eq(1hr)}$.
[5] Caltrans Transportation and Construction Vibration Guidance Manual, Table 19 and 20
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at five locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, long-term noise level measurements were collected by Urban Crossroads, Inc. on Tuesday, May 7, 2024. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

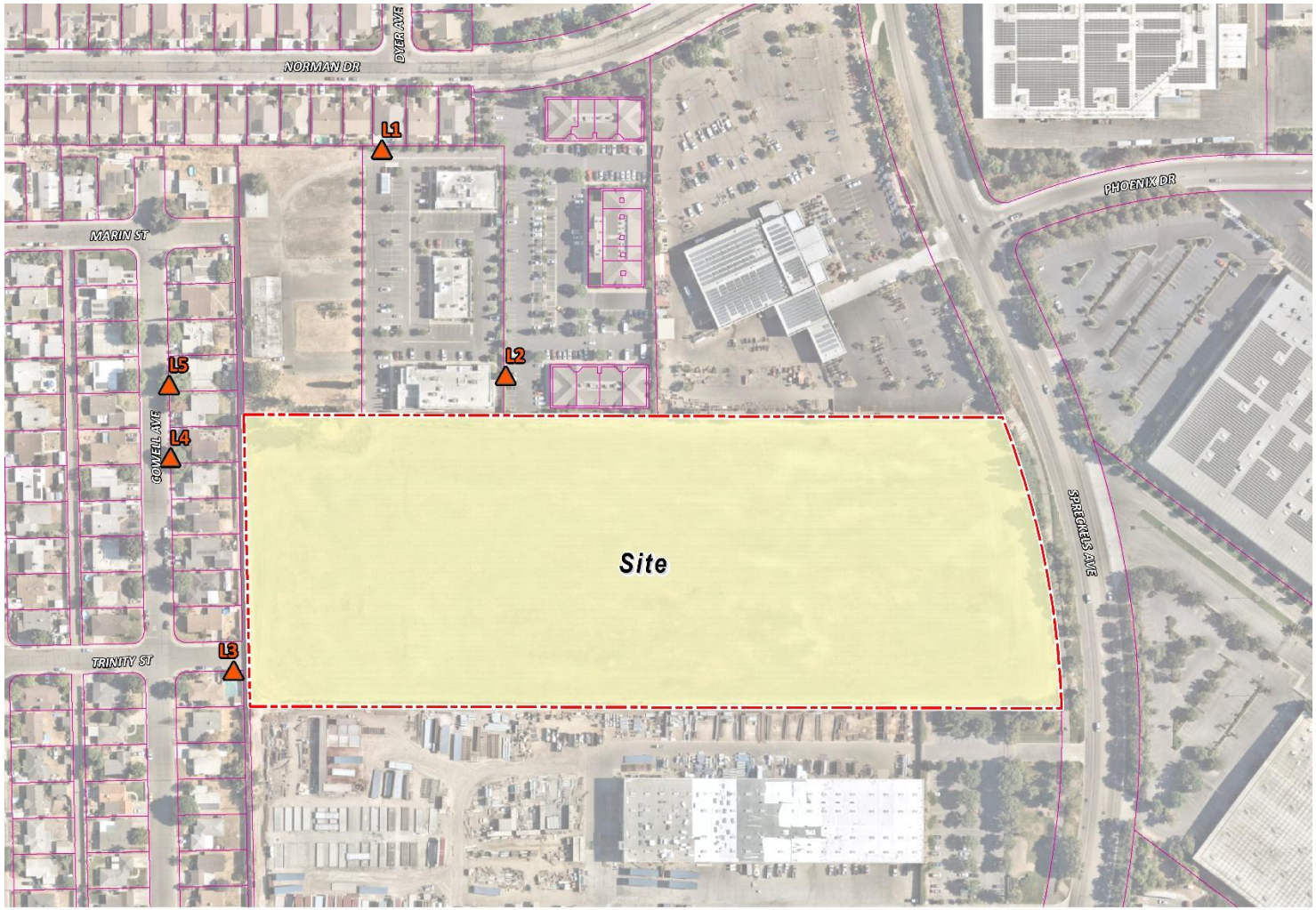
To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels. The long-term noise 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. (17)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing equivalent hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, 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.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



Collecting noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise increase due to the Project's contribution to the *ambient* noise levels. This approach is necessary to calculate the temporary or permanent increase in *ambient* noise levels as required by the CEQA Guidelines Environmental Checklist.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the equivalent or the hourly energy average sound levels (L_{eq}) to describe the existing *ambient* conditions. Table 5-1 provides the (energy average) noise levels used to describe 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. 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. The daytime and nighttime equivalent noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number.

TABLE 5-1: AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located north of the site near the residence at 1098 Norman Dr.	53.4	51.6	58.6
L2	Located north of the site near the commercial retail center at 1148 Norman Dr.	50.8	49.4	56.3
L3	Located west of the site near the residence at 1002 Trinity St.	48.7	48.6	55.5
L4	Located west of the site near the residence at 332 Cowell Ave.	54.6	52.6	59.7
L5	Located northwest of the site near the residence at 320 Cowell Ave.	54.8	51.7	59.0

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

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6 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 City of Manteca General Plan, Table S-1, *Maximum Allowable Noise Exposure from Mobile Noise*, all transportation-related noise levels for the outdoor activity areas 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. (18) 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. This is the same methodology and approach used for the City of Manteca General Plan. (11)

In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (19) 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. (20) This is the same methodology and approach used for the City of Manteca General Plan. (11)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site dBA CNEL transportation noise impacts. Table 6-1 identifies the 10 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 Manteca General Plan Circulation Element, and the vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on the *Proposed Warehouse 407 Spreckels Avenue Traffic Study,* prepared by Ruettgers & Schuler Civil Engineers for the following traffic scenarios (21):

- Existing without Project (E)
- Existing with Project (EP)
- Future without Project (F)
- Future with Project (FP)

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. This analysis relies on a comparative evaluation of the off-site traffic noise impacts at the boundary of the right-of-way of the receiving adjacent land use, without and with project ADT traffic volumes from the Project traffic analysis. Consistent with the TIA, the Project is anticipated to generate a net total of 614 two-way trips per day (actual vehicles) that includes 217 truck trips.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Roadway Type	Receiving Land Use[1]	Distance from Centerline to Receiving Land Use (Feet)[2]	Vehicle Speed (mph)
1	Cottage Ave	n/o Yosemite Ave.	2-Lane	Sensitive	30'	30
2	Spreckels Ave.	s/o Yosemite Ave.	4-Lane	Non-Sensitive	50'	40
3	Spreckels Ave.	n/o Phoenix Dr.	4-Lane	Non-Sensitive	50'	40
4	Spreckels Ave.	s/o Phoenix Dr.	4-Lane	Non-Sensitive	50'	40
5	Spreckels Ave.	n/o Moffat Blvd.	4-Lane	Non-Sensitive	50'	40
6	Spreckels Ave.	s/o Moffat Blvd.	4-Lane	Non-Sensitive	50'	40
7	Yosemite Ave.	w/o Spreckels Ave.	5-Lane	Sensitive	55'	35
8	Yosemite Ave.	e/o Spreckels Ave.	5-Lane	Non-Sensitive	55'	35
9	Moffat Blvd.	w/o Spreckels Ave.	2-Lane	Non-Sensitive	30'	45
10	Moffat Blvd.	e/o Spreckels Ave.	2-Lane	Non-Sensitive	30'	45

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] Distance to receiving land use is based upon the right-of-way distances.

To quantify the off-site noise levels, 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. The unadjusted daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the traffic study.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]			
			Existing		Future	
			Without Project	With Project	Without Project	With Project
1	Cottage Ave	n/o Yosemite Ave.	8,160	8,271	8,390	8,501
2	Spreckels Ave.	s/o Yosemite Ave.	11,930	12,200	12,200	12,470
3	Spreckels Ave.	n/o Phoenix Dr.	10,610	10,880	10,920	11,190
4	Spreckels Ave.	s/o Phoenix Dr.	12,900	13,244	13,280	13,624
5	Spreckels Ave.	n/o Moffat Blvd.	13,330	13,674	13,740	14,084
6	Spreckels Ave.	s/o Moffat Blvd.	13,220	13,453	13,620	13,853
7	Yosemite Ave.	w/o Spreckels Ave.	12,900	12,937	13,270	13,307
8	Yosemite Ave.	e/o Spreckels Ave.	17,990	18,113	18,460	18,583
9	Moffat Blvd.	w/o Spreckels Ave.	5,850	5,887	6,030	6,067
10	Moffat Blvd.	e/o Spreckels Ave.	6,080	6,154	6,250	6,324

[1] Proposed Warehouse 407 Spreckels Avenue Traffic Study, Ruettgers & Schuler Civil Engineers

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits and the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios. Tables 6-4 to 6-5 show the with Project vehicle mix. Due to the added Project truck trips, the increase in Project traffic volumes and the distributions of trucks on the study area road segments, the percentage of autos, medium trucks and heavy trucks will vary for each of the traffic scenarios. This explains why the existing and future traffic volumes and vehicle mixes vary between seemingly identical study area roadway segments.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time of Day	Vehicle Mix[1]			Time of Day Split[1]
	Autos[2]	Medium Trucks[3]	Heavy Trucks[4]	
Daytime	73.40%	1.30%	7.30%	82.00%
Evening	6.40%	0.40%	1.20%	8.00%
Nighttime	7.50%	0.30%	2.20%	10.00%
Daily	87.30%	2.00%	10.70%	100.00%

[1] Based on the Manteca General Plan Update Appendix C-2 vehicle mix for Segment 39 - Spreckels Avenue South of Phoenix Drive.
[2] All vehicles with two axles and four wheels designed primarily for transportation of nine or fewer passengers (automobiles) or transportation of cargo (light trucks).
[3] All vehicles with two axles and six wheels designed for transportation of cargo.
[4] All vehicles with three or more axles designed for the transportation of cargo.

TABLE 6-4: EXISTING WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Cottage Ave	n/o Yosemite Ave.	81.77%	7.93%	10.30%	100.00%
2	Spreckels Ave.	s/o Yosemite Ave.	81.62%	7.89%	10.50%	100.00%
3	Spreckels Ave.	n/o Phoenix Dr.	81.57%	7.87%	10.56%	100.00%
4	Spreckels Ave.	s/o Phoenix Dr.	81.55%	7.87%	10.58%	100.00%
5	Spreckels Ave.	n/o Moffat Blvd.	81.56%	7.87%	10.57%	100.00%
6	Spreckels Ave.	s/o Moffat Blvd.	81.70%	7.91%	10.39%	100.00%
7	Yosemite Ave.	w/o Spreckels Ave.	81.95%	7.99%	10.06%	100.00%
8	Yosemite Ave.	e/o Spreckels Ave.	81.88%	7.96%	10.15%	100.00%
9	Moffat Blvd.	w/o Spreckels Ave.	81.89%	7.97%	10.14%	100.00%
10	Moffat Blvd.	e/o Spreckels Ave.	81.79%	7.94%	10.27%	100.00%

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

TABLE 6-5: FUTURE WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Cottage Ave	n/o Yosemite Ave.	81.77%	7.93%	10.29%	100.00%
2	Spreckels Ave.	s/o Yosemite Ave.	81.62%	7.89%	10.49%	100.00%
3	Spreckels Ave.	n/o Phoenix Dr.	81.58%	7.88%	10.54%	100.00%
4	Spreckels Ave.	s/o Phoenix Dr.	81.56%	7.87%	10.57%	100.00%
5	Spreckels Ave.	n/o Moffat Blvd.	81.58%	7.87%	10.55%	100.00%
6	Spreckels Ave.	s/o Moffat Blvd.	81.71%	7.91%	10.38%	100.00%
7	Yosemite Ave.	w/o Spreckels Ave.	81.95%	7.99%	10.06%	100.00%
8	Yosemite Ave.	e/o Spreckels Ave.	81.89%	7.97%	10.15%	100.00%
9	Moffat Blvd.	w/o Spreckels Ave.	81.89%	7.97%	10.14%	100.00%
10	Moffat Blvd.	e/o Spreckels Ave.	81.80%	7.94%	10.26%	100.00%

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

7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with the development of the proposed Project, noise contours were developed based on the *Proposed Warehouse 407 Spreckels Avenue Traffic Study,* prepared by Ruettgers & Schuler Civil Engineers. (21) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

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

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Cottage Ave	n/o Yosemite Ave.	Sensitive	73.1	48	104	225
2	Spreckels Ave.	s/o Yosemite Ave.	Non-Sensitive	74.7	102	221	476
3	Spreckels Ave.	n/o Phoenix Dr.	Non-Sensitive	74.2	95	204	440
4	Spreckels Ave.	s/o Phoenix Dr.	Non-Sensitive	75.0	108	233	501
5	Spreckels Ave.	n/o Moffat Blvd.	Non-Sensitive	75.2	110	238	512
6	Spreckels Ave.	s/o Moffat Blvd.	Non-Sensitive	75.1	110	236	509
7	Yosemite Ave.	w/o Spreckels Ave.	Sensitive	73.1	88	190	409
8	Yosemite Ave.	e/o Spreckels Ave.	Non-Sensitive	74.5	110	237	511
9	Moffat Blvd.	w/o Spreckels Ave.	Non-Sensitive	74.7	62	133	286
10	Moffat Blvd.	e/o Spreckels Ave.	Non-Sensitive	74.9	63	136	293

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

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

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

TABLE 7-2: EXISTING WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Cottage Ave	n/o Yosemite Ave.	Sensitive	73.3	50	107	230
2	Spreckels Ave.	s/o Yosemite Ave.	Non-Sensitive	74.9	106	229	494
3	Spreckels Ave.	n/o Phoenix Dr.	Non-Sensitive	74.4	99	213	459
4	Spreckels Ave.	s/o Phoenix Dr.	Non-Sensitive	75.3	113	243	524
5	Spreckels Ave.	n/o Moffat Blvd.	Non-Sensitive	75.4	115	248	534
6	Spreckels Ave.	s/o Moffat Blvd.	Non-Sensitive	75.3	113	243	525
7	Yosemite Ave.	w/o Spreckels Ave.	Sensitive	73.1	89	191	411
8	Yosemite Ave.	e/o Spreckels Ave.	Non-Sensitive	74.6	111	240	517
9	Moffat Blvd.	w/o Spreckels Ave.	Non-Sensitive	74.8	62	134	289
10	Moffat Blvd.	e/o Spreckels Ave.	Non-Sensitive	75.0	64	139	299

[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: FUTURE 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	Cottage Ave	n/o Yosemite Ave.	Sensitive	73.2	49	106	229
2	Spreckels Ave.	s/o Yosemite Ave.	Non-Sensitive	74.8	104	224	483
3	Spreckels Ave.	n/o Phoenix Dr.	Non-Sensitive	74.3	97	208	448
4	Spreckels Ave.	s/o Phoenix Dr.	Non-Sensitive	75.1	110	237	511
5	Spreckels Ave.	n/o Moffat Blvd.	Non-Sensitive	75.3	113	243	522
6	Spreckels Ave.	s/o Moffat Blvd.	Non-Sensitive	75.2	112	241	519
7	Yosemite Ave.	w/o Spreckels Ave.	Sensitive	73.2	90	194	417
8	Yosemite Ave.	e/o Spreckels Ave.	Non-Sensitive	74.6	112	241	520
9	Moffat Blvd.	w/o Spreckels Ave.	Non-Sensitive	74.8	63	135	292
10	Moffat Blvd.	e/o Spreckels Ave.	Non-Sensitive	75.0	64	139	299

[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: FUTURE 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	Cottage Ave	n/o Yosemite Ave.	Sensitive	73.4	51	109	235
2	Spreckels Ave.	s/o Yosemite Ave.	Non-Sensitive	75.0	108	232	501
3	Spreckels Ave.	n/o Phoenix Dr.	Non-Sensitive	74.6	101	217	467
4	Spreckels Ave.	s/o Phoenix Dr.	Non-Sensitive	75.4	115	247	533
5	Spreckels Ave.	n/o Moffat Blvd.	Non-Sensitive	75.6	117	253	545
6	Spreckels Ave.	s/o Moffat Blvd.	Non-Sensitive	75.4	115	248	535
7	Yosemite Ave.	w/o Spreckels Ave.	Sensitive	73.2	90	195	419
8	Yosemite Ave.	e/o Spreckels Ave.	Non-Sensitive	74.7	113	244	526
9	Moffat Blvd.	w/o Spreckels Ave.	Non-Sensitive	74.9	63	137	295
10	Moffat Blvd.	e/o Spreckels Ave.	Non-Sensitive	75.1	66	141	305

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

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the traffic study. 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 73.1 to 75.2 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 73.1 to 75.4 dBA CNEL. Table 7-5 shows that the Project off-site traffic noise level impacts will range from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

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

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Cottage Ave	n/o Yosemite Ave.	Sensitive	73.1	73.3	0.2	1.5	No
2	Spreckels Ave.	s/o Yosemite Ave.	Non-Sensitive	74.7	74.9	0.2	1.5	No
3	Spreckels Ave.	n/o Phoenix Dr.	Sensitive	74.2	74.4	0.2	1.5	No
4	Spreckels Ave.	s/o Phoenix Dr.	Sensitive	75.0	75.3	0.3	1.5	No
5	Spreckels Ave.	n/o Moffat Blvd.	Sensitive	75.2	75.4	0.2	1.5	No
6	Spreckels Ave.	s/o Moffat Blvd.	Sensitive	75.1	75.3	0.2	1.5	No
7	Yosemite Ave.	w/o Spreckels Ave.	Sensitive	73.1	73.1	0.0	1.5	No
8	Yosemite Ave.	e/o Spreckels Ave.	Non-Sensitive	74.5	74.6	0.1	1.5	No
9	Moffat Blvd.	w/o Spreckels Ave.	Non-Sensitive	74.7	74.8	0.1	1.5	No
10	Moffat Blvd.	e/o Spreckels Ave.	Non-Sensitive	74.9	75.0	0.1	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

7.3 FUTURE PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Future without Project conditions CNEL noise levels. The Future without Project exterior noise levels are expected to range from 73.2 to 75.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Future with Project conditions will range from 73.2 to 75.6 dBA CNEL. Table 7-6 shows that the Project off-site traffic noise level increases will range from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-6: EAC (2026) WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Cottage Ave	n/o Yosemite Ave.	Sensitive	73.2	73.4	0.2	1.5	No
2	Spreckels Ave.	s/o Yosemite Ave.	Non-Sensitive	74.8	75.0	0.2	1.5	No
3	Spreckels Ave.	n/o Phoenix Dr.	Sensitive	74.3	74.6	0.3	1.5	No
4	Spreckels Ave.	s/o Phoenix Dr.	Sensitive	75.1	75.4	0.3	1.5	No
5	Spreckels Ave.	n/o Moffat Blvd.	Sensitive	75.3	75.6	0.3	1.5	No
6	Spreckels Ave.	s/o Moffat Blvd.	Sensitive	75.2	75.4	0.2	1.5	No
7	Yosemite Ave.	w/o Spreckels Ave.	Sensitive	73.2	73.2	0.0	1.5	No
8	Yosemite Ave.	e/o Spreckels Ave.	Non-Sensitive	74.6	74.7	0.1	1.5	No
9	Moffat Blvd.	w/o Spreckels Ave.	Non-Sensitive	74.8	74.9	0.1	1.5	No
10	Moffat Blvd.	e/o Spreckels Ave.	Non-Sensitive	75.0	75.1	0.1	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

7.4 OFF-SITE CUMULATIVE TRAFFIC NOISE IMPACTS

Table 7-7 presents a summary of the cumulative and project incremental noise level increases for each of the study area roadway segments. The cumulative traffic noise analysis describes the future changes in noise levels in comparison to the existing baseline noise levels. As shown on Table 7-7 the overall increase in off-site traffic noise levels from the Existing (baseline) to future with Project conditions ranges from 0.1 to 0.4 dBA CNEL. The Project increment shown on Table 7-7 represents the difference between the Future without Project and the Future with Project conditions is shown to range from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to the Project-related traffic. Therefore, the Project contributions to the off-site cumulative traffic noise levels are not *cumulatively considerable.*

TABLE 7-7: CUMULATIVE OFF-SITE TRAFFIC NOISE INCREASES

ID	Roadway	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA CNEL)[2]					Incremental Noise	
				Existing No Project (a)	Future Without Project (b)	Future With Project (c)	Cumulative Increase (c-a)	Cumulative Contribution (c-b)	Limit	Exceeded?[3]
1	Cottage Ave	n/o Yosemite Ave.	Sensitive	73.1	73.2	73.4	0.3	0.2	1.5	No
2	Spreckels Ave.	s/o Yosemite Ave.	Non-Sensitive	74.7	74.8	75.0	0.3	0.2	1.5	No
3	Spreckels Ave.	n/o Phoenix Dr.	Non-Sensitive	74.2	74.3	74.6	0.4	0.3	1.5	No
4	Spreckels Ave.	s/o Phoenix Dr.	Non-Sensitive	75	75.1	75.4	0.4	0.3	1.5	No
5	Spreckels Ave.	n/o Moffat Blvd.	Non-Sensitive	75.2	75.3	75.6	0.4	0.3	1.5	No
6	Spreckels Ave.	s/o Moffat Blvd.	Non-Sensitive	75.1	75.2	75.4	0.3	0.2	1.5	No
7	Yosemite Ave.	w/o Spreckels Ave.	Sensitive	73.1	73.2	73.2	0.1	0.0	1.5	No
8	Yosemite Ave.	e/o Spreckels Ave.	Non-Sensitive	74.5	74.6	74.7	0.2	0.1	1.5	No
9	Moffat Blvd.	w/o Spreckels Ave.	Non-Sensitive	74.7	74.8	74.9	0.2	0.1	1.5	No
10	Moffat Blvd.	e/o Spreckels Ave.	Non-Sensitive	74.9	75.0	75.1	0.2	0.1	1.5	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

8 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following 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, six 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 1098 Norman Drive, approximately 452 feet north of the Project site. Receiver R1 is placed in the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the medical offices at 1148 Norman Drive, immediately to the north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R2 is placed at the building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

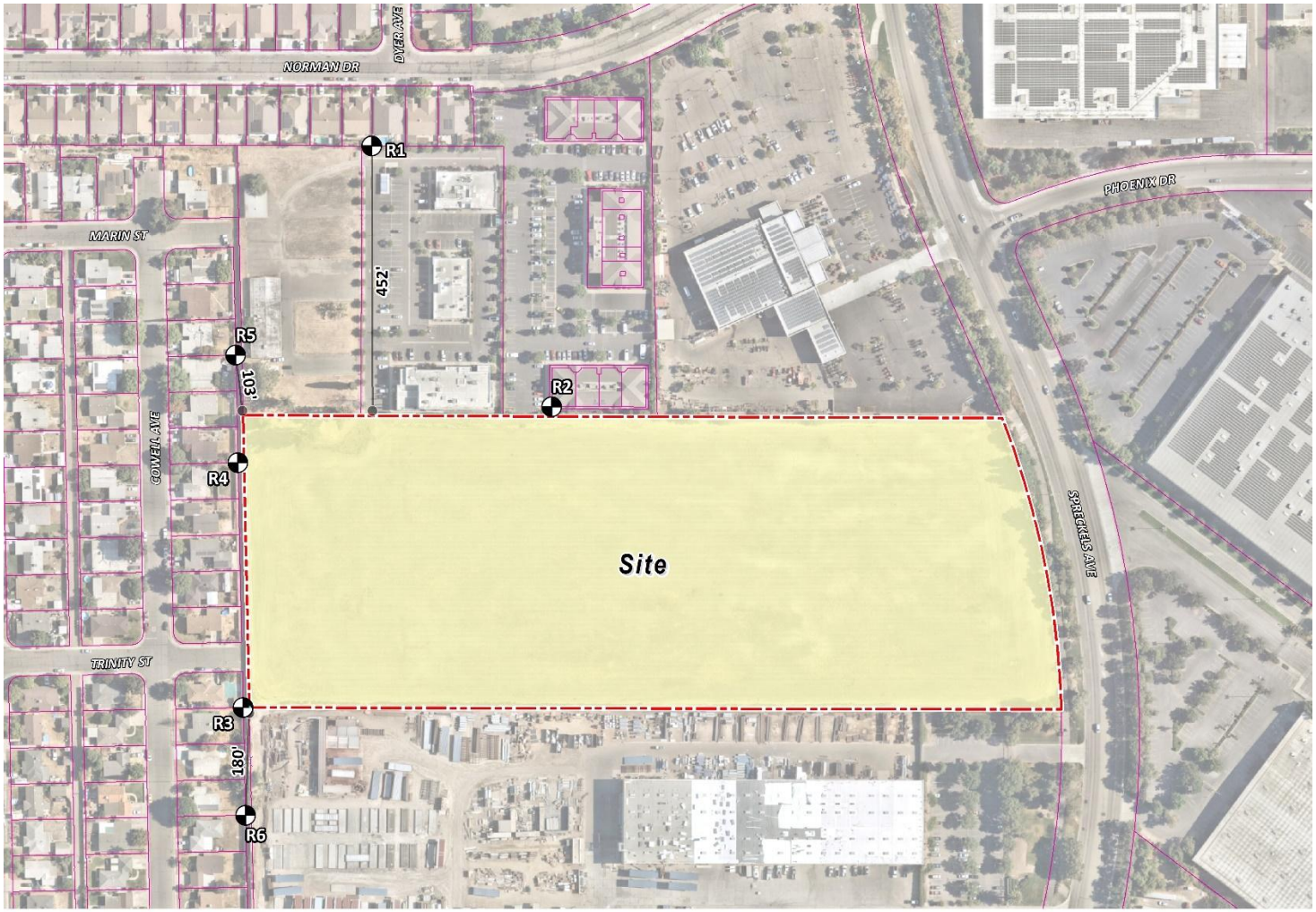
R3: Location R3 represents the existing residence at 1002 Trinity Street, immediately to southwest of the Project site. Receiver R3 is placed in the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing residence at 332 Cowell Avenue, immediately to the west of the Project site. Receiver R4 is placed in the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the existing residence at 320 Cowell Avenue, approximately 103 feet northwest of the Project site. Receiver R5 is placed in the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents the existing residence at 432 Cowell Avenue, approximately 180 feet southwest of the Project site. Receiver R6 is placed in the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

EXHIBIT 8-A: RECEIVER LOCATIONS



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9 OPERATIONAL NOISE ANALYSIS

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 Spreckels Distribution Center Project. To conservatively describe the potential worst-case noise environment, Exhibit 9-A presents the 38 individual noise sources used to assess the operational noise levels. To reduce the noise exposure to the existing noise sensitive residential areas near the Project site, several design features were considered as part of the site planning process. These design features include positioning the loading dock areas in an east-west orientation and placing the warehouse buildings between the loading docks and the residential areas to the west on Cowell Avenue and to the north on Norman Drive.

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: cold storage 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 all noise source activity 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 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

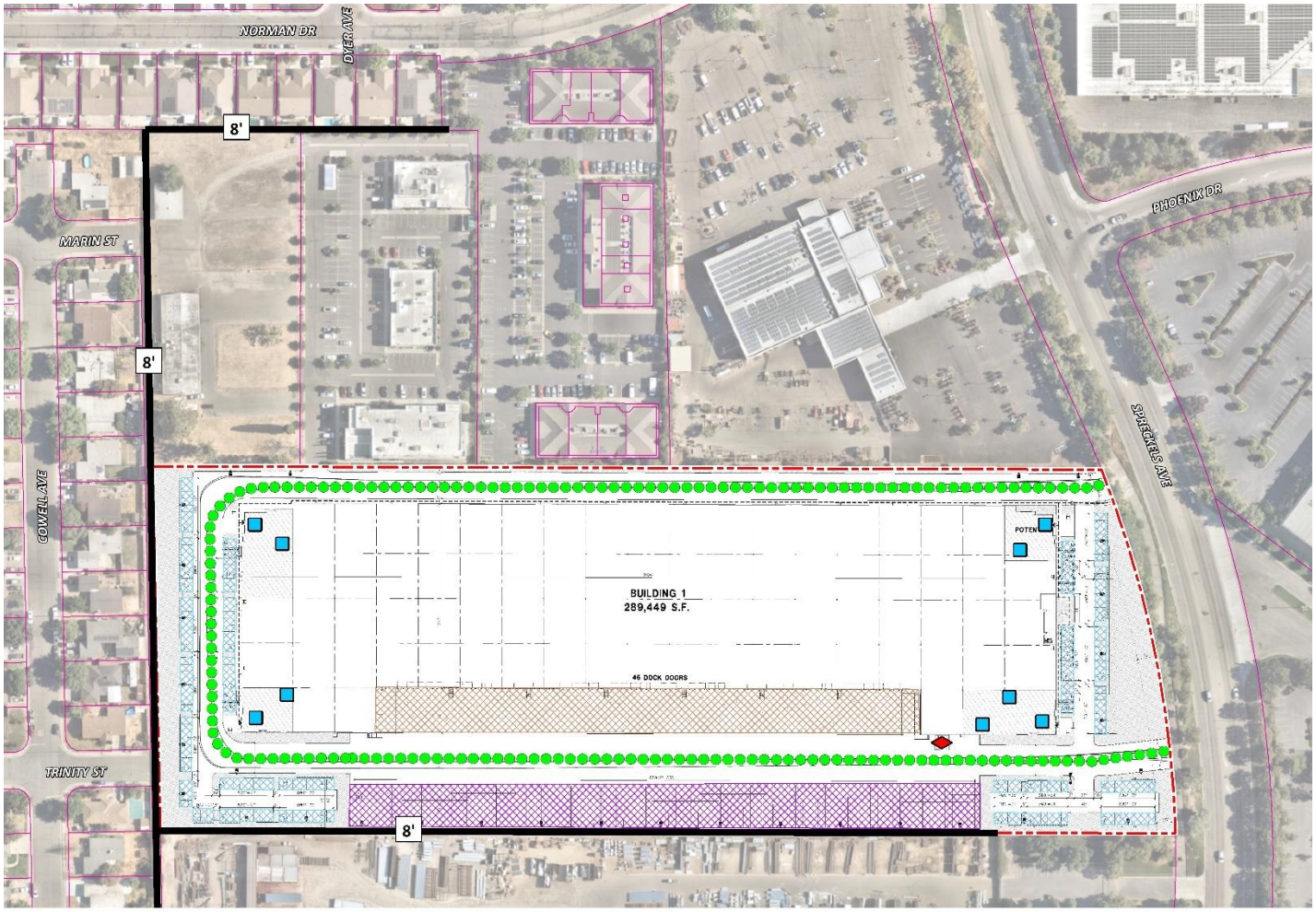


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

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		
Cold Storage 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 COLD STORAGE LOADING DOCK ACTIVITY

The reference cold storage 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 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. (21) 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 59.2 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 reference noise level measurement was collected in the center of activity within the staff parking lot of a warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 56.1 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due 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 59.3 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 UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the Project operations that include cold storage 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 32.5 to 49.5 dBA L_{eq}.

TABLE 9-2: UNMITIGATED DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Cold Storage Loading Dock Activity	27.1	35.2	29.9	46.0	28.9	47.1
Tractor Trailer Storage Activity	20.5	24.4	22.7	40.5	22.6	39.6
Roof-Top Air Conditioning Units	29.0	32.2	40.6	39.2	38.0	35.5
Parking Lot Vehicle Movements	21.6	24.3	39.5	41.0	33.8	31.2
Trash Enclosure Activity	2.5	7.6	3.9	20.4	3.7	17.7
Truck Movements	23.1	49.2	37.0	35.7	33.2	31.6
Total (All Noise Sources)	**32.5**	**49.5**	**44.2**	**48.8**	**40.7**	**48.2**

[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 existing off-site receiver locations are expected to range from 31.6 to 49.4 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 9-1. Appendix 9.1 includes the detailed operational noise model calculations.

TABLE 9-3: UNMITIGATED NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Cold Storage Loading Dock Activity	27.1	35.2	29.9	46.0	28.9	47.1
Tractor Trailer Storage Activity	20.5	24.4	22.7	40.5	22.6	39.6
Roof-Top Air Conditioning Units	26.6	29.7	38.2	36.8	35.6	33.1
Parking Lot Vehicle Movements	21.6	24.3	39.5	41.0	33.8	31.2
Trash Enclosure Activity	0.0	3.6	0.0	16.4	0.0	13.7
Truck Movements	23.1	49.2	37.0	35.7	33.2	31.6
Total (All Noise Sources)	**31.6**	**49.4**	**43.4**	**48.6**	**39.6**	**48.1**

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

9.5 UNMITIGATED PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the unmitigated Project-only operational noise levels are evaluated against exterior noise level thresholds based on the more restrictive exterior noise level standards outlined in the City of Manteca General Plan Policy Implementation Measure S-6c at nearby receiver locations. Table 9-4 shows the operational noise levels associated with the Project will exceed the nighttime stationary source exterior noise levels for the nearby noise sensitive residential land uses west of the Project site.

TABLE 9-4: UNMITIGATED OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Receiving Land Use	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	Residential	32.5	31.6	55	45	No	No
R2	Commercial	49.5	49.4	60	55	No	No
R3	Residential	44.2	43.4	55	45	No	No
R4	Residential	48.8	48.6	55	45	No	**Yes**
R5	Residential	40.7	39.6	55	45	No	No
R6	Residential	48.2	48.1	55	45	No	**Yes**

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project unmitigated operational noise levels as shown on Tables 9-2 and 9-3.
[3] City of Manteca General Plan Implementation Policy S-6c for residential land use and City of Manteca Municipal Code Table 17.58.050-1 Maximum Permissible Sound Pressure Levels (Appendix 3.1) for neighborhood commercial land use.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

Therefore, the unmitigated operational noise impacts are considered *potentially significant* at the nearby noise-sensitive residential receiver locations and operational noise mitigation measures are required to satisfy the City of Manteca exterior noise level standards.

9.6 MITIGATED PROJECT OPERATIONAL NOISE LEVELS

To satisfy the City of Manteca exterior noise level standards, a minimum 14-foot-high noise barrier is required for the loading dock areas as shown on Exhibit 9-B. Tables 9-5 and 9-6 present mitigated Project operational noise levels. The mitigated operational noise level calculations are included in Appendix 9.2. Table 9-5 shows the mitigated 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 32.5 to 49.5 dBA L_{eq}. Table 9-6 shows the mitigated Project operational noise levels during the nighttime hours from 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 31.6 to 49.4 dBA L_{eq}. Appendix 9.2 includes the mitigated operational noise model calculations.

TABLE 9-5: MITIGATED DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Cold Storage Loading Dock Activity	27.1	35.2	29.9	41.1	28.9	43.7
Tractor Trailer Storage Activity	20.5	24.4	22.7	35.5	22.6	35.9
Roof-Top Air Conditioning Units	29.0	32.2	40.6	37.6	38.0	35.5
Parking Lot Vehicle Movements	21.6	24.3	39.5	35.6	33.8	28.5
Trash Enclosure Activity	2.5	7.6	3.9	15.7	3.7	17.7
Truck Movements	23.1	49.2	37.0	31.2	33.2	28.9
Total (All Noise Sources)	**32.5**	**49.5**	**44.2**	**44.3**	**40.7**	**45.1**

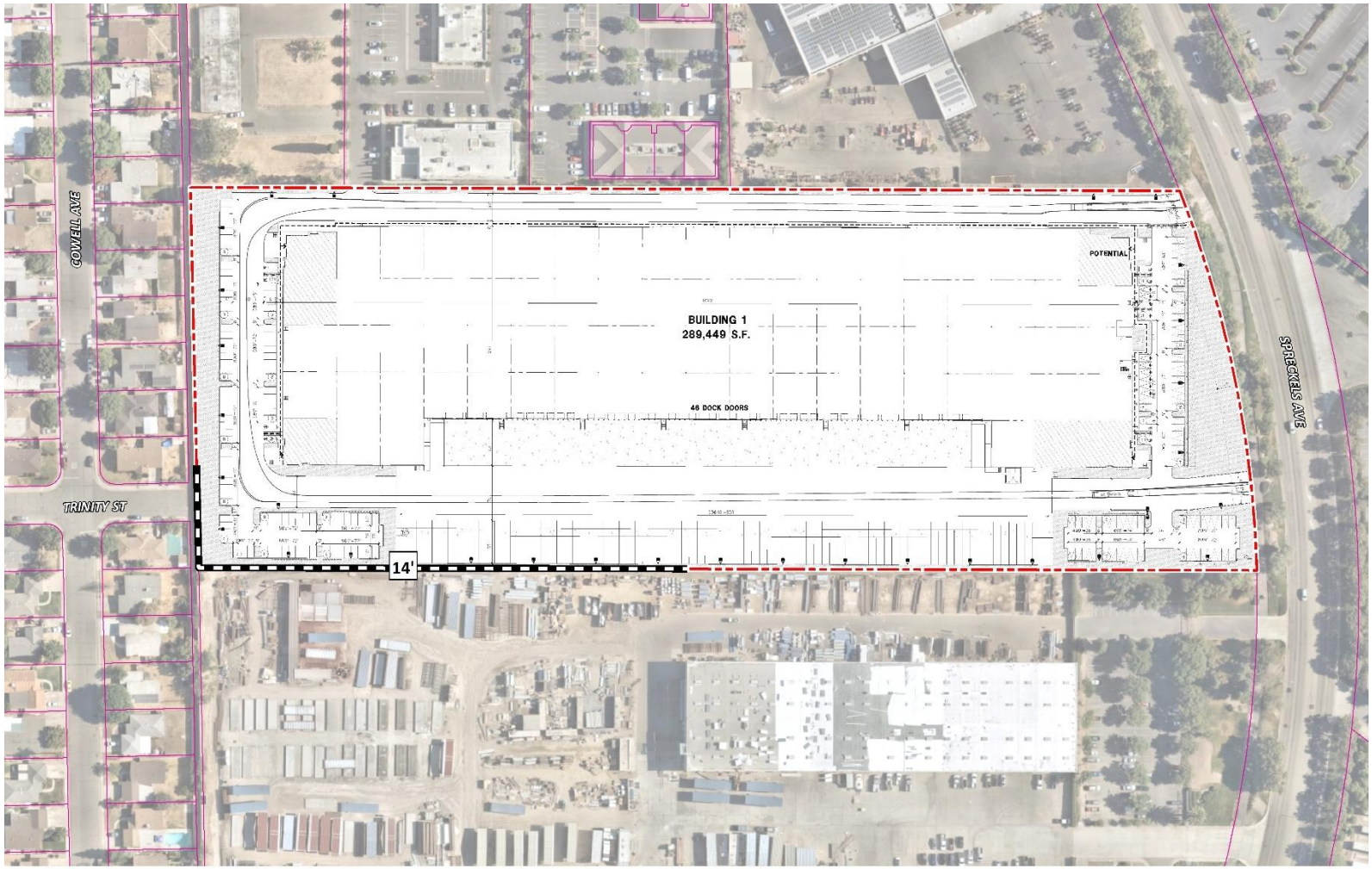
[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.2.

TABLE 9-6: MITIGATED NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Cold Storage Loading Dock Activity	27.1	35.2	29.9	41.1	28.9	43.7
Tractor Trailer Storage Activity	20.5	24.4	22.7	35.5	22.6	35.9
Roof-Top Air Conditioning Units	26.6	29.7	38.2	35.2	35.6	33.1
Parking Lot Vehicle Movements	21.6	24.3	39.5	35.6	33.8	28.5
Trash Enclosure Activity	0.0	3.6	0.0	11.8	0.0	13.7
Truck Movements	23.1	49.2	37.0	31.2	33.2	28.9
Total (All Noise Sources)	**31.6**	**49.4**	**43.4**	**43.9**	**39.6**	**44.9**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.2.

EXHIBIT 9-B: OPERATIONAL NOISE MITIGATION MEASURES



9.7 MITIGATED PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the mitigated Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Manteca exterior noise level standards at the existing nearby noise-sensitive receiver locations. Table 9-7 shows that the mitigated operational noise levels associated with the Project will not exceed the City of Manteca daytime and nighttime exterior noise level standards at the existing nearby noise-sensitive receiver locations. This includes the medical offices and cancer treatment center located north of the Project site (R2). However, these non-residential commercial medical office uses are limited to daytime hours between 7:00 a.m. to 10:00 p.m. with no noise sensitive residential receivers that will be exposed to the potential Project nighttime exterior noise levels. In addition, it is important to recognize that the calculated Project operational noise levels are less than the existing ambient noise levels as shown on Table 5-1. Therefore, the mitigated operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-7: MITIGATED OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Receiving Land Use	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	Residential	32.5	31.6	55	45	No	No
R2	Commercial	49.5	49.4	60	55	No	No
R3	Residential	44.2	43.4	55	45	No	No
R4	Residential	44.3	43.9	55	45	No	No
R5	Residential	40.7	39.6	55	45	No	No
R6	Residential	45.1	44.9	55	45	No	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project mitigated operational noise levels as shown on Tables 9-5 and 9-6.
[3] City of Manteca General Plan Implementation Policy S-6c for residential land use and City of Manteca Municipal Code Table 17.58.050-1 Maximum Permissible Sound Pressure Levels (Appendix 3.1) for neighborhood commercial land use.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

9.8 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 9-8 through 9-11.

9.8.1 UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS

As indicated in Table 9-8, the Project will generate unmitigated daytime operational noise increase ranging from 0.0 to 2.4 dBA L_{eq} at the nearest receiver locations. Table 9-6 shows that the Project will generate unmitigated nighttime operational noise increase ranging from 0.0 to 3.0 dBA L_{eq} at the nearest receiver locations. The unmitigated Project-related operational noise increases will not exceed the 5 dBA L_{eq} operational noise increase significance criteria from the City of Manteca General Plan Implementation Policy S-6d. Therefore, the unmitigated Project related operational noise increases at the sensitive receiver locations will be *less than significant.*

TABLE 9-8: UNMITIGATED DAYTIME 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	32.5	L1	53.4	53.4	0.0	5	No
R2	49.5	L2	50.8	53.2	2.4	5	No
R3	44.2	L3	48.7	50.0	1.3	5	No
R4	48.8	L4	54.6	55.6	1.0	5	No
R5	40.7	L5	54.8	55.0	0.2	5	No
R6	48.2	L3	48.7	51.5	2.8	5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime unmitigated 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 9-9: UNMITIGATED 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	31.6	L1	51.6	51.6	0.0	5	No
R2	49.4	L2	49.4	52.4	3.0	5	No
R3	43.4	L3	48.6	49.7	1.1	5	No
R4	48.6	L4	52.6	54.1	1.5	5	No
R5	39.6	L5	51.7	52.0	0.3	5	No
R6	48.1	L3	48.6	51.4	2.8	5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project nighttime unmitigated 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.

9.8.1 MITIGATED PROJECT OPERATIONAL NOISE LEVELS

Table 9-10 shows that the Project will generate mitigated daytime operational noise increases ranging from 0.0 to 2.4 dBA L_{eq} at the nearest receiver locations. Table 9-11 shows that the Project will generate mitigated nighttime operational noise increase ranging from 0.0 to 3.0 dBA L_{eq} at the nearest receiver locations. Tables 9-10 and 9-11 show that the Project-related operational noise level increases with the minimum 14-foot-high noise barrier shown on Exhibit 9-B will not exceed the 5 dBA L_{eq} operational noise increase significance criteria from the City of Manteca General Plan Implementation Policy S-6d. Therefore, Project related operational noise level increases at the sensitive receiver locations will be *less than significant.*

TABLE 9-10: MITIGATED DAYTIME 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	32.5	L1	53.4	53.4	0.0	5	No
R2	49.5	L2	50.8	53.2	2.4	5	No
R3	44.2	L3	48.7	50.0	1.3	5	No
R4	44.3	L4	54.6	55.0	0.4	5	No
R5	40.7	L5	54.8	55.0	0.2	5	No
R6	45.1	L3	48.7	50.3	1.6	5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime mitigated operational noise levels as shown on Table 9-5.
[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 9-11: MITIGATED 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	31.6	L1	51.6	51.6	0.0	5	No
R2	49.4	L2	49.4	52.4	3.0	5	No
R3	43.4	L3	48.6	49.7	1.1	5	No
R4	43.9	L4	52.6	53.2	0.6	5	No
R5	39.6	L5	51.7	52.0	0.3	5	No
R6	44.9	L3	48.6	50.1	1.5	5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project nighttime mitigated operational noise levels as shown on Table 9-6.
[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 on-site construction noise source activity in relation to the nearest sensitive receiver locations previously described in Section 8. Section 17.58.050[E][1] of the MMC, provided in Appendix 3.1, indicates that *operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work daily between the hours of 7:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.*

10.1 CONSTRUCTION NOISE LEVELS

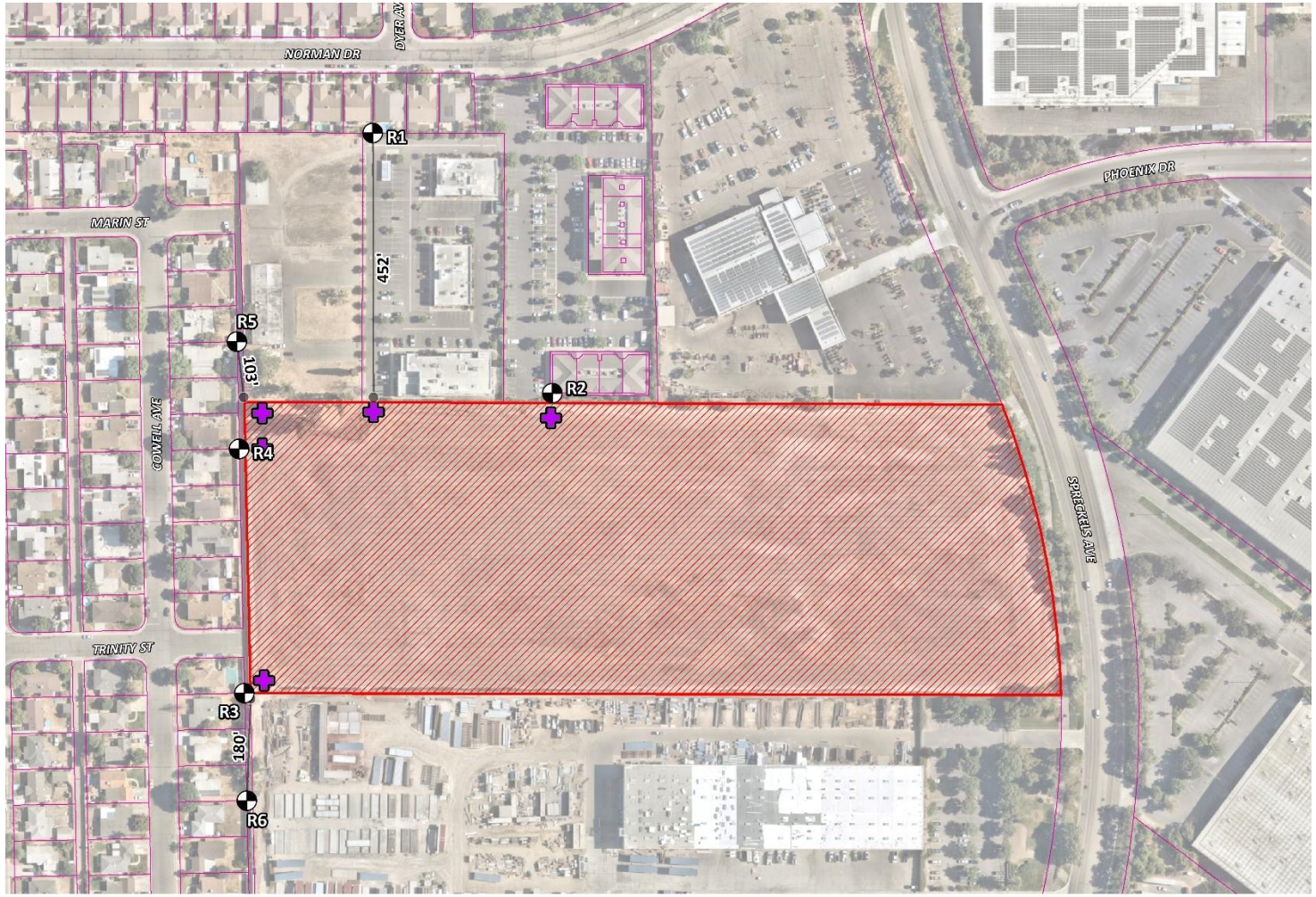
The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed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

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

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (22) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS



10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the typical $L_{eq(8hr)}$ and loudest equipment $L_{eq(1hr)}$ Project construction noise levels at the nearby receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 11-1 presents the combined noise levels for the nosiest pieces of construction equipment expected to be used in each phase, 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]
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.
[3] The total amount of acoustical energy produced by a sound source independent of distance or surroundings.

10.3.1 TYPICAL PROJECT CONSTRUCTION NOISE LEVELS

To account for the dynamic nature of typical construction activities, the CadnaA construction noise analysis evaluates the equipment as multiple moving point sources or work crews using an area source method within the construction area (Project site boundary). Construction projects involve various stages, and activities frequently shift from one location to another. For example, during the initial stages, noise-generating activities might concentrate in one area, and then move to another section as construction progresses. Typical 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 40.9 to 71.6 dBA $L_{eq(8hr)}$ at the nearby receiver locations. Appendix 10.1 includes the typical construction noise model calculations.

TABLE 10-2: UNMITIGATED TYPICAL CONSTRUCTION EQUIPMENT SUMMARY

Receiver Location[1]	Typical Construction Noise Levels (dBA $L_{eq(8hr)}$)					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	48.7	48.0	45.3	42.6	40.9	48.7
R2	71.6	70.9	68.2	65.5	63.8	71.6
R3	63.8	63.1	60.4	57.7	56.0	63.8
R4	62.9	62.2	59.5	56.8	55.1	62.9
R5	58.8	58.1	55.4	52.7	51.0	58.8
R6	57.2	56.5	53.8	51.1	49.4	57.2

[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 typical construction noise model calculations are included in Appendix 10.1.

10.3.2 LOUDEST PROJECT CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction activities are typically evaluated as mobile sources since these activities tend to vary considerably, not only as the speed and power of the equipment varies, but also as the equipment constantly changes in terms of its distance from the receivers and its relative location. (23) However, to present a conservative analysis, the loudest Project construction equipment noise levels by stage were also calculated at the limits of construction (project site boundary) nearest to the affected receivers. Since it is unlikely that multiple pieces of construction equipment can operate simultaneously near the limits of construction for the entire construction period, this analysis likely overstates the potential Project related construction noise impacts. Table 10-3 shows that the loudest construction equipment noise levels are expected to range from 49.3 to 83.8 dBA $L_{eq(1hr)}$ at the nearby receiver locations. Appendix 10.2 includes the loudest construction noise model calculations.

TABLE 10-3: UNMITIGATED LOUDEST CONSTRUCTION EQUIPMENT SUMMARY

Receiver Location[1]	Loudest Construction Noise Levels (dBA $L_{eq(1hr)}$)					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	57.1	56.4	53.7	51.0	49.3	57.1
R2	83.8	83.1	80.4	77.7	76.0	83.8
R3	77.1	76.4	73.7	71.0	69.3	77.1
R4	75.4	74.7	72.0	69.3	67.6	75.4
R5	70.3	69.6	66.9	64.2	62.5	70.3
R6	63.8	63.1	60.4	57.7	56.0	63.8

[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 loudest construction noise model calculations are included in Appendix 10.2.

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, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The unmitigated construction noise analysis shows that the nearest receiver locations will exceed the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-4. Therefore, the noise impacts due to Project construction noise are considered *potentially significant* and construction noise mitigation measures are required.

TABLE 10-4: UNMITIGATED PROJECT CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})			
	Typical Construction Noise Levels (8-Hours)[2]	Loudest Construction Noise Levels (1-Hour)[3]	Threshold[4]	Threshold Exceeded?[5]
R1	48.7	57.1	80	No
R2	71.6	83.8	80	**Yes**
R3	63.8	77.1	80	No
R4	62.9	75.4	80	No
R5	58.8	70.3	80	No
R6	57.2	63.8	80	No

[1] Construction equipment noise source and receiver locations are shown on Exhibit 10-A.
[2] Typical construction equipment noise levels as shown on Table 10-2.
[3] Loudest construction equipment noise level as shown on Table 10-3.
[4] Construction noise level thresholds as shown on Table 4-1.
[5] Do the estimated Project construction noise levels exceed the construction noise level threshold?

To reduce the short-term construction noise levels, a minimum 12-foot-high temporary noise barrier at the northern, western and southwestern Project site boundary is required to reduce the construction noise at the noise sensitive receiver as shown on Exhibit 10-B. Table 10-5 shows that the mitigated construction noise levels at the nearest noise sensitive receiver locations are expected to range from 45.8 to 72.0 dBA L_{eq}. Table 10-5 shows that the mitigated construction noise levels associated with Project will not exceed the 80 dBA L_{eq} construction noise level threshold. Therefore, the mitigated operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations. Appendix 10.3 and 10.4 includes the mitigated construction noise calculations.

EXHIBIT 10-B: CONSTRUCTION NOISE MITIGATION MEASURES

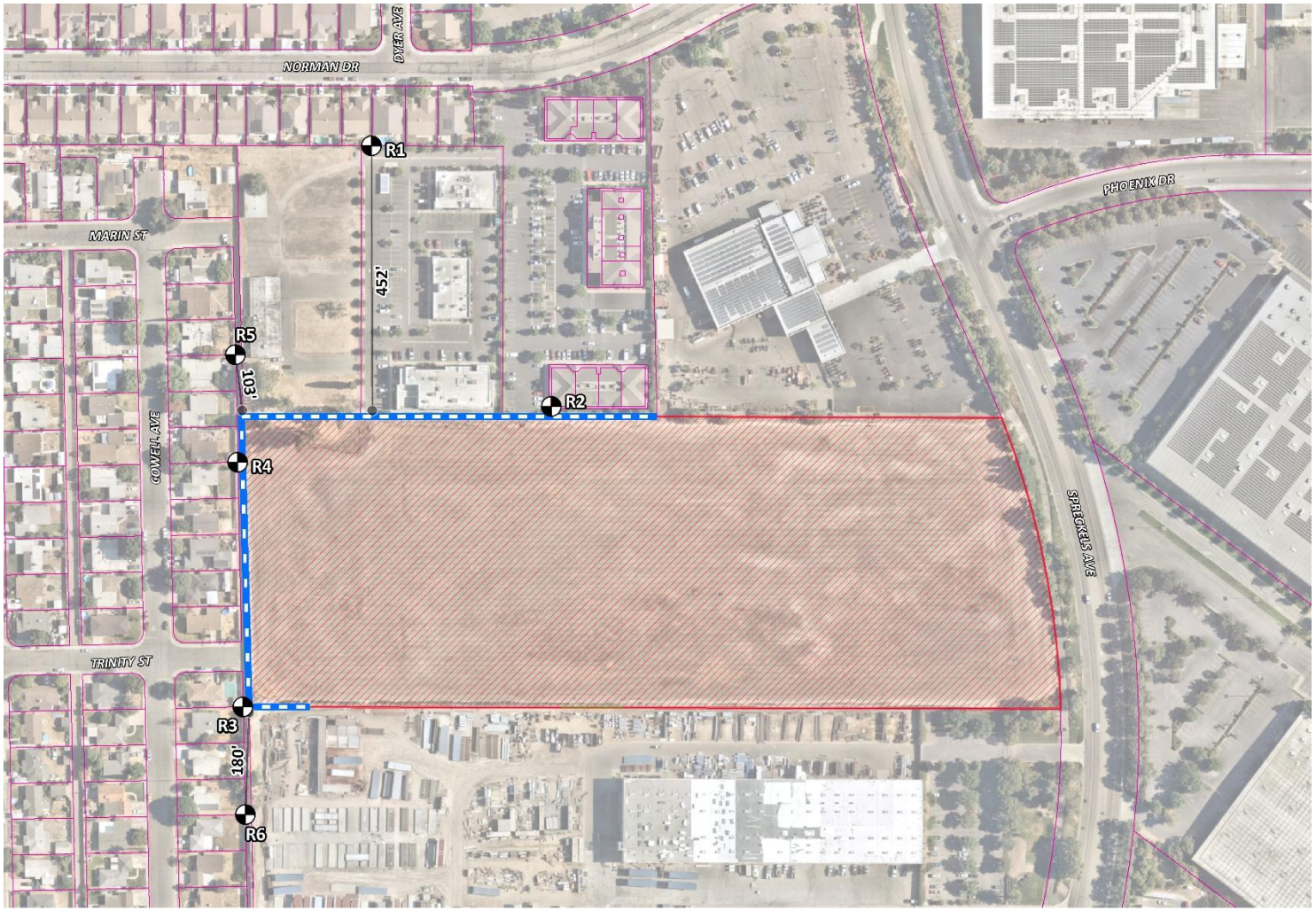


TABLE 10-5: MITIGATED PROJECT CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})			
	Typical Construction Noise Levels (8-Hours)[2]	Loudest Construction Noise Levels (1-Hour)[3]	Threshold[4]	Threshold Exceeded?[5]
R1	45.8	51.8	80	No
R2	60.7	71.5	80	No
R3	59.1	72.0	80	No
R4	58.7	70.5	80	No
R5	55.9	65.5	80	No
R6	56.6	61.6	80	No

[1] Construction equipment noise source and receiver locations are shown on Exhibit 10-A.
[2] Mitigated typical construction equipment noise level calculations included in Appendix 10.3
[3] Mitigated loudest construction equipment noise level calculations included in Appendix 10.4.
[4] Construction noise level thresholds as shown on Table 4-1.
[5] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.5 TEMPORARY CONSTRUCTION NOISE LEVEL INCREASES

To describe the temporary Project construction noise level contributions to the existing ambient noise environment, the Project construction noise levels were combined with the existing ambient noise levels measurements at the nearest off-site receiver locations. The difference between the combined Project-construction and ambient noise levels is used to describe the construction noise level increases. Temporary noise level increases that would be experienced at sensitive receiver locations when the unmitigated typical Project construction-source noise is added to the ambient daytime conditions are presented on Table 10-6. A temporary noise level increase of 12 dBA is considered a *potentially significant* impact based on the Caltrans substantial noise level increase criteria consistent with City of Manteca General Plan Implementation Policy S.6d which is used to assess the Project-construction noise level increases. (16) (11)

As indicated in Table 10-6, the unmitigated Project construction activities will contribute noise increases ranging from 1.3 to 20.8 dBA L_{eq} during the daytime hours at the closest receiver locations. The unmitigated construction noise increase analysis shows that the nearest receiver locations will exceed the 12 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-6. Therefore, the noise impacts due to unmitigated Project construction noise increases are considered *potentially significant* and construction noise mitigation measures are required. Table 10-7 shows that with the 12-foot-high temporary noise barrier at the northern, western and southwestern Project site boundary, the mitigated Project construction activities will contribute noise increases ranging from 0.7 to 10.8 dBA L_{eq} during the daytime hours at the closest receiver locations. The mitigated construction noise levels shown on Table 10-7 will not exceed Caltrans *substantial* and City of Manteca General Plan Implementation Policy S.6d 12 dBA L_{eq} noise level increase significance threshold. With the required 12-foot-high temporary noise barrier and the construction noise mitigation measures outlined below in Section 10.6, the construction noise impacts are considered *less than significant*.

TABLE 10-6: UNMITIGATED DAYTIME CONSTRUCTION NOISE LEVEL INCREASES

Receiver Location[1]	Typical Project Construction 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	48.7	L1	53.4	54.7	1.3	12	No
R2	71.6	L2	50.8	71.6	20.8	12	Yes
R3	63.8	L3	48.7	63.9	15.2	12	Yes
R4	62.9	L4	54.6	63.5	8.9	12	No
R5	58.8	L5	54.8	60.3	5.5	12	No
R6	57.2	L3	48.7	57.8	9.1	12	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Unmitigated typical Project daytime construction noise levels as shown on Table 10-4.
[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 construction activities.
[6] The noise level increase expected with the addition of the proposed Project construction activities.
[7] Caltrans substantial and City of Manteca General Plan Implementation Policy S.6d noise level increase criteria.

TABLE 10-7: MITIGATED DAYTIME CONSTRUCTION NOISE LEVEL INCREASES

Receiver Location[1]	Typical Project Construction 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	45.8	L1	53.4	54.1	0.7	12	No
R2	60.7	L2	50.8	61.1	10.3	12	No
R3	59.1	L3	48.7	59.5	10.8	12	No
R4	58.7	L4	54.6	60.1	5.5	12	No
R5	55.9	L5	54.8	58.4	3.6	12	No
R6	56.6	L3	48.7	57.3	8.6	12	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Mitigated typical Project daytime construction noise levels as shown on Table 10-5.
[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 construction activities.
[6] The noise level increase expected with the addition of the proposed Project construction activities.
[7] Caltrans substantial and City of Manteca General Plan Implementation Policy S.6d noise level increase criteria.

10.6 PROJECT CONSTRUCTION NOISE MITIGATION MEASURES

The following mitigation measures are required to reduce noise levels produced by the construction equipment.

MM-1 Prior to the issuance of a grading permit, the Project Applicant shall place a note on grading plans showing the requirement to install a minimum 12-foot-high temporary noise barrier along the northern, western and southwestern Project site boundary, as shown on Exhibit 10-B, prior to any construction activities. The noise control barriers must have a solid face from top to bottom. The noise control barriers must meet the minimum height and be constructed as follows:

- The temporary noise barriers shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts.
- The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired.
- The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.

MM-2 Prior to the issuance of grading permits, the Project Applicant shall submit a construction management plan demonstrating that best management practices are implemented for construction activities, including but not limited to:

- All construction activities shall comply with MMC Section 17.58.050[E][1] limiting construction activity to the hours between 7:00 p.m. and 7:00 a.m.
- Construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards.
- All stationary construction equipment shall be placed in such a manner so that emitted noise is directed away from any sensitive receivers.
- Construction equipment staging areas shall be located at the greatest feasible distance between the staging area and the nearest sensitive receivers.
- The construction contractor shall limit equipment and material deliveries to the same hours specified for construction equipment for MM-2.
- Electrically powered air compressors and similar power tools shall be used, when feasible, in place of diesel equipment.
- No music or electronically reinforced speech from construction workers shall be allowed.

MM-3 Prior to the issuance of building permits, the Project Applicant shall install a minimum 14-foot-high noise barrier for the loading dock areas along the southwestern corner of the Project site boundary, as shown on Exhibit 10-B.

10.7 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities will occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad area as shown on Exhibit 10-C. Since the nighttime concrete pours will take place outside the hours permitted by Section 17.58.050[E][1] of the MMC, the Project Applicant will be required to obtain authorization for nighttime work from the City of Manteca.

10.7.1 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 Spreckels 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.

10.7.2 NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

As shown on Table 10-8, the unmitigated noise levels associated with the nighttime concrete pour activities are estimated to range from 33.4 to 55.9 dBA L_{eq}. The analysis shows that the unmitigated nighttime concrete pour activity will not exceed the 70 dBA L_{eq} nighttime noise level threshold at all the nearest noise receiver locations. Therefore, the noise impacts due to unmitigated 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 Manteca. Appendix 10.5 includes the unmitigated CadnaA nighttime concrete pour noise model inputs.

Table 10-9 presents the nighttime concrete pour noise levels with the 12-foot-high temporary noise barrier at the northern, western and southwestern required to support the daytime construction activities. Table 10-9 shows that the mitigated nighttime concrete pour noise levels are estimated to range from 30.5 to 45.4 dBA L_{eq}. The analysis shows that the mitigated nighttime concrete pour activity will not exceed the 70 dBA L_{eq} nighttime noise level threshold at all the nearest noise receiver locations. Appendix 10.6 includes the mitigated CadnaA nighttime concrete pour noise model inputs.

EXHIBIT 10-C: NIGHTTIME CONCRETE POUR CONSTRUCTION ACTIVITY

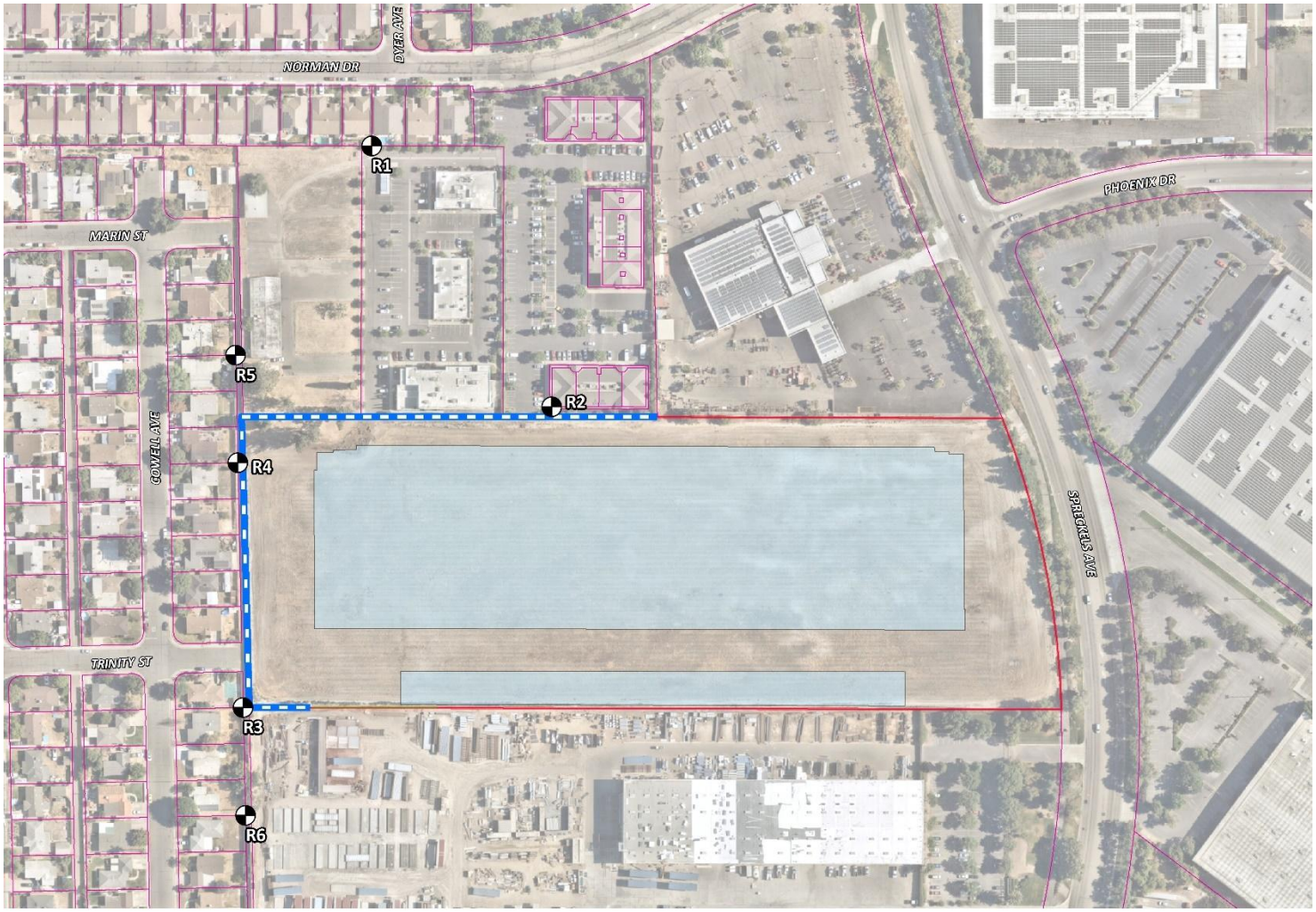


TABLE 10-8: UNMITIGATED NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Concrete Pour Construction Noise Levels (dBA L_{eq})		
	Exterior Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	33.4	70	No
R2	55.9	70	No
R3	48.6	70	No
R4	47.8	70	No
R5	43.5	70	No
R6	41.9	70	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-C.
[2] Unmitigated Nighttime Concrete Pour noise model calculations are included in Appendix 10.5.
[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?

TABLE 10-9: MITIGATED 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	30.5	70	No
R2	45.4	70	No
R3	43.8	70	No
R4	43.4	70	No
R5	40.6	70	No
R6	41.3	70	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-C.
[2] Mitigated Nighttime Concrete Pour noise model inputs are included in Appendix 10.6.
[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?

10.8 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 10-10. 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 10-10: 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

Using the vibration source level of construction equipment provided on Table 10-10 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration building damage impacts. Table 10-11 presents the expected Project related vibration levels at the nearby building structures as shown on Exhibit 10-D. As shown on Exhibit 10-B, the building vibration analysis is based on the distance from the limits of off-site construction activity to the nearest building structures. To assess the potential for building damage, the 0.5 in/sec PPV threshold for *modern industrial/commercial buildings* and the 0.3 in/sec PPV threshold for older residential buildings are used in this analysis. (9)

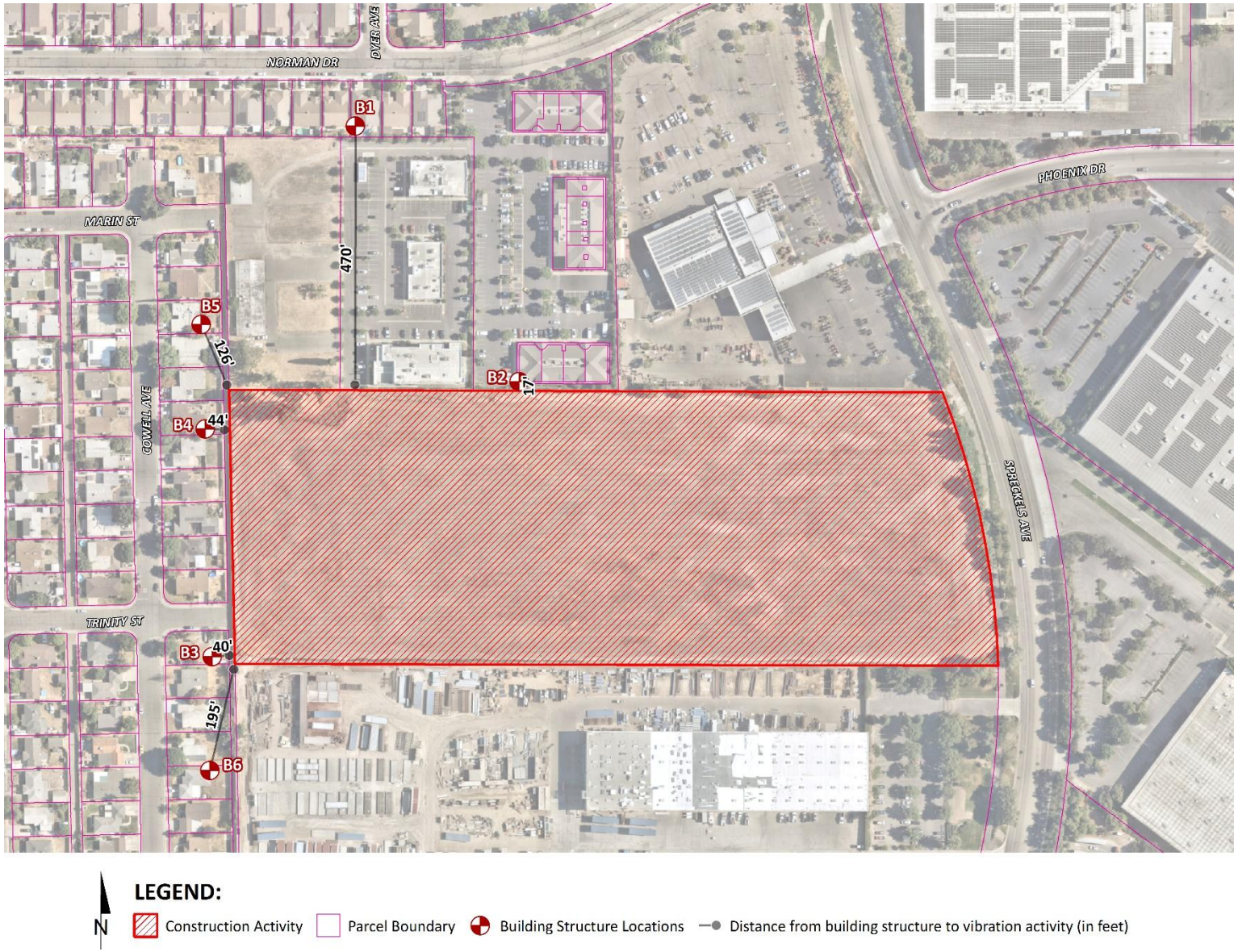
At distances ranging from 17 to 470 feet from the limits of off-site construction activities to the nearest residential receiver building structure locations, construction vibration velocity levels are estimated to be between 0.003 and 0.375 PPV (in/sec). Based on maximum acceptable continuous vibration thresholds, the typical Project construction vibration levels will fall below the building damage thresholds at all the nearest receiver building structure locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site. In addition, the typical construction vibration levels are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating.

TABLE 10-11: PROJECT CONSTRUCTION VIBRATION LEVELS

Location[1]	Building Type	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
			Small bulldozer	Jack-hammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
R1	Residential	470'	0.000	0.000	0.001	0.001	0.003	0.003	0.3	No
R2	Commercial	17'	0.005	0.062	0.136	0.159	0.375	0.375	0.5	No
R3	Residential	40'	0.001	0.017	0.038	0.044	0.104	0.104	0.3	No
R4	Residential	44'	0.001	0.015	0.033	0.038	0.090	0.090	0.3	No
R5	Residential	126'	0.000	0.003	0.007	0.008	0.019	0.019	0.3	No
R6	Residential	195'	0.000	0.002	0.003	0.004	0.010	0.010	0.3	No

[1] Vibration source and building locations are shown on Exhibit 10-D.
[2] Distance from building facade to Project construction boundary.
[3] Based on the Vibration Source Levels of Construction Equipment (Table 10-10).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, Table 19 and 20
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

EXHIBIT 10-D: BUILDING STRUCTURE LOCATIONS (VIBRATION)



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11 REFERENCES

1. **Association of Environmental Professionals.** *California Environmental Quality Act Statute & Guidelines.* 2023.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
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5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
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9. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
10. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
11. **De Novo Planning Group.** *Manteca General Plan Update Safety Chapter.* April 2023.
12. **Caltrans.** *Standard Specifications in Section 14-8.02 Noise Control.*
13. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
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19. **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.

20. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
21. **Ruettgers & Schuler Civil Engineers.** *Proposed Warehouse 407 Spreckels Avenue Traffic Study,.* August 2024.
22. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.
23. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Construction Noise Handbook.* Final Report August 2006.

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Spreckels 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 MANTECA MUNICIPAL CODE

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CHAPTER 9.52
RESIDENTIAL NOISE

§ 9.52.010. Declaration of policy.

It is hereby declared to be the policy of the city of Manteca to prohibit and control unnecessary, excessive and annoying noise and vibration in the city in order to preserve tranquility and protect the use and enjoyment of residential and commercial property.
(Ord. 1374 § 1, 2007)

§ 9.52.020. Definitions.

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

"City manager" means the city manager of the city of Manteca or the city manager's designee.

"Commercial purpose" means and includes the operation of a business for profit involving the sale or advertising of goods or services.

"Construction" means any site preparation, assembly, erection, substantial repair, alteration or similar action on public or private property.

"Emergency machinery, vehicle or alarm" means any machinery, vehicle or alarm used, employed, performed or operated in response to an emergency, including but not limited to work by private or public utilities when restoring utility service.

"Emergency work" means any work performed for the purpose of preventing or alleviating the physical trauma or property damage threatened or caused by an emergency, including but not limited to work by private or public utilities when restoring utility services.

"Motor vehicles" means and includes any and all self-propelled vehicles as defined in the California Motor Vehicle Code, including all on-highway type motor vehicles subject to registration under this code, all off-highway type motor vehicles subject to identification under said code and mini-bikes, motorized scooters and go-carts.

"Noncommercial purpose" means the use, operation or maintenance of any sound equipment for other than a commercial purpose.

"Noncommercial purpose" means and includes personal, philanthropic, political and charitable purposes.

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

"Police chief" means the police chief of the city of Manteca or designee.

"Sound amplifying equipment" means any machine or device for the amplification of the human voice, music, or any other sound. Sound amplifying equipment shall not include standard automobile radios when used and heard only by the occupants of the vehicle in which the automobile radio is installed. Sound amplifying equipment as used in this chapter shall not include warning devices on authorized emergency vehicles, or horns or other warning devices on any vehicles used only for traffic safety purposes.

"Sound truck" means any motor vehicle, or any other vehicle regardless of motive power, whether in motion or stationary, having mounted thereon, or attached thereto, any sound amplifying equipment.

"Weekday" means any day, Monday through Friday, which is not a legal holiday.
(Ord. 1374 § 1, 2007)

§ 9.52.030. Prohibited noises—General standard.

No person shall make, or cause to suffer, or permit to be made upon any public property, public right-of-way or private property, any unnecessary and unreasonable noises, sounds or vibrations which are physically annoying to reasonable persons of ordinary sensitivity or which are so harsh or so prolonged or unnatural or unusual in their use, time or place as to cause or contribute to the unnecessary and unreasonable discomfort of any persons within the neighborhood from which said noises emanate or which interfere with the peace and comfort of residents or their guests, or the operators or customers in places of business in the vicinity, or which may detrimentally or adversely affect such residences or places of business.
(Ord. 1374 § 1, 2007)

§ 9.52.040. Specific prohibited noises.

Notwithstanding any other provisions of this chapter, the following acts and the causing or permitting thereof, are declared and deemed to be in violation of this chapter:

A. Radios, Stereos, etc. The using, operating, or permitting to be played, used, or operated between the hours of ten p.m. and eight a.m. of any radio, musical instrument, stereo, television set, or instrument or device similar to those heretofore specifically mentioned for the production or reproduction of sound in volume sufficiently loud as to be plainly audible at the property line of the property from which the sound is emanating.

B. Placement of Stereo Speakers. The amplification of music or any other sound on private property, through speakers located either (1) outdoors, or (2) in one or more windows or doorways, when such speakers are directed towards and such music is plainly audible on an immediately adjacent public right-of-way.

C. Band or Orchestral Rehearsals. The conducting of or carrying on, or allowing the conducting or carrying on of band or orchestral concerts or rehearsals or practices between the hours of ten p.m. and eight a.m. sufficiently loud as to be plainly audible at the property line of the property from which the sound is emanating.

D. Engines, Motors and Mechanical Devices Near Residential District. The sustained, continuous or repeated operation or use between the hours of ten p.m. and eight a.m. of any motor or engine or the repair, modification, reconstruction, testing or operation of any automobile, motorcycle, machine, contrivance, or mechanical device or other contrivance or facility unless such motor, engine, automobile, motorcycle, machine or mechanical device is enclosed within a sound insulated structure so as to prevent noise and sound from being plainly audible at the property line of the property from which the sound is emanating.

E. Motor Vehicles. Racing the engine of any motor vehicle or needlessly bringing a motor

vehicle to a sudden start or stop.

F. Loading and Unloading. Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between the hours of ten p.m. and eight a.m. in such a manner as to cause noise disturbance, except for solid waste collection.

G. Nonemergency Signaling Devices. Sounding or permitting the sounding of any electronically amplified signal from any bell, chime, siren, whistle or similar device, intended primarily for nonemergency purposes, from any place between the hours of ten p.m. and eight a.m., and in no event for more than ten consecutive seconds in any hourly period outside those hours.

H. Emergency Signaling Devices.

1. The intentional sounding, or permitting the sounding, outdoors, of any emergency signaling device including fire, burglar, civil defense alarm, siren, whistle or similar emergency signaling device, provided, however that testing of an emergency signaling device is permitted between the hours of ten a.m. and eight p.m. Any such testing shall use only the minimum cycle test time. In no case shall such test time exceed sixty seconds. Testing of the emergency signaling system shall not occur more than once in each calendar month.

2. Sounding or permitting the sounding of any exterior burglar or fire alarm unless such alarm is terminated within fifteen minutes of activation.

3. Sounding or permitting the sounding of any motor vehicle alarm unless such alarm is terminated within five minutes of activation.

4. Sounding or permitting the sounding of any motor vehicle alarm more than three times of any duration in any twenty-four hour period.

I. Leaf Blowers. The use or operation or allowing the use or operation of any portable machine powered with a combustion, gasoline or electric powered engine used to blow leaves, dirt and other debris off sidewalks, driveways, lawns and other surfaces between the hours of ten p.m. and eight a.m. and is sufficiently loud as to be plainly audible at the property line of the property from which the sound is emanating.

 Commercial Establishments Adjacent to Residential Property. Notwithstanding any provision of this code to the contrary, continuous, repeated or sustained noise from the premises of any commercial establishment which is adjacent to one or more residential dwelling units, including any outdoor area part of or under the control of the establishment, between the hours of ten p.m. and eight a.m. that is plainly audible from the residential dwelling unit's property line.

. Construction Equipment. The use or operation of any construction equipment between the hours of eight p.m. and seven a.m. and is sufficiently loud as to be plainly audible at the property line of the property from which the sound is emanating.

(Ord. 1374 § 1, 2007)

§ 9.52.050. Use of sound amplification equipment on public property.

A. Application Required. It is unlawful for any person, other than personnel of law enforcement and government agencies, to install, use or operate within the city a loudspeaker or sound amplifying equipment in a fixed or movable position or mounted upon any sound truck for the purpose of giving instructions, directions, talks, addresses, lectures or transmitting music to any persons or assemblages of persons in or upon any street, alley, sidewalk, park, place or public property without first filing an application and obtaining a permit therefore as set forth in the following paragraphs.

B. Filing Application. Every user of sound amplifying equipment shall file an application with the police chief at least ten days prior to each date or each consecutive number of days on which the sound amplifying equipment is intended to be used. The application shall contain the following information:

1. The name, address and telephone number of both the owner and responsible party for the property where the sound amplifying equipment shall be used;
2. The address where the sound amplifying equipment will be used;
3. The date(s) and day(s) on which the sound amplifying equipment will be used;
4. The times when the sound amplifying equipment will be used;
5. The type of activity and the estimated number of persons who will attend;
6. A general description of the sound amplifying equipment which is to be used;
7. Whether the sound amplifying equipment will be used for commercial or noncommercial purposes;
8. Other information deemed necessary by the police chief or designee to determine the levels, location and duration of the use of sound amplifying equipment.

C. Approval of Permit. The police chief shall approve the application unless he or she finds that:

1. The conditions of motor vehicle or pedestrian movement are such that use of the equipment would constitute a detriment to traffic safety; or
2. The issuance of the permit would be otherwise detrimental to the public health, safety or welfare; or
3. The issuance of the permit will substantially interfere with the peace and quiet of the neighborhood or the community; or
4. The applicant would violate the provisions of this code or of any other law.

D. Conditions of Approval. The police chief may impose such conditions on the operation to be conducted under the permit as he or she may deem necessary or proper to ensure that the city's noise regulations are followed and that the operation of the sound equipment will not invade the privacy of others. There shall be no conditions placed on any permittee as to the type of message or the content of the communication proposed to be amplified.

E. Appeals. Any person aggrieved by disapproval of an application may appeal to the city

council within ten calendar days from the date of notification of decision.

F. Permit Fee. Prior to the issuance of the permit, a permit fee in an amount fixed by resolution of the city council per day, or any portion thereof, shall be paid to the city. No fee shall be paid by any nonprofit organization.

(Ord. 1374 § 1, 2007)

§ 9.52.060. Loud parties or gatherings.

The following provisions apply to party or gathering of two or more people on private property generating any noise that is plainly audible at the property line of the property from which the noise is emanating, or is determined by a law enforcement officer at the scene to constitute a violation of the California Penal Code or the Manteca Municipal Code, or is otherwise a threat to the public peace, health, safety, or welfare due to the magnitude of the crowd, the disturbance, unruly behavior or destruction of property generated by the party or gathering, or excessive traffic caused by the party or gathering.

A. The law enforcement officer at the scene shall take such actions and give such direction as is necessary to abate the violation or condition, and shall advise the responsible person orally and in writing that if additional law enforcement personnel or emergency service providers are called upon to respond on behalf of the city to abate the condition, the responsible person and the owner or occupant of the property shall be held liable for the cost to the city of providing such services. Such direction and advice shall be given to the person responsible for the party or gathering or to the owner or occupant of the property involved. If the condition is not voluntarily abated and if additional law enforcement personnel or emergency service providers are called upon to respond on behalf of the city in order to disperse the party or gathering, quell any disturbance, direct traffic, cite illegally parked vehicles or otherwise respond, then the cost to the city of such additional services shall be reimbursed to the city as provided in subsection B of this section.

B. The person or persons responsible for a party or gathering described in subsection A of this section, or the owner or occupant of the property on which the party or gathering is held, or, if any such person is a minor, the parents or legal guardian of the minor shall be jointly and severally liable for the following costs incurred by the city:

1. The actual cost to the city of law enforcement services and emergency services, excluding the initial response provided by a law enforcement officer, in order to abate any of the conditions described in subsection A of this section;

2. Damage to public property resulting from such law enforcement or emergency response; and

3. Injuries to any law enforcement or emergency service personnel involved in such law enforcement or emergency response.

C. The city manager or his or her designee shall calculate all such costs. The person or persons specified above in subsection B of this section shall be billed by the city manager or designee for the total cost, and payment shall be due and payable within fifteen days of the billing date. If the amount due is not paid, the city may collect the debt, as well as any fees and costs

incurred in its collection, pursuant to all applicable provisions of law.
(Ord. 1374 § 1, 2007)

§ 9.52.070. Exemptions.

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

A. Emergency Exemption. The emission of sound for the purpose of alerting persons to the existence of an emergency or the emission of sound in the performance of emergency work. For the purposes of this section, "emergency" means a condition that constitutes an immediate threat to public safety, health or welfare or to property.

B. Warning Devices. Warning devices necessary for the protection of public safety, such as police, fire and ambulance sirens and train horns.

C. Outdoor Activities. Activities conducted on public playgrounds, fully licensed and approved child day care facilities within residential areas as permitted by law, and public or private school grounds, including, but not limited to, school athletic and school entertainment events.

D. Outdoor Gatherings, Public Dances, Shows and Sporting Events. Provided the events are conducted pursuant to a permit issued by the city manager.

E. Operation of city vehicles, controls, and alarms.

F. Public health and safety activities, including, but not limited to: all transportation, flood control, and utility company maintenance and construction operation at any time on public rights-of-way, public property and those situations that may occur on private property deemed necessary to serve the best interest of the public and to protect the public's health and well-being, including debris and limb removal, removal of damaged poles and vehicles, removal of downed wires, repair of traffic signals, repair of water hydrants and mains, gas lines, oil lines, and sewers, restoration of electrical service, street sweeping, unplugging sewers, vacuuming catch basins, municipal well borehole drilling, municipal well casing installation, etc. The regular testing of motorized equipment and pumps shall not be exempt.

G. Emergency generators when operated during power outages to restore electrical service due to a situation beyond the control of the owner/operator of the facility or residential home/ development.

(Ord. 1374 § 1, 2007; Ord. 1596 § 1, 2016; Ord. O2019-09 § 1)

§ 9.52.080. Violation—Penalty.

A violation of any of the provisions of this chapter shall be a misdemeanor, punishable pursuant to the provisions of Chapter 1.12 of this code.
(Ord. 1374 § 1, 2007)

§ 9.52.090. Enforcement.

Nothing in this chapter shall preclude the city manager from seeking to obtain voluntary compliance by way of warning, notice or informational materials.
(Ord. 1374 § 1, 2007)

§ 9.52.100. Additional remedies.

A. Motor Vehicle Alarms□ Deactivation. In addition to the remedies set forth in this chapter, the police department may undertake such procedures as are reasonably necessary to deactivate a motor vehicle alarm generating noise in violation of this chapter. If the police department is unable to deactivate the alarm, the law enforcement officer may cause the motor vehicle to be removed according to the procedure set forth in Section 22651.5 of the California Vehicle Code.

B. Motor Vehicle□ Removal. Any costs associated with the removal or storage of a motor vehicle pursuant to subsection A of this section and any costs incurred by the city in connection therewith shall be paid by the registered owner of the motor vehicle.

C. Operation or Maintenance of Other Machinery. The operation or maintenance of any device, instrument, equipment, vehicle or machinery in violation of any provisions of this chapter, and persistent animal noise in violation of this chapter shall be deemed, and is 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.

(Ord. 1374 § 1, 2007)

§ 17.58.050. Noise Standards.

A. Purpose. The purpose of this section is to:

1. Establish standards to provide a high quality of life for all residents by ensuring a safe community, free from manmade and natural hazards;

2. Implement goals and policies of the General Plan Noise Element;

3. Provide community noise control regulation and standards that are consistent with or exceed the guidelines of the State Office of Noise Control and the standards adopted by the Federal Highway Administration (FHWA), California Department of Transportation (Caltrans), or other government or regulatory agencies.

B. Noise Standards. The maximum sound level generated by any use or activity as measured at the point of measurement as defined in Section 17.58.030 (Points of Measurement) shall not exceed the levels established in Table 17.58.050-1 (Maximum Permissible Sound Pressure Levels) based on the use that is receiving the noise (e.g., residential use receiving noise generated by an industrial use).

TABLE 17.58.050-1
MAXIMUM PERMISSIBLE SOUND PRESSURE LEVELS

Receiving Land Use Category	Time Period	Maximum Allowable Noise Levels (Ldn/CNEL, dB)
Single-Family and Limited Multiple-Family	10 pm – 7 am	50
	7 am – 10 pm	60
Multiple-Family, Public Institution, and Neighborhood Commercial	10 pm – 7 am	55
	7 am – 10 pm	60
Medium and Heavy Commercial	10 pm – 7 am	60
	7 am – 10 pm	65
Light Industrial	Anytime	70
Heavy Industrial	Anytime	75

C. Calculation. Calculation. Exterior noise levels shall be measured with a sound level meter and associated octave band analyzer meeting the American National Standards Institute's standards S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment that will provide equivalent data. When measuring the noise level, the corrections provided in Table 17.58.050-2 (Noise Level Corrections) shall be applied.

TABLE 17.58.050-2
NOISE LEVEL CORRECTIONS

Category	Correction (decibels)
Daytime operation only (7 a.m. – 7 p.m.)	+5
Noise source operates less than	
20% of any one-hour period	+5
5% of any one-hour period	+10
1% of any one-hour period	+15
Noise of impulsive character (e.g., hammering)	-5
Noise rising or falling in pitch or volume (e.g., hum, screech)	-5

D. Exempt Activities. The following are not subject to the noise limitations of this Chapter.

1. Emergency Exemption. The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work.

2. Warning Device. Warning devices necessary for the protection of public safety (e.g., police, fire and ambulance sirens, properly operating home and car burglar alarms, and train horns).

3. Railroad Activities. The operation of locomotives, rail cars, and facilities by a railroad that is regulated by the California Public Utilities Commission.

4. State or Federal Preempted Activities. Any activity, to the extent the regulation of it has been preempted by state or federal law.

5. Public health and safety activities, including, but not limited to: all transportation, flood control, and utility company maintenance and construction operation at any time on public rights-of-way, public property and those situations that may occur on private property deemed necessary to serve the best interest of the public and to protect the public's health and well-being, including debris and limb removal, removal of damaged poles and vehicles, removal of downed wires, repair of traffic signals, repair of water hydrants and mains, gas lines, oil lines, and sewers, restoration of electrical service, street sweeping, unplugging sewers, vacuuming catch basins, municipal well borehole drilling, municipal well casing installation. The regular testing of motorized equipment and pumps shall not be exempt.

6. Solid Waste Collection. Noise sources associated with the authorized collection of solid waste (e.g., refuse and garbage).

7. Maintenance of Residential Real Property. Noise sources associated with the minor maintenance of residential real property, provided the activities take place between the hours of 7:00 a.m. and 10:00 p.m.

8. Construction activities when conducted as part of an approved Building Permit, except as prohibited in subsection (E)(1) (Prohibited Activities) of this section.

9. Emergency Generators. Sound resulting from the operation of any stationary emergency generator in any zoning district shall be considered restoration of electrical service and are exempt from the sound rating values set forth in Table 17.58.050-1 (Maximum Permissible Sound Pressure Levels). This exemption only applies when operated during power outages; provided however, the generator motor must be enclosed in a sound absorbing encasement and in no event shall the sound rating value of generators in any district exceed 76 dBA at 23 feet or 7 meters. Stationary emergency generators operating in all districts may be operated for testing purposes one time for a period not to exceed thirty minutes in any seven-day period. Testing of stationary emergency generators in all districts is permitted between the hours of 11:00 a.m. through 8:00 p.m. Monday through Saturday.

   a. For purposes of this subsection, stationary emergency generator means any stationary or non-portable internal combustion engine located at a facility or residential home/development that serves solely as a secondary source of mechanical or electrical power when the primary source is disrupted or discontinued during a period of emergency due to a situation beyond the control of the owner/operator of the facility or residential home/development. A stationary emergency generator shall operate only during emergency situations or for standard performance testing procedures as required by law or by the engine manufacturer. A stationary emergency generator that serves as an energy or power source in circumstances other than emergency situations or for standard testing, such as load shedding or peak shaving, shall not be considered a stationary emergency generator.

   b. Emergency situation is defined as loss of primary power due to power outage, on site disaster, area-wide natural disaster, or circumstances beyond the control of the owner/operator. Emergency situation shall not include power interruptions pursuant to an interruptible power service agreement, engine testing or scheduled maintenance.

E. Prohibited Activities. The following acts shall be a violation of this Chapter.

1. Construction Noise. Operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work daily between the hours of 7:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.

2. Loading and Unloading Activities. Loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects on private property between the hours of 10:00 p.m. and 7:00 a.m. in a manner to cause a noise disturbance.

3. Sweepers and Associated Equipment. Operating or allowing the operation of sweepers or associated sweeping equipment (e.g., blowers) on private property between the hours

of 10:00 p.m. and 7:00 a.m. the following day in, or adjacent to, a Residential Zoning District.

4. Places of Public Entertainment. Operating or allowing to be operated, any loudspeaker, musical instrument, or other source of sound in any place of public entertainment that exceed 95 dBA at any point normally occupied by a customer.

5. Stationary Non-Emergency Signaling Devices. Sounding or allowing the sounding of an electronically amplified signal from a stationary bell, chime, siren, whistle, or similar device intended for non-emergency purposes, from a private property for more than ten consecutive seconds in any hourly period.

6. Public Nuisance Noise. Public nuisance noise is noise that is generally not associated with a particular land use but creates a nuisance situation by reason of its being disturbing, excessive, or offensive. Examples would include excessively loud noise from alarms, animals, and fowl in nonagricultural districts, horns, musical instruments, stereos, tape or CD players, televisions, vehicle or motorboat repairs and testing, and similar noise as measured in Table 17.58.050-2 (Noise Level Corrections).

(Ord. 1501 § 1, 2011; Ord. 1597 § 1, 2016; Ord. O2019-09 § 1)

§ 17.58.070. Vibration.

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

A. No vibration shall be produced that is transmitted through the ground and is discernible without the aid of instruments at the points of measurement specified in Section 17.58.030 (Points of Measurement) of this Chapter, nor shall any vibration produced exceed 0.002g peak at up to 50 CPS frequency, measured at the point of measurement specified in Section 17.58.030 (Points of Measurement) of this Chapter, using either seismic or electronic vibration measuring equipment. Vibrations occurring at higher than 50 CPS frequency of a periodic vibration shall not induce accelerations exceeding 0.001g. Single impulse periodic vibrations occurring at an average interval greater than five minutes shall not induce accelerations exceeding 0.01g.

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

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

D. Vibrations from temporary construction/demolition and vehicles that leave the subject parcel (e.g., trucks, trains, and aircraft) are exempt from the provisions of this Section.

(Ord. 1501 § 1, 2011)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:15639

15639_L1_B 1.North
37, 47' 37.740000", 121, 12' 3.310000"

15639_L1_B 2.South
37, 47' 37.740000", 121, 12' 3.310000"

15639_L1_B 3.East
37, 47' 37.740000", 121, 12' 3.310000"

15639_L1_B 4.West
37, 47' 37.740000", 121, 12' 3.310000"

JN:15639

15639_L2_C 1.North
37, 47' 34.110000", 121, 12' 0.370000"

15639_L2_C 2.South
37, 47' 34.100000", 121, 12' 0.370000"

15639_L2_C 3.East
37, 47' 34.030000", 121, 12' 0.350000"

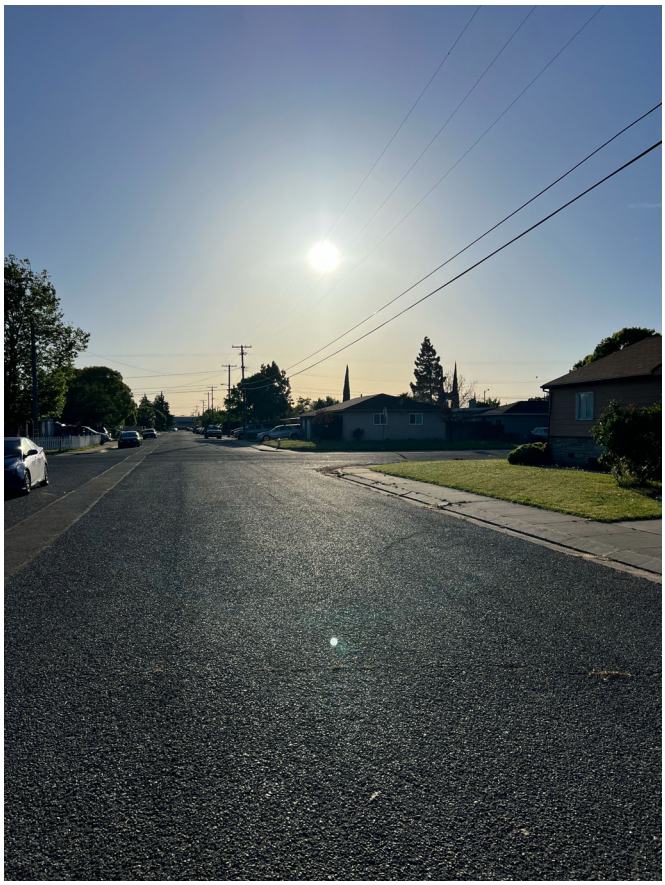
15639_L2_C 4.West
37, 47' 33.970000", 121, 12' 0.460000"

JN:15639

15639_L3_D 1.North
37, 47' 29.330000", 121, 12' 6.390000"

15639_L3_D 2.South
37, 47' 29.540000", 121, 12' 6.220000"

15639_L3_D 3.East
37, 47' 29.370000", 121, 12' 6.310000"



15639_L3_D 4.West
37, 47' 29.510000", 121, 12' 6.420000"

JN:15639

15639_L4_G 1.North
37, 47' 32.340000", 121, 12' 7.870000"

15639_L4_G 2.South
37, 47' 32.550000", 121, 12' 7.840000"

15639_L4_G 3.East
37, 47' 32.270000", 121, 12' 7.930000"

15639_L4_G 4.West
37, 47' 32.340000", 121, 12' 7.870000"

JN:15639

15639_L5_E 1.North
37, 47' 33.580000", 121, 12' 7.900000"

15639_L5_E 2.South
37, 47' 33.580000", 121, 12' 7.900000"

15639_L5_E 3.East
37, 47' 33.580000", 121, 12' 7.900000"

15639_L5_E 4.West
37, 47' 33.580000", 121, 12' 7.900000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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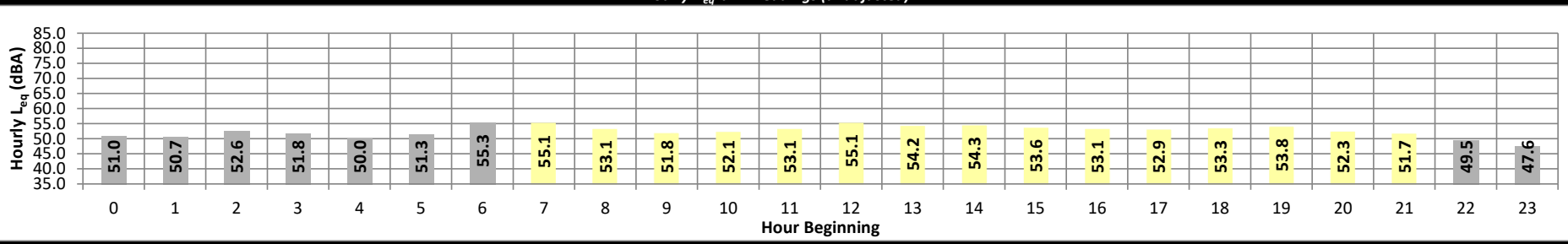
24-Hour Noise Level Measurement Summary

Date: Tuesday, May 7, 2024 *Location:* L1 - Located north of the site near the residence at 1098 *Meter:* Piccolo II *JN:* 15639

Project: Spreckels Distribution Center *Source:* Norman Dr. *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	51.0	57.9	47.2	57.5	56.7	55.1	54.2	51.3	49.7	48.1	47.7	47.3	51.0	10.0	61.0
	1	50.7	57.1	47.1	56.5	56.0	54.8	53.7	51.1	49.5	47.7	47.4	47.1	50.7	10.0	60.7
	2	52.6	60.9	47.5	60.5	60.1	57.4	56.5	52.5	50.5	48.1	47.8	47.6	52.6	10.0	62.6
	3	51.8	61.1	48.2	60.3	59.2	55.6	53.9	51.7	50.2	48.8	48.7	48.3	51.8	10.0	61.8
	4	50.0	54.7	48.2	54.1	53.5	52.5	51.9	50.5	49.5	48.6	48.4	48.3	50.0	10.0	60.0
	5	51.3	55.0	49.5	54.4	53.9	53.2	52.7	51.7	51.0	50.2	50.0	49.7	51.3	10.0	61.3
	6	55.3	62.2	50.1	61.6	61.2	60.2	59.2	55.7	53.4	51.1	50.8	50.3	55.3	10.0	65.3
Day	7	55.1	63.3	50.1	62.7	62.2	59.7	58.2	55.2	53.5	51.3	50.9	50.3	55.1	0.0	55.1
	8	53.1	60.1	48.0	59.4	58.9	57.8	56.5	53.5	51.9	49.4	48.9	48.3	53.1	0.0	53.1
	9	51.8	58.4	47.3	57.7	57.0	55.6	54.7	52.4	50.8	48.4	48.0	47.5	51.8	0.0	51.8
	10	52.1	58.2	47.5	57.4	56.9	55.8	55.0	52.8	51.3	48.8	48.4	47.8	52.1	0.0	52.1
	11	53.1	60.0	48.0	59.3	58.6	57.1	56.2	53.7	51.9	49.4	48.9	48.3	53.1	0.0	53.1
	12	55.1	63.1	48.8	62.8	62.4	61.3	59.1	55.1	52.7	50.1	49.7	49.1	55.1	0.0	55.1
	13	54.2	60.8	48.5	60.2	59.6	58.2	57.4	55.0	53.0	49.9	49.4	48.7	54.2	0.0	54.2
	14	54.3	61.9	48.4	61.3	60.5	58.7	57.9	54.9	52.8	49.6	49.2	48.6	54.3	0.0	54.3
	15	53.6	60.0	47.8	59.6	59.1	57.8	57.0	54.5	52.2	48.9	48.4	48.0	53.6	0.0	53.6
	16	53.1	60.2	47.4	59.7	59.0	57.2	56.3	54.1	51.8	48.6	48.2	47.6	53.1	0.0	53.1
	17	52.9	58.4	48.0	57.9	57.6	56.7	56.0	53.9	52.0	49.2	48.7	48.1	52.9	0.0	52.9
	18	53.3	59.3	48.3	58.8	58.4	57.3	56.5	54.2	52.3	49.6	49.2	48.6	53.3	0.0	53.3
	19	53.8	64.1	48.3	62.7	61.1	58.0	56.4	53.9	52.2	49.6	49.1	48.6	53.8	5.0	58.8
	20	52.3	58.9	47.6	58.3	57.7	56.5	55.7	53.0	51.1	48.5	48.1	47.7	52.3	5.0	57.3
	21	51.7	58.5	48.1	58.0	57.5	55.6	54.3	51.9	50.6	48.7	48.5	48.2	51.7	5.0	56.7
Night	22	49.5	55.2	46.8	54.9	54.2	52.6	51.8	50.1	48.5	47.2	47.1	46.9	49.5	10.0	59.5
	23	47.6	50.6	45.9	50.3	50.1	49.3	49.0	48.0	47.3	46.3	46.2	46.0	47.6	10.0	57.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.7	58.2	47.3	57.4	56.9	55.6	54.3	51.9	50.6	48.4	48.0	47.5
	Max	55.1	64.1	50.1	62.8	62.4	61.3	59.1	55.2	53.5	51.3	50.9	50.3
Energy Average		53.4	Average:		59.7	59.1	57.6	56.5	53.9	52.0	49.4	48.9	48.4
Night	Min	47.6	50.6	45.9	50.3	50.1	49.3	49.0	48.0	47.3	46.3	46.2	46.0
	Max	55.3	62.2	50.1	61.6	61.2	60.2	59.2	55.7	53.4	51.1	50.8	50.3
Energy Average		51.6	Average:		56.7	56.1	54.5	53.7	51.4	50.0	48.5	48.2	48.0

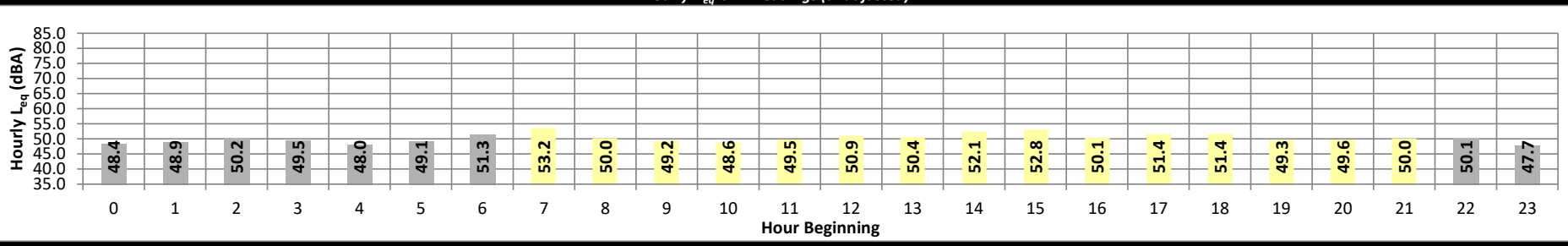
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
58.6	**53.4**	**51.6**

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 7, 2024 *Location:* L2 - Located north of the site near the commercial retail center *Meter:* Piccolo II *JN:* 15639

Project: Spreckels Distribution Center *Source:* at 1148 Norman Dr. *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	48.4	56.1	45.3	54.9	53.6	51.4	50.8	48.7	47.4	45.8	45.6	45.4	48.4	10.0	58.4
	1	48.9	56.2	45.2	55.7	54.8	53.4	52.5	49.3	47.3	45.7	45.5	45.3	48.9	10.0	58.9
	2	50.2	59.6	44.7	59.0	58.1	56.9	55.2	48.7	47.1	45.2	45.1	44.8	50.2	10.0	60.2
	3	49.5	56.1	45.5	55.9	55.7	54.3	53.7	49.5	47.8	46.2	45.9	45.6	49.5	10.0	59.5
	4	48.0	52.1	46.3	51.7	51.3	50.0	49.5	48.4	47.5	46.6	46.5	46.4	48.0	10.0	58.0
	5	49.1	52.0	48.1	51.6	51.1	50.3	50.1	49.4	48.9	48.4	48.3	48.1	49.1	10.0	59.1
	6	51.3	56.2	48.5	55.6	55.2	54.3	53.8	52.2	50.4	49.0	48.8	48.6	51.3	10.0	61.3
Day	7	53.2	62.1	49.4	61.7	61.1	58.3	56.0	52.8	51.2	50.0	49.8	49.5	53.2	0.0	53.2
	8	50.0	56.6	47.4	56.2	55.6	53.9	53.1	50.1	48.6	47.7	47.6	47.4	50.0	0.0	50.0
	9	49.2	53.5	47.1	53.1	52.6	51.6	51.0	49.8	48.4	47.5	47.4	47.2	49.2	0.0	49.2
	10	48.6	52.4	46.8	52.1	51.6	50.6	50.2	49.0	48.2	47.3	47.1	46.9	48.6	0.0	48.6
	11	49.5	55.1	47.2	54.5	53.9	52.5	51.8	49.9	48.7	47.7	47.5	47.2	49.5	0.0	49.5
	12	50.9	56.3	48.0	55.8	55.2	53.9	53.1	51.3	50.1	48.7	48.4	48.2	50.9	0.0	50.9
	13	50.4	57.2	47.5	56.5	55.6	53.6	52.8	50.8	49.4	48.1	47.8	47.6	50.4	0.0	50.4
	14	52.1	61.3	47.3	60.8	60.0	58.1	56.5	51.4	49.5	47.9	47.6	47.4	52.1	0.0	52.1
	15	52.8	63.9	46.5	63.0	62.0	58.4	56.8	51.7	48.6	47.1	46.8	46.6	52.8	0.0	52.8
	16	50.1	55.0	47.2	54.6	54.2	53.2	52.5	50.9	49.4	47.7	47.5	47.2	50.1	0.0	50.1
	17	51.4	58.6	47.7	58.1	57.5	55.6	54.3	51.5	50.0	48.3	48.0	47.7	51.4	0.0	51.4
	18	51.4	59.2	46.9	58.7	58.4	56.9	55.3	51.4	49.2	47.6	47.3	46.9	51.4	0.0	51.4
	19	49.3	54.7	46.9	54.4	53.9	52.4	51.4	49.5	48.6	47.5	47.3	47.0	49.3	5.0	54.3
	20	49.6	56.7	46.5	56.1	55.2	53.6	52.3	49.8	48.4	47.0	46.8	46.6	49.6	5.0	54.6
	21	50.0	58.4	46.6	58.2	57.5	54.2	52.7	49.6	48.1	47.0	46.9	46.7	50.0	5.0	55.0
Night	22	50.1	56.0	48.5	55.4	54.6	52.8	51.7	50.1	49.4	48.9	48.8	48.6	50.1	10.0	60.1
	23	47.7	50.4	46.0	50.1	49.8	49.3	49.0	48.2	47.6	46.5	46.3	46.1	47.7	10.0	57.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.6	52.4	46.5	52.1	51.6	50.6	50.2	49.0	48.1	47.0	46.8	46.6
	Max	53.2	63.9	49.4	63.0	62.0	58.4	56.8	52.8	51.2	50.0	49.8	49.5
Energy Average		50.8	Average:		56.9	56.3	54.5	53.3	50.6	49.1	47.8	47.6	47.4
Night	Min	47.7	50.4	44.7	50.1	49.8	49.3	49.0	48.2	47.1	45.2	45.1	44.8
	Max	51.3	59.6	48.5	59.0	58.1	56.9	55.2	52.2	50.4	49.0	48.8	48.6
Energy Average		49.4	Average:		54.4	53.8	52.5	51.8	49.4	48.2	46.9	46.7	46.5

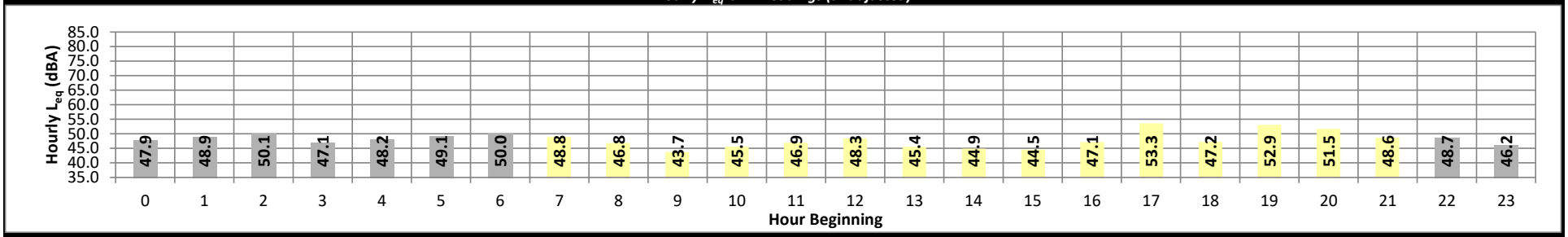
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
56.3	**50.8**	**49.4**

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 7, 2024 *Location:* L3 - Located west of the site near the residence at 1002 Trinity *Meter:* Piccolo II *JN:* 15639

Project: Spreckels Distribution Center *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	47.9	52.1	44.6	51.9	51.5	50.7	50.2	48.7	47.5	45.6	45.2	44.8	47.9	10.0	57.9
	1	48.9	55.8	44.2	55.4	54.8	52.6	51.8	49.2	47.9	45.4	44.8	44.3	48.9	10.0	58.9
	2	50.1	57.9	42.4	57.5	57.3	55.8	54.3	50.1	47.9	43.5	43.2	42.7	50.1	10.0	60.1
	3	47.1	51.6	44.5	51.4	51.0	49.6	49.1	47.8	46.5	45.0	44.8	44.6	47.1	10.0	57.1
	4	48.2	56.7	44.5	55.7	54.3	52.3	51.2	48.4	46.8	45.1	44.8	44.6	48.2	10.0	58.2
	5	49.1	54.7	47.0	54.1	53.3	51.9	51.0	49.3	48.5	47.5	47.3	47.1	49.1	10.0	59.1
	6	50.0	54.7	46.9	54.4	54.0	53.3	52.8	50.4	49.2	47.6	47.3	47.0	50.0	10.0	60.0
Day	7	48.8	53.6	46.2	53.0	52.4	51.4	50.8	49.4	48.4	46.8	46.6	46.3	48.8	0.0	48.8
	8	46.8	53.1	43.2	52.7	52.1	50.8	49.8	47.5	45.5	43.8	43.6	43.2	46.8	0.0	46.8
	9	43.7	47.9	41.6	47.3	46.8	45.9	45.4	44.2	43.3	42.2	41.9	41.7	43.7	0.0	43.7
	10	45.5	53.2	41.6	52.4	51.5	50.0	49.1	45.7	44.1	42.3	42.0	41.7	45.5	0.0	45.5
	11	46.9	53.2	42.1	52.4	52.0	50.8	50.1	47.7	45.8	43.1	42.7	42.2	46.9	0.0	46.9
	12	48.3	57.6	42.6	57.0	56.3	54.1	52.2	47.9	45.5	43.4	43.1	42.7	48.3	0.0	48.3
	13	45.4	51.2	42.1	50.6	49.8	48.6	47.7	46.1	44.8	43.0	42.7	42.2	45.4	0.0	45.4
	14	44.9	52.2	41.8	51.2	50.3	48.4	47.3	45.1	43.9	42.5	42.2	41.9	44.9	0.0	44.9
	15	44.5	51.5	41.3	51.0	50.4	49.1	47.3	44.5	43.4	42.0	41.7	41.4	44.5	0.0	44.5
	16	47.1	56.8	41.8	55.8	55.0	52.7	50.9	46.5	44.4	42.5	42.2	41.9	47.1	0.0	47.1
	17	53.3	63.2	42.7	62.1	61.2	59.1	57.8	53.4	50.4	45.2	44.1	43.1	53.3	0.0	53.3
	18	47.2	56.0	41.9	54.8	53.9	52.1	50.9	47.5	45.2	42.7	42.4	42.0	47.2	0.0	47.2
	19	52.9	60.8	42.8	59.9	59.0	57.6	56.9	54.1	51.3	44.8	43.9	43.1	52.9	5.0	57.9
	20	51.5	62.4	44.2	60.9	59.6	56.9	55.7	51.7	47.5	44.8	44.6	44.3	51.5	5.0	56.5
	21	48.6	54.6	45.4	53.8	53.1	51.8	51.1	49.1	47.8	46.1	45.8	45.5	48.6	5.0	53.6
Night	22	48.7	57.0	44.4	56.3	55.6	53.9	52.4	48.8	46.7	45.0	44.8	44.5	48.7	10.0	58.7
	23	46.2	55.6	42.6	54.2	53.0	50.9	49.4	45.9	44.4	43.2	43.0	42.7	46.2	10.0	56.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	43.7	47.9	41.3	47.3	46.8	45.9	45.4	44.2	43.3	42.0	41.7	41.4
	Max	53.3	63.2	46.2	62.1	61.2	59.1	57.8	54.1	51.3	46.8	46.6	46.3
Energy Average		48.7	Average:		54.3	53.6	51.9	50.9	48.0	46.1	43.7	43.3	42.9
Night	Min	46.2	51.6	42.4	51.4	51.0	49.6	49.1	45.9	44.4	43.2	43.0	42.7
	Max	50.1	57.9	47.0	57.5	57.3	55.8	54.3	50.4	49.2	47.6	47.3	47.1
Energy Average		48.6	Average:		54.5	53.9	52.3	51.4	48.7	47.3	45.3	45.0	44.7

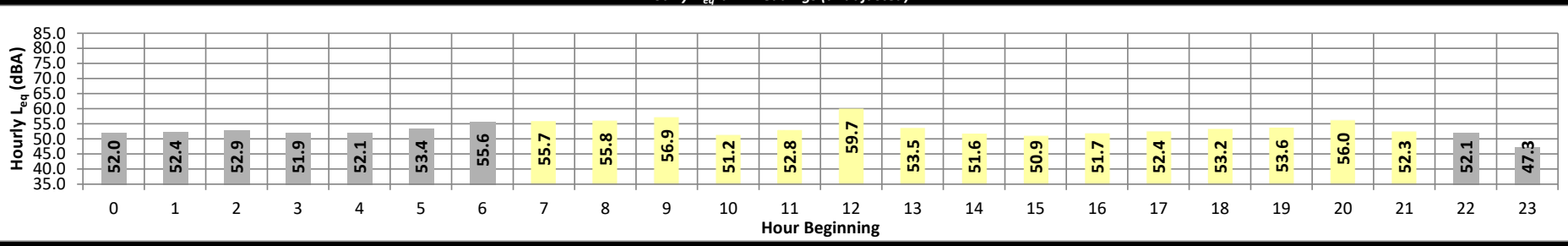
24-Hour CNEL	*Leq (dBA)* *Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
55.5	**48.7**	**48.6**

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 7, 2024 *Location:* L4 - Located west of the site near the residence at 332 Cowell *Meter:* Piccolo II *JN:* 15639

Project: Spreckels Distribution Center *Source:* 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	52.0	58.1	47.6	57.6	57.0	55.9	54.9	52.9	50.8	48.5	48.3	47.7	52.0	10.0	62.0
	1	52.4	60.7	46.7	59.8	59.2	57.4	56.2	52.8	50.4	47.9	47.4	46.9	52.4	10.0	62.4
	2	52.9	60.5	45.2	60.2	59.7	58.8	58.0	53.0	50.5	46.7	46.2	45.4	52.9	10.0	62.9
	3	51.9	59.7	47.0	59.3	58.6	57.1	56.3	52.0	49.8	47.8	47.6	47.2	51.9	10.0	61.9
	4	52.1	60.5	47.3	60.2	59.5	57.1	56.0	52.3	49.6	47.9	47.7	47.4	52.1	10.0	62.1
	5	53.4	58.3	49.9	57.8	57.3	56.5	56.0	54.1	52.7	50.8	50.5	50.1	53.4	10.0	63.4
	6	55.6	65.5	49.5	65.1	64.3	62.0	59.6	54.4	52.5	50.1	49.9	49.6	55.6	10.0	65.6
Day	7	55.7	63.0	51.4	62.4	61.8	60.1	59.0	55.8	54.3	52.3	52.0	51.6	55.7	0.0	55.7
	8	55.8	63.7	49.1	63.4	62.8	61.0	59.7	56.4	54.0	50.5	50.0	49.4	55.8	0.0	55.8
	9	56.9	62.3	52.6	62.0	61.6	60.7	59.9	57.8	56.1	53.5	53.2	52.8	56.9	0.0	56.9
	10	51.2	59.5	45.5	58.8	58.2	56.7	55.7	51.3	48.5	46.2	45.9	45.6	51.2	0.0	51.2
	11	52.8	61.5	45.8	60.6	59.7	58.1	57.1	53.6	50.2	46.7	46.3	45.9	52.8	0.0	52.8
	12	59.7	70.4	49.4	70.0	69.4	67.1	65.0	57.6	54.3	51.3	50.4	49.6	59.7	0.0	59.7
	13	53.5	62.1	47.9	61.4	60.5	58.8	57.6	53.5	51.1	49.1	48.8	48.0	53.5	0.0	53.5
	14	51.6	62.8	44.9	62.0	61.0	58.3	56.5	49.6	47.5	45.6	45.3	45.0	51.6	0.0	51.6
	15	50.9	60.6	44.1	59.8	58.8	56.6	55.3	50.7	47.8	44.9	44.6	44.3	50.9	0.0	50.9
	16	51.7	61.3	45.0	60.5	59.7	57.5	56.0	51.6	48.8	46.0	45.6	45.1	51.7	0.0	51.7
	17	52.4	65.1	44.5	63.7	62.1	59.1	57.0	49.9	47.3	45.4	45.0	44.6	52.4	0.0	52.4
	18	53.2	65.5	44.9	64.0	62.4	59.7	57.6	51.5	48.7	45.9	45.5	45.1	53.2	0.0	53.2
	19	53.6	64.7	45.2	64.0	63.1	59.7	58.0	52.4	49.0	46.2	45.8	45.4	53.6	5.0	58.6
	20	56.0	66.9	47.3	66.0	64.7	62.2	60.5	55.2	52.7	48.4	48.0	47.5	56.0	5.0	61.0
	21	52.3	60.1	48.3	59.3	58.9	57.4	55.4	52.3	50.6	49.1	48.8	48.4	52.3	5.0	57.3
Night	22	52.1	61.9	46.9	61.2	60.4	58.3	56.2	51.7	49.0	47.6	47.3	47.0	52.1	10.0	62.1
	23	47.3	53.9	44.8	52.7	51.5	49.4	48.8	47.7	46.8	45.5	45.2	45.0	47.3	10.0	57.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.9	59.5	44.1	58.8	58.2	56.6	55.3	49.6	47.3	44.9	44.6	44.3
	Max	59.7	70.4	52.6	70.0	69.4	67.1	65.0	57.8	56.1	53.5	53.2	52.8
Energy Average		54.6	Average:		62.5	61.6	59.5	58.0	53.3	50.7	48.1	47.7	47.2
Night	Min	47.3	53.9	44.8	52.7	51.5	49.4	48.8	47.7	46.8	45.5	45.2	45.0
	Max	55.6	65.5	49.9	65.1	64.3	62.0	59.6	54.4	52.7	50.8	50.5	50.1
Energy Average		52.6	Average:		59.3	58.6	56.9	55.8	52.3	50.2	48.1	47.8	47.3

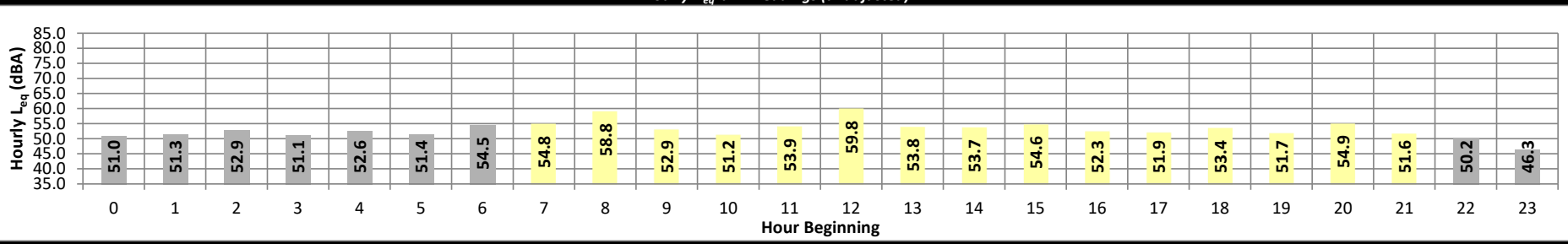
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
59.7	**54.6**	**52.6**

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 7, 2024 *Location:* L5 - Located northwest of the site near the residence at 320 *Meter:* Piccolo II *JN:* 15639

Project: Spreckels Distribution Center *Source:* Cowell 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	51.0	57.4	46.9	56.8	56.4	55.4	54.4	51.5	50.1	47.7	47.4	47.1	51.0	10.0	61.0
	1	51.3	58.5	46.1	58.0	57.3	55.8	54.9	52.2	49.6	47.0	46.7	46.3	51.3	10.0	61.3
	2	52.9	61.1	45.0	60.8	60.4	59.3	58.0	52.5	50.2	46.5	46.0	45.3	52.9	10.0	62.9
	3	51.1	58.9	46.4	58.6	58.1	56.6	54.8	51.2	49.0	47.3	46.9	46.5	51.1	10.0	61.1
	4	52.6	63.0	46.8	62.8	62.3	59.1	55.4	51.1	49.3	47.4	47.2	46.9	52.6	10.0	62.6
	5	51.4	58.0	49.0	57.7	57.2	55.3	53.7	51.2	50.5	49.6	49.4	49.1	51.4	10.0	61.4
	6	54.5	63.9	49.1	63.7	63.2	61.2	58.5	53.1	51.5	49.6	49.4	49.2	54.5	10.0	64.5
Day	7	54.8	64.1	50.1	63.9	63.3	60.8	58.4	53.8	52.4	50.9	50.7	50.2	54.8	0.0	54.8
	8	58.8	70.5	47.5	69.3	67.5	65.8	64.3	58.7	52.2	48.3	48.0	47.6	58.8	0.0	58.8
	9	52.9	61.3	48.2	60.8	60.0	58.2	56.6	52.4	51.2	49.2	48.8	48.4	52.9	0.0	52.9
	10	51.2	60.1	45.2	59.6	59.0	57.4	55.7	50.6	48.3	46.1	45.8	45.4	51.2	0.0	51.2
	11	53.9	66.7	45.3	65.7	64.6	60.8	57.8	51.3	48.7	46.4	46.0	45.5	53.9	0.0	53.9
	12	59.8	70.4	47.2	70.0	69.3	66.5	64.4	59.9	54.0	48.7	48.1	47.5	59.8	0.0	59.8
	13	53.8	65.6	46.2	64.0	62.5	60.0	58.0	52.8	50.0	47.3	46.8	46.4	53.8	0.0	53.8
	14	53.7	64.6	46.3	64.1	63.2	59.6	57.2	52.8	49.9	47.4	47.0	46.5	53.7	0.0	53.7
	15	54.6	67.9	45.2	66.2	64.4	60.4	58.5	53.0	50.1	46.7	46.1	45.5	54.6	0.0	54.6
	16	52.3	61.8	45.4	61.3	60.7	58.1	56.1	52.1	49.8	46.8	46.3	45.6	52.3	0.0	52.3
	17	51.9	62.5	44.5	61.9	61.3	58.8	56.4	50.4	48.1	45.6	45.1	44.7	51.9	0.0	51.9
	18	53.4	65.1	44.8	64.5	63.7	60.2	57.5	51.2	48.5	45.8	45.4	44.9	53.4	0.0	53.4
	19	51.7	62.6	45.1	62.0	61.1	58.0	55.6	50.2	48.0	46.0	45.7	45.2	51.7	5.0	56.7
	20	54.9	65.3	47.1	64.4	63.8	61.5	59.3	54.1	50.9	48.0	47.6	47.2	54.9	5.0	59.9
	21	51.6	58.7	47.7	58.3	57.7	55.9	54.5	51.8	50.2	48.5	48.3	47.9	51.6	5.0	56.6
Night	22	50.2	57.2	46.5	56.6	55.9	54.8	54.2	50.5	48.4	47.1	46.8	46.6	50.2	10.0	60.2
	23	46.3	49.4	44.6	49.0	48.6	48.0	47.6	46.7	46.1	45.1	44.9	44.7	46.3	10.0	56.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.2	58.7	44.5	58.3	57.7	55.9	54.5	50.2	48.0	45.6	45.1	44.7
	Max	59.8	70.5	50.1	70.0	69.3	66.5	64.4	59.9	54.0	50.9	50.7	50.2
Energy Average		54.8	Average:		63.7	62.8	60.1	58.0	53.0	50.2	47.5	47.0	46.6
Night	Min	46.3	49.4	44.6	49.0	48.6	48.0	47.6	46.7	46.1	45.1	44.9	44.7
	Max	54.5	63.9	49.1	63.7	63.2	61.2	58.5	53.1	51.5	49.6	49.4	49.2
Energy Average		51.7	Average:		58.2	57.7	56.2	54.6	51.1	49.4	47.5	47.2	46.9

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
59.0	**54.8**	**51.7**

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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: Spreckels Distribution Cen
Road Name: Cottage Ave | Job Number: 15639
Road Segment: n/o Yosemite Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,160 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	816 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-1.82	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-11.93	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-10.96	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	60.4	55.9	51.8	60.7	61.1
Medium Trucks:	63.7	61.0	61.9	55.9	63.6	64.3
Heavy Trucks:	71.1	68.6	66.8	64.7	71.8	72.2
Vehicle Noise:	72.2	69.9	68.3	65.4	72.7	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	98	211	455
CNEL:	48	104	225	484

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

Scenario: EP | Project Name: Spreckels Distribution Cen
Road Name: Cottage Ave | Job Number: 15639
Road Segment: n/o Yosemite Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,271 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	827 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.77%
Medium Trucks:	65.0%	20.0%	15.0%	7.93%
Heavy Trucks:	68.2%	11.2%	20.6%	10.30%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-1.78	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-11.91	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-10.77	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	60.5	55.9	51.8	60.7	61.1
Medium Trucks:	63.7	61.0	61.9	55.9	63.6	64.3
Heavy Trucks:	71.3	68.8	67.0	64.9	72.0	72.4
Vehicle Noise:	72.4	70.0	68.4	65.6	72.9	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	101	217	467
CNEL:	50	107	230	496

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

Scenario: F | Project Name: Spreckels Distribution Cen
Road Name: Cottage Ave | Job Number: 15639
Road Segment: n/o Yosemite Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,390 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	839 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-1.70	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-11.81	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-10.84	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.1	60.6	56.0	51.9	60.8	61.2
Medium Trucks:	63.8	61.1	62.0	56.0	63.7	64.4
Heavy Trucks:	71.2	68.8	66.9	64.8	72.0	72.3
Vehicle Noise:	72.4	70.0	68.4	65.5	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	100	215	464
CNEL:	49	106	229	494

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

Scenario: FP | Project Name: Spreckels Distribution Cen
Road Name: Cottage Ave | Job Number: 15639
Road Segment: n/o Yosemite Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,501 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	850 vehicles
Vehicle Speed:	30 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.77%
Medium Trucks:	65.0%	20.0%	15.0%	7.93%
Heavy Trucks:	68.2%	11.2%	20.6%	10.29%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-1.66	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-11.79	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-10.66	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.2	60.6	56.0	52.0	60.8	61.2
Medium Trucks:	63.8	61.2	62.1	56.0	63.7	64.5
Heavy Trucks:	71.4	68.9	67.1	65.0	72.1	72.5
Vehicle Noise:	72.5	70.1	68.5	65.7	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	102	220	475
CNEL:	51	109	235	505

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

Scenario: E | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Yosemite Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,930 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,193 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.42	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-11.53	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-10.56	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.0	63.4	58.8	54.8	63.7	64.0
Medium Trucks:	66.1	63.4	64.3	58.3	66.0	66.7
Heavy Trucks:	72.3	69.9	68.1	65.9	73.1	73.4
Vehicle Noise:	73.9	71.5	70.0	66.9	74.3	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	96	207	446	961
CNEL:	102	221	476	1,025

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

Scenario: EP | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Yosemite Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,200 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,220 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.62%
Medium Trucks:	65.0%	20.0%	15.0%	7.89%
Heavy Trucks:	68.2%	11.2%	20.6%	10.50%

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:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.34	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-11.49	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-10.25	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.0	63.5	58.9	54.8	63.7	64.1
Medium Trucks:	66.1	63.5	64.4	58.3	66.0	66.8
Heavy Trucks:	72.6	70.2	68.4	66.2	73.4	73.8
Vehicle Noise:	74.1	71.7	70.2	67.2	74.5	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	215	464	999
CNEL:	106	229	494	1,064

Thursday, September 19, 2024

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

Scenario: F | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Yosemite Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,200 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,220 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.32	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-11.43	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-10.46	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	63.5	58.9	54.9	63.7	64.1
Medium Trucks:	66.2	63.5	64.4	58.4	66.1	66.8
Heavy Trucks:	72.4	70.0	68.2	66.0	73.2	73.5
Vehicle Noise:	74.0	71.6	70.0	67.0	74.4	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	98	210	453	976
CNEL:	104	224	483	1,040

Thursday, September 19, 2024

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

Scenario: FP | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Yosemite Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,470 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,247 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.62%
Medium Trucks:	65.0%	20.0%	15.0%	7.89%
Heavy Trucks:	68.2%	11.2%	20.6%	10.49%

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:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.25	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-11.40	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-10.16	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	63.6	59.0	54.9	63.8	64.2
Medium Trucks:	66.2	63.6	64.5	58.4	66.1	66.9
Heavy Trucks:	72.7	70.3	68.5	66.3	73.5	73.8
Vehicle Noise:	74.2	71.8	70.3	67.2	74.6	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	101	218	470	1,013
CNEL:	108	232	501	1,079

Thursday, September 19, 2024

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

Scenario: E
Road Name: Spreckels Ave.
Road Segment: n/o Phoenix Dr.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,610 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,061 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.93	1.08	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-12.04	1.11	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-11.07	1.11	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.5	62.9	58.3	54.3	63.1	63.5
Medium Trucks:	65.6	62.9	63.8	57.8	65.5	66.2
Heavy Trucks:	71.8	69.4	67.6	65.4	72.6	72.9
Vehicle Noise:	73.4	71.0	69.4	66.4	73.7	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	89	192	413	889
CNEL:	95	204	440	947

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

Scenario: EP
Road Name: Spreckels Ave.
Road Segment: n/o Phoenix Dr.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,880 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,088 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	84.1%	7.3%	8.6%	81.57%
Medium Trucks:	65.0%	20.0%	15.0%	7.87%
Heavy Trucks:	68.2%	11.2%	20.6%	10.56%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.84	1.08	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-12.00	1.11	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-10.72	1.11	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.5	63.0	58.4	54.3	63.2	63.6
Medium Trucks:	65.6	63.0	63.9	57.8	65.5	66.3
Heavy Trucks:	72.2	69.7	67.9	65.8	72.9	73.3
Vehicle Noise:	73.6	71.3	69.7	66.7	74.0	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	93	200	431	928
CNEL:	99	213	459	988

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

Scenario: F
Road Name: Spreckels Ave.
Road Segment: n/o Phoenix Dr.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,920 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,092 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.81	1.08	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-11.91	1.11	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-10.94	1.11	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.6	63.0	58.5	54.4	63.3	63.6
Medium Trucks:	65.7	63.0	63.9	57.9	65.6	66.4
Heavy Trucks:	72.0	69.5	67.7	65.5	72.7	73.1
Vehicle Noise:	73.5	71.1	69.6	66.5	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	91	195	421	906
CNEL:	97	208	448	966

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

Scenario: FP
Road Name: Spreckels Ave.
Road Segment: n/o Phoenix Dr.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,190 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,119 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	84.1%	7.3%	8.6%	81.58%
Medium Trucks:	65.0%	20.0%	15.0%	7.88%
Heavy Trucks:	68.2%	11.2%	20.6%	10.54%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.72	1.08	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-11.88	1.11	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-10.61	1.11	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	63.1	58.5	54.5	63.4	63.7
Medium Trucks:	65.7	63.1	64.0	58.0	65.7	66.4
Heavy Trucks:	72.3	69.8	68.0	65.9	73.0	73.4
Vehicle Noise:	73.7	71.4	69.8	66.8	74.1	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	94	204	439	945
CNEL:	101	217	467	1,006

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

Scenario: E | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Phoenix Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,900 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,290 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.08	1.08	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-11.19	1.11	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-10.22	1.11	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.8	59.2	55.1	64.0	64.4
Medium Trucks:	66.4	63.8	64.7	58.7	66.3	67.1
Heavy Trucks:	72.7	70.2	68.4	66.3	73.4	73.8
Vehicle Noise:	74.2	71.8	70.3	67.2	74.6	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	101	218	470	1,013
CNEL:	108	233	501	1,079

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

Scenario: EP | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Phoenix Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,244 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,324 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.55%
Medium Trucks:	65.0%	20.0%	15.0%	7.87%
Heavy Trucks:	68.2%	11.2%	20.6%	10.58%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.99	1.08	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-11.15	1.11	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-9.86	1.11	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.9	59.3	55.2	64.1	64.5
Medium Trucks:	66.5	63.8	64.7	58.7	66.4	67.1
Heavy Trucks:	73.0	70.6	68.8	66.6	73.8	74.1
Vehicle Noise:	74.5	72.1	70.5	67.5	74.9	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	106	228	492	1,059
CNEL:	113	243	524	1,128

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

Scenario: F | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Phoenix Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,280 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,328 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.96	1.08	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-11.06	1.11	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-10.09	1.11	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.9	59.3	55.2	64.1	64.5
Medium Trucks:	66.6	63.9	64.8	58.8	66.5	67.2
Heavy Trucks:	72.8	70.4	68.5	66.4	73.6	73.9
Vehicle Noise:	74.3	72.0	70.4	67.4	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	222	479	1,033
CNEL:	110	237	511	1,100

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

Scenario: FP | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Phoenix Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,624 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,362 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.56%
Medium Trucks:	65.0%	20.0%	15.0%	7.87%
Heavy Trucks:	68.2%	11.2%	20.6%	10.57%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.87	1.08	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-11.02	1.11	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-9.74	1.11	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	64.0	59.4	55.3	64.2	64.6
Medium Trucks:	66.6	63.9	64.8	58.8	66.5	67.2
Heavy Trucks:	73.2	70.7	68.9	66.7	73.9	74.3
Vehicle Noise:	74.6	72.2	70.7	67.7	75.0	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	108	232	501	1,078
CNEL:	115	247	533	1,149

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

Scenario: E | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: n/o Moffat Blvd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,330 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,333 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.94	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-11.05	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-10.08	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.9	59.3	55.2	64.1	64.5
Medium Trucks:	66.6	63.9	64.8	58.8	66.5	67.2
Heavy Trucks:	72.8	70.4	68.5	66.4	73.6	73.9
Vehicle Noise:	74.3	72.0	70.4	67.4	74.7	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	223	480	1,035
CNEL:	110	238	512	1,103

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

Scenario: EP | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: n/o Moffat Blvd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,674 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,367 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.56%
Medium Trucks:	65.0%	20.0%	15.0%	7.87%
Heavy Trucks:	68.2%	11.2%	20.6%	10.57%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.85	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-11.01	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-9.73	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	64.0	59.4	55.3	64.2	64.6
Medium Trucks:	66.6	64.0	64.9	58.8	66.5	67.3
Heavy Trucks:	73.2	70.7	68.9	66.8	73.9	74.3
Vehicle Noise:	74.6	72.3	70.7	67.7	75.0	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	108	233	502	1,081
CNEL:	115	248	534	1,151

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

Scenario: F | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: n/o Moffat Blvd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,740 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,374 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.81	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-10.92	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-9.95	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	64.0	59.5	55.4	64.3	64.6
Medium Trucks:	66.7	64.0	64.9	58.9	66.6	67.4
Heavy Trucks:	73.0	70.5	68.7	66.5	73.7	74.1
Vehicle Noise:	74.5	72.1	70.6	67.5	74.9	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	106	228	490	1,056
CNEL:	113	243	522	1,126

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

Scenario: FP | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: n/o Moffat Blvd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,084 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,408 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.58%
Medium Trucks:	65.0%	20.0%	15.0%	7.87%
Heavy Trucks:	68.2%	11.2%	20.6%	10.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.72	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-10.88	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-9.61	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.7	64.1	59.5	55.5	64.3	64.7
Medium Trucks:	66.7	64.1	65.0	59.0	66.7	67.4
Heavy Trucks:	73.3	70.8	69.0	66.9	74.0	74.4
Vehicle Noise:	74.7	72.4	70.8	67.8	75.1	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	237	511	1,102
CNEL:	117	253	545	1,173

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

Scenario: E | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Moffat Blvd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,220 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,322 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.98	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-11.08	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-10.11	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.9	59.3	55.2	64.1	64.5
Medium Trucks:	66.5	63.9	64.8	58.8	66.4	67.2
Heavy Trucks:	72.8	70.3	68.5	66.4	73.5	73.9
Vehicle Noise:	74.3	72.0	70.4	67.3	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	222	478	1,029
CNEL:	110	236	509	1,097

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

Scenario: EP | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Moffat Blvd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,453 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,345 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.70%
Medium Trucks:	65.0%	20.0%	15.0%	7.91%
Heavy Trucks:	68.2%	11.2%	20.6%	10.39%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.92	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-11.06	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-9.87	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	63.9	59.4	55.3	64.2	64.5
Medium Trucks:	66.6	63.9	64.8	58.8	66.5	67.2
Heavy Trucks:	73.0	70.6	68.8	66.6	73.8	74.1
Vehicle Noise:	74.5	72.1	70.6	67.5	74.9	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	106	229	492	1,061
CNEL:	113	243	525	1,130

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

Scenario: F | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Moffat Blvd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,620 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,362 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.85	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-10.95	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-9.98	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	64.0	59.4	55.3	64.2	64.6
Medium Trucks:	66.7	64.0	64.9	58.9	66.6	67.3
Heavy Trucks:	72.9	70.5	68.6	66.5	73.7	74.0
Vehicle Noise:	74.4	72.1	70.5	67.5	74.8	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	226	487	1,050
CNEL:	112	241	519	1,119

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

Scenario: FP | Project Name: Spreckels Distribution Cen
Road Name: Spreckels Ave. | Job Number: 15639
Road Segment: s/o Moffat Blvd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,853 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,385 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	56 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.71%
Medium Trucks:	65.0%	20.0%	15.0%	7.91%
Heavy Trucks:	68.2%	11.2%	20.6%	10.38%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	41.725
Medium Trucks:	41.513
Heavy Trucks:	41.533

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.79	1.08	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-10.93	1.11	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-9.75	1.11	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	64.1	59.5	55.4	64.3	64.7
Medium Trucks:	66.7	64.0	64.9	58.9	66.6	67.3
Heavy Trucks:	73.2	70.7	68.9	66.7	73.9	74.3
Vehicle Noise:	74.6	72.3	70.7	67.7	75.0	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	108	233	502	1,081
CNEL:	115	248	535	1,152

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

Scenario: E
Road Name: Yosemite Ave.
Road Segment: w/o Spreckels Ave.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,900 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,290 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.177
Medium Trucks:	47.993
Heavy Trucks:	48.011

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.50	0.14	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-10.61	0.16	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-9.64	0.16	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	61.2	56.6	52.5	61.4	61.8
Medium Trucks:	64.1	61.4	62.3	56.3	64.0	64.7
Heavy Trucks:	70.9	68.4	66.6	64.5	71.6	72.0
Vehicle Noise:	72.2	69.9	68.3	65.3	72.7	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	83	178	384	828
CNEL:	88	190	409	882

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

Scenario: EP
Road Name: Yosemite Ave.
Road Segment: w/o Spreckels Ave.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,937 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,294 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.95%
Medium Trucks:	65.0%	20.0%	15.0%	7.99%
Heavy Trucks:	68.2%	11.2%	20.6%	10.06%

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:	48.177
Medium Trucks:	47.993
Heavy Trucks:	48.011

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.49	0.14	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-10.60	0.16	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-9.60	0.16	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	61.2	56.6	52.5	61.4	61.8
Medium Trucks:	64.1	61.4	62.3	56.3	64.0	64.8
Heavy Trucks:	70.9	68.5	66.7	64.5	71.7	72.0
Vehicle Noise:	72.3	69.9	68.3	65.4	72.7	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	83	179	386	832
CNEL:	89	191	411	886

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

Scenario: F
Road Name: Yosemite Ave.
Road Segment: w/o Spreckels Ave.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,270 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,327 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.177
Medium Trucks:	47.993
Heavy Trucks:	48.011

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.38	0.14	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-10.49	0.16	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-9.52	0.16	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	61.3	56.7	52.7	61.5	61.9
Medium Trucks:	64.2	61.6	62.5	56.4	64.1	64.9
Heavy Trucks:	71.0	68.6	66.7	64.6	71.8	72.1
Vehicle Noise:	72.4	70.0	68.4	65.5	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	84	182	392	844
CNEL:	90	194	417	899

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

Scenario: FP
Road Name: Yosemite Ave.
Road Segment: w/o Spreckels Ave.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,307 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,331 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.95%
Medium Trucks:	65.0%	20.0%	15.0%	7.99%
Heavy Trucks:	68.2%	11.2%	20.6%	10.06%

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:	48.177
Medium Trucks:	47.993
Heavy Trucks:	48.011

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.37	0.14	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-10.48	0.16	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-9.48	0.16	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	61.3	56.8	52.7	61.6	61.9
Medium Trucks:	64.2	61.6	62.5	56.4	64.1	64.9
Heavy Trucks:	71.1	68.6	66.8	64.6	71.8	72.2
Vehicle Noise:	72.4	70.0	68.5	65.5	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	183	394	848
CNEL:	90	195	419	903

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

Scenario: E | Project Name: Spreckels Distribution Cen
Road Name: Yosemite Ave. | Job Number: 15639
Road Segment: e/o Spreckels Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,990 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,799 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.177
Medium Trucks:	47.993
Heavy Trucks:	48.011

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.94	0.14	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-9.16	0.16	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-8.20	0.16	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	62.6	58.1	54.0	62.9	63.2
Medium Trucks:	65.5	62.9	63.8	57.8	65.5	66.2
Heavy Trucks:	72.3	69.9	68.1	65.9	73.1	73.4
Vehicle Noise:	73.7	71.3	69.7	66.8	74.1	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	223	480	1,034
CNEL:	110	237	511	1,101

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

Scenario: EP | Project Name: Spreckels Distribution Cen
Road Name: Yosemite Ave. | Job Number: 15639
Road Segment: e/o Spreckels Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,113 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,811 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.88%
Medium Trucks:	65.0%	20.0%	15.0%	7.96%
Heavy Trucks:	68.2%	11.2%	20.6%	10.15%

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:	48.177
Medium Trucks:	47.993
Heavy Trucks:	48.011

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.97	0.14	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-9.15	0.16	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-8.10	0.16	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	62.7	58.1	54.0	62.9	63.3
Medium Trucks:	65.6	62.9	63.8	57.8	65.5	66.2
Heavy Trucks:	72.4	70.0	68.2	66.0	73.2	73.5
Vehicle Noise:	73.8	71.4	69.8	66.9	74.2	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	225	486	1,046
CNEL:	111	240	517	1,114

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

Scenario: F | Project Name: Spreckels Distribution Cen
Road Name: Yosemite Ave. | Job Number: 15639
Road Segment: e/o Spreckels Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,460 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,846 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.177
Medium Trucks:	47.993
Heavy Trucks:	48.011

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.05	0.14	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-9.05	0.16	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-8.08	0.16	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	62.8	58.2	54.1	63.0	63.4
Medium Trucks:	65.7	63.0	63.9	57.9	65.6	66.3
Heavy Trucks:	72.4	70.0	68.2	66.0	73.2	73.5
Vehicle Noise:	73.8	71.4	69.9	66.9	74.2	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	227	488	1,052
CNEL:	112	241	520	1,120

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

Scenario: FP | Project Name: Spreckels Distribution Cen
Road Name: Yosemite Ave. | Job Number: 15639
Road Segment: e/o Spreckels Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,583 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,858 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.89%
Medium Trucks:	65.0%	20.0%	15.0%	7.97%
Heavy Trucks:	68.2%	11.2%	20.6%	10.15%

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:	48.177
Medium Trucks:	47.993
Heavy Trucks:	48.011

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.08	0.14	-1.20	-4.67	0.000	0.000
Medium Trucks:	75.75	-9.04	0.16	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-7.99	0.16	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	62.8	58.2	54.1	63.0	63.4
Medium Trucks:	65.7	63.0	63.9	57.9	65.6	66.3
Heavy Trucks:	72.5	70.1	68.3	66.1	73.3	73.6
Vehicle Noise:	73.9	71.5	69.9	67.0	74.3	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	106	229	494	1,064
CNEL:	113	244	526	1,133

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

Scenario: E | Project Name: Spreckels Distribution Cen
Road Name: Moffat Blvd. | Job Number: 15639
Road Segment: w/o Spreckels Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,850 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	585 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.03	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	79.45	-15.14	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-14.17	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	64.0	59.4	55.3	64.2	64.6
Medium Trucks:	66.4	63.8	64.7	58.7	66.4	67.1
Heavy Trucks:	72.2	69.8	67.9	65.8	73.0	73.3
Vehicle Noise:	73.9	71.6	70.0	66.9	74.3	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	124	268	577
CNEL:	62	133	286	616

Thursday, September 19, 2024

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

Scenario: EP | Project Name: Spreckels Distribution Cen
Road Name: Moffat Blvd. | Job Number: 15639
Road Segment: w/o Spreckels Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,887 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	589 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.89%
Medium Trucks:	65.0%	20.0%	15.0%	7.97%
Heavy Trucks:	68.2%	11.2%	20.6%	10.14%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.01	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	79.45	-15.13	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-14.08	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	64.0	59.4	55.3	64.2	64.6
Medium Trucks:	66.5	63.8	64.7	58.7	66.4	67.1
Heavy Trucks:	72.3	69.8	68.0	65.9	73.0	73.4
Vehicle Noise:	74.0	71.6	70.1	67.0	74.3	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	583
CNEL:	62	134	289	622

Thursday, September 19, 2024

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

Scenario: F | Project Name: Spreckels Distribution Cen
Road Name: Moffat Blvd. | Job Number: 15639
Road Segment: w/o Spreckels Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,030 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	603 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.90	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	79.45	-15.00	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-14.03	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	64.1	59.5	55.4	64.3	64.7
Medium Trucks:	66.6	63.9	64.8	58.8	66.5	67.2
Heavy Trucks:	72.3	69.9	68.1	65.9	73.1	73.4
Vehicle Noise:	74.0	71.7	70.1	67.0	74.4	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	59	127	273	589
CNEL:	63	135	292	628

Thursday, September 19, 2024

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

Scenario: FP | Project Name: Spreckels Distribution Cen
Road Name: Moffat Blvd. | Job Number: 15639
Road Segment: w/o Spreckels Ave.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,067 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	607 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.89%
Medium Trucks:	65.0%	20.0%	15.0%	7.97%
Heavy Trucks:	68.2%	11.2%	20.6%	10.14%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.88	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	79.45	-14.99	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-13.95	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	64.1	59.5	55.4	64.3	64.7
Medium Trucks:	66.6	63.9	64.8	58.8	66.5	67.2
Heavy Trucks:	72.4	70.0	68.2	66.0	73.2	73.5
Vehicle Noise:	74.1	71.8	70.2	67.1	74.5	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	128	276	595
CNEL:	63	137	295	635

Thursday, September 19, 2024

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

Scenario: E
Road Name: Moffat Blvd.
Road Segment: e/o Spreckels Ave.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,080 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	608 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.86	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	79.45	-14.97	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-14.00	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.7	64.1	59.5	55.5	64.4	64.7
Medium Trucks:	66.6	63.9	64.9	58.8	66.5	67.3
Heavy Trucks:	72.4	69.9	68.1	66.0	73.1	73.5
Vehicle Noise:	74.1	71.7	70.2	67.0	74.4	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	59	128	275	592
CNEL:	63	136	293	632

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

Scenario: EP
Road Name: Moffat Blvd.
Road Segment: e/o Spreckels Ave.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,154 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	615 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.79%
Medium Trucks:	65.0%	20.0%	15.0%	7.94%
Heavy Trucks:	68.2%	11.2%	20.6%	10.27%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.82	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	79.45	-14.95	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-13.83	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.7	64.2	59.6	55.5	64.4	64.8
Medium Trucks:	66.6	64.0	64.9	58.8	66.5	67.3
Heavy Trucks:	72.5	70.1	68.3	66.1	73.3	73.6
Vehicle Noise:	74.2	71.9	70.3	67.2	74.6	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	281	604
CNEL:	64	139	299	645

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

Scenario: F
Road Name: Moffat Blvd.
Road Segment: e/o Spreckels Ave.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,250 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	625 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	82.00%
Medium Trucks:	65.0%	20.0%	15.0%	8.00%
Heavy Trucks:	68.2%	11.2%	20.6%	10.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.74	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	79.45	-14.85	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-13.88	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.8	64.2	59.7	55.6	64.5	64.8
Medium Trucks:	66.7	64.1	65.0	58.9	66.6	67.4
Heavy Trucks:	72.5	70.0	68.2	66.1	73.2	73.6
Vehicle Noise:	74.2	71.8	70.3	67.2	74.6	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	280	603
CNEL:	64	139	299	643

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

Scenario: FP
Road Name: Moffat Blvd.
Road Segment: e/o Spreckels Ave.
Project Name: Spreckels Distribution Cen
Job Number: 15639

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,324 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	632 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	84.1%	7.3%	8.6%	81.80%
Medium Trucks:	65.0%	20.0%	15.0%	7.94%
Heavy Trucks:	68.2%	11.2%	20.6%	10.26%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.70	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	79.45	-14.83	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-13.72	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.8	64.3	59.7	55.6	64.5	64.9
Medium Trucks:	66.7	64.1	65.0	59.0	66.7	67.4
Heavy Trucks:	72.7	70.2	68.4	66.2	73.4	73.8
Vehicle Noise:	74.3	72.0	70.4	67.3	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	286	615
CNEL:	66	141	305	656

APPENDIX 9.1:

OPERATIONAL NOISE CALCULATIONS

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15639 - Spreckels Distribution Center

CadnaA Noise Prediction Model: 9.1_15639-03.cna
Date: 30.10.24
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	32.5	31.6	38.2	55.0	45.0	0.0				5.00	a	6359135.14	2112289.08	5.00
RECEIVERS		R2	49.5	49.5	56.1	60.0	55.0	0.0				5.00	a	6359416.32	2111841.45	5.00
RECEIVERS		R3	44.3	43.4	50.1	55.0	45.0	0.0				5.00	a	6358886.01	2111769.10	5.00
RECEIVERS		R4	48.8	48.6	55.3	55.0	45.0	0.0				5.00	a	6358887.63	2111368.75	5.00
RECEIVERS		R5	40.7	39.6	46.2	55.0	45.0	0.0				5.00	a	6358885.93	2111913.05	5.00
RECEIVERS		R6	48.2	48.1	54.8	55.0	45.0	0.0				5.00	a	6358895.58	2111147.66	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	6360017.48	2111483.38	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6360053.33	2111520.25	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6360097.37	2111487.47	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6360067.67	2111716.89	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6360101.46	2111750.69	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6359081.37	2111725.09	50.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6359044.50	2111750.69	50.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6359087.51	2111523.32	50.00
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6359045.52	2111492.60	50.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6359962.93	2111459.05	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	68.0	68.0	68.0	Lw	93.2									8	a
LINESOURCE		TRUCK02	93.2	93.2	93.2	66.0	66.0	66.0	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			6359173.55	2111438.31	8.00	0.00
						6360022.60	2111435.24	8.00	0.00
						6360162.92	2111434.22	8.00	0.00
						6360268.05	2111448.54	8.00	0.00
LINESOURCE	TRUCK02	8.00	a			6359173.55	2111438.31	8.00	0.00
						6359024.01	2111437.29	8.00	0.00
						6359016.60	2111439.63	8.00	0.00
						6359009.67	2111443.13	8.00	0.00
						6359003.39	2111447.72	8.00	0.00
						6358997.94	2111453.26	8.00	0.00
						6358993.46	2111459.61	8.00	0.00
						6358990.07	2111466.60	8.00	0.00
						6358987.85	2111474.05	8.00	0.00
						6358986.87	2111481.76	8.00	0.00
						6358987.14	2111489.52	8.00	0.00
						6358984.07	2111754.79	8.00	0.00
						6358989.44	2111765.18	8.00	0.00
						6358996.35	2111774.62	8.00	0.00
						6359004.63	2111782.89	8.00	0.00
						6359014.09	2111789.78	8.00	0.00
						6359024.49	2111795.13	8.00	0.00
						6359035.60	2111798.82	8.00	0.00
						6359047.14	2111800.75	8.00	0.00
						6359058.84	2111800.88	8.00	0.00
						6360165.99	2111799.85	8.00	0.00
						6360185.45	2111808.05	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		DRY01	103.4	103.4	103.4	66.8	66.8	66.8	Lw	103.4					8	a
AREASOURCE		COLD01	111.5	111.5	111.5	75.5	75.5	75.5	Lw	111.5					8	a
AREASOURCE		CAR01	81.1	81.1	81.1	59.6	59.6	59.6	Lw	81.1					5	a
AREASOURCE		CAR02	81.1	81.1	81.1	59.7	59.7	59.7	Lw	81.1					5	a
AREASOURCE		CAR03	81.1	81.1	81.1	60.9	60.9	60.9	Lw	81.1					5	a
AREASOURCE		CAR04	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a
AREASOURCE		CAR05	81.1	81.1	81.1	61.6	61.6	61.6	Lw	81.1					5	a
AREASOURCE		CAR06	81.1	81.1	81.1	58.6	58.6	58.6	Lw	81.1					5	a
AREASOURCE		CAR07	81.1	81.1	81.1	61.0	61.0	61.0	Lw	81.1					5	a
AREASOURCE		CAR08	81.1	81.1	81.1	61.3	61.3	61.3	Lw	81.1					5	a
AREASOURCE		CAR09	81.1	81.1	81.1	61.8	61.8	61.8	Lw	81.1					5	a
AREASOURCE		CAR10	81.1	81.1	81.1	60.6	60.6	60.6	Lw	81.1					5	a
AREASOURCE		CAR11	81.1	81.1	81.1	60.9	60.9	60.9	Lw	81.1					5	a
AREASOURCE		CAR12	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a
AREASOURCE		CAR13	81.1	81.1	81.1	60.9	60.9	60.9	Lw	81.1					5	a
AREASOURCE		CAR14	81.1	81.1	81.1	60.7	60.7	60.7	Lw	81.1					5	a
AREASOURCE		CAR15	81.1	81.1	81.1	64.8	64.8	64.8	Lw	81.1					5	a
AREASOURCE		CAR16	81.1	81.1	81.1	63.7	63.7	63.7	Lw	81.1					5	a
AREASOURCE		CAR17	81.1	81.1	81.1	61.2	61.2	61.2	Lw	81.1					5	a
AREASOURCE		CAR18	81.1	81.1	81.1	60.6	60.6	60.6	Lw	81.1					5	a
AREASOURCE		CAR19	81.1	81.1	81.1	60.7	60.7	60.7	Lw	81.1					5	a
AREASOURCE		CAR20	81.1	81.1	81.1	61.0	61.0	61.0	Lw	81.1					5	a
AREASOURCE		CAR21	81.1	81.1	81.1	60.7	60.7	60.7	Lw	81.1					5	a
AREASOURCE		CAR22	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a
AREASOURCE		CAR23	81.1	81.1	81.1	60.6	60.6	60.6	Lw	81.1					5	a
AREASOURCE		CAR24	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	DRY01	8.00	a			6359171.50	2111403.49	8.00	0.00
						6360014.41	2111404.51	8.00	0.00
						6360014.11	2111343.72	8.00	0.00
						6359170.36	2111347.20	8.00	0.00
AREASOURCE	COLD01	8.00	a			6359206.32	2111533.56	8.00	0.00
						6359931.45	2111530.49	8.00	0.00
						6359933.50	2111472.11	8.00	0.00
						6359205.30	2111473.14	8.00	0.00
AREASOURCE	CAR01	5.00	a			6360032.51	2111408.88	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6360130.82	2111407.87	5.00	0.00
						6360131.02	2111393.40	5.00	0.00
						6360032.11	2111392.39	5.00	0.00
AREASOURCE	CAR02	5.00	a			6360033.12	2111365.45	5.00	0.00
						6360131.22	2111365.25	5.00	0.00
						6360131.02	2111349.77	5.00	0.00
						6360032.71	2111350.37	5.00	0.00
AREASOURCE	CAR03	5.00	a			6360176.26	2111408.07	5.00	0.00
						6360249.03	2111407.67	5.00	0.00
						6360248.23	2111391.99	5.00	0.00
						6360176.46	2111392.79	5.00	0.00
AREASOURCE	CAR04	5.00	a			6360176.06	2111365.25	5.00	0.00
						6360249.23	2111365.25	5.00	0.00
						6360248.43	2111349.37	5.00	0.00
						6360175.85	2111349.77	5.00	0.00
AREASOURCE	CAR05	5.00	a			6360182.89	2111470.39	5.00	0.00
						6360167.41	2111470.19	5.00	0.00
						6360168.01	2111533.92	5.00	0.00
						6360182.89	2111533.52	5.00	0.00
AREASOURCE	CAR06	5.00	a			6360122.18	2111498.34	5.00	0.00
						6360123.99	2111614.54	5.00	0.00
						6360139.47	2111614.34	5.00	0.00
						6360139.87	2111498.34	5.00	0.00
AREASOURCE	CAR07	5.00	a			6360182.69	2111541.96	5.00	0.00
						6360167.61	2111541.36	5.00	0.00
						6360167.21	2111614.74	5.00	0.00
						6360182.29	2111614.34	5.00	0.00
AREASOURCE	CAR08	5.00	a			6360168.62	2111622.18	5.00	0.00
						6360168.21	2111694.55	5.00	0.00
						6360182.69	2111694.35	5.00	0.00
						6360182.49	2111621.98	5.00	0.00
AREASOURCE	CAR09	5.00	a			6360168.42	2111701.99	5.00	0.00
						6360168.01	2111765.52	5.00	0.00
						6360182.69	2111765.52	5.00	0.00
						6360182.69	2111701.79	5.00	0.00
AREASOURCE	CAR10	5.00	a			6360122.58	2111728.53	5.00	0.00
						6360139.87	2111728.93	5.00	0.00
						6360139.87	2111658.77	5.00	0.00
						6360122.58	2111658.37	5.00	0.00
AREASOURCE	CAR11	5.00	a			6359076.96	2111411.32	5.00	0.00
						6359149.82	2111410.93	5.00	0.00
						6359149.62	2111395.57	5.00	0.00
						6359077.55	2111395.57	5.00	0.00
AREASOURCE	CAR12	5.00	a			6359076.96	2111368.79	5.00	0.00
						6359149.82	2111368.79	5.00	0.00
						6359149.62	2111352.64	5.00	0.00
						6359076.56	2111353.04	5.00	0.00
AREASOURCE	CAR13	5.00	a			6358996.81	2111412.11	5.00	0.00
						6359069.47	2111411.13	5.00	0.00
						6359069.28	2111396.16	5.00	0.00
						6358996.61	2111396.36	5.00	0.00
AREASOURCE	CAR14	5.00	a			6358996.61	2111370.17	5.00	0.00
						6359068.69	2111370.37	5.00	0.00
						6359069.08	2111353.43	5.00	0.00
						6358997.40	2111354.22	5.00	0.00
AREASOURCE	CAR15	5.00	a			6358961.95	2111370.76	5.00	0.00
						6358989.52	2111370.96	5.00	0.00
						6358988.54	2111353.82	5.00	0.00
						6358961.76	2111353.82	5.00	0.00
AREASOURCE	CAR16	5.00	a			6358944.43	2111372.73	5.00	0.00
						6358944.82	2111409.16	5.00	0.00
						6358960.97	2111408.96	5.00	0.00
						6358960.58	2111372.73	5.00	0.00
AREASOURCE	CAR17	5.00	a			6358945.37	2111420.96	5.00	0.00
						6358945.37	2111492.62	5.00	0.00
						6358960.16	2111492.44	5.00	0.00
						6358959.63	2111420.24	5.00	0.00
AREASOURCE	CAR18	5.00	a			6358945.19	2111501.00	5.00	0.00
						6358945.01	2111572.84	5.00	0.00
						6358962.30	2111572.84	5.00	0.00
						6358961.41	2111500.64	5.00	0.00
AREASOURCE	CAR19	5.00	a			6358945.19	2111581.04	5.00	0.00
						6358945.37	2111652.88	5.00	0.00
						6358961.95	2111652.52	5.00	0.00
						6358961.59	2111580.33	5.00	0.00
AREASOURCE	CAR20	5.00	a			6359017.39	2111580.33	5.00	0.00
						6359002.06	2111580.50	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6359002.77	2111652.70	5.00	0.00
						6359018.10	2111652.52	5.00	0.00
AREASOURCE	CAR21	5.00	a			6359019.88	2111501.00	5.00	0.00
						6359002.23	2111501.53	5.00	0.00
						6359001.88	2111573.02	5.00	0.00
						6359017.39	2111573.19	5.00	0.00
AREASOURCE	CAR22	5.00	a			6359002.77	2111660.72	5.00	0.00
						6359002.41	2111732.21	5.00	0.00
						6359019.88	2111731.85	5.00	0.00
						6359017.92	2111660.55	5.00	0.00
AREASOURCE	CAR23	5.00	a			6358945.01	2111660.90	5.00	0.00
						6358945.37	2111732.74	5.00	0.00
						6358962.12	2111732.92	5.00	0.00
						6358961.59	2111660.19	5.00	0.00
AREASOURCE	CAR24	5.00	a			6358945.55	2111813.50	5.00	0.00
						6358961.23	2111812.96	5.00	0.00
						6358961.95	2111740.94	5.00	0.00
						6358945.37	2111740.94	5.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6358928.77	2110282.00	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6359304.64	2112279.17	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358912.47	2111341.35	8.00	0.00
												6360037.87	2111338.57	8.00	0.00
BARRIERPLANNED			0						0.00	a		6358915.17	2111472.58	0.00	0.00
												6358918.00	2111341.25	0.00	0.00
												6359544.51	2111339.75	0.00	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	6359029.14	2111768.10	45.00	0.00
									6359096.73	2111780.39	45.00	0.00
									6360060.50	2111775.27	45.00	0.00
									6360116.83	2111761.96	45.00	0.00
									6360115.80	2111469.04	45.00	0.00
									6359933.50	2111472.11	45.00	0.00
									6359931.45	2111530.49	45.00	0.00
									6359206.32	2111533.56	45.00	0.00
									6359205.30	2111473.14	45.00	0.00
									6359022.99	2111474.16	45.00	0.00
BUILDING			BUILDING00002	x	0		30.00	a	6359230.66	2112236.13	30.00	0.00
									6359332.22	2112234.40	30.00	0.00
									6359330.49	2112174.50	30.00	0.00
									6359228.06	2112174.50	30.00	0.00
BUILDING			BUILDING00003	x	0		30.00	a	6359222.85	2112091.17	30.00	0.00
									6359286.22	2112092.04	30.00	0.00
									6359285.35	2111991.34	30.00	0.00
									6359226.32	2111989.60	30.00	0.00
BUILDING			BUILDING00004	x	0		30.00	a	6359504.97	2112209.22	30.00	0.00
									6359578.75	2112207.49	30.00	0.00
									6359577.01	2112044.29	30.00	0.00
									6359505.83	2112043.42	30.00	0.00
									6359506.70	2112069.47	30.00	0.00
									6359485.87	2112067.73	30.00	0.00
									6359487.60	2112184.92	30.00	0.00
									6359505.83	2112184.05	30.00	0.00
BUILDING			BUILDING00005	x	0		30.00	a	6359180.75	2111910.18	30.00	0.00
									6359325.06	2111911.26	30.00	0.00
									6359325.06	2111840.73	30.00	0.00
									6359199.19	2111839.65	30.00	0.00
									6359163.39	2111839.65	30.00	0.00
									6359165.56	2111879.80	30.00	0.00
BUILDING			BUILDING00006	x	0		30.00	a	6359420.55	2111912.35	30.00	0.00
									6359584.39	2111913.43	30.00	0.00
									6359583.31	2111842.90	30.00	0.00
									6359419.46	2111841.82	30.00	0.00
BUILDING			BUILDING00007	x	0		20.00	a	6359125.80	2112359.94	20.00	0.00
									6359150.75	2112360.08	20.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6359150.89	2112350.71	20.00	0.00
									6359175.26	2112350.13	20.00	0.00
									6359175.84	2112298.07	20.00	0.00
									6359125.94	2112298.36	20.00	0.00
BUILDING			BUILDING00008	x	0		20.00	a	6358804.52	2111922.90	20.00	0.00
									6358869.63	2111924.22	20.00	0.00
									6358870.22	2111900.32	20.00	0.00
									6358858.93	2111900.17	20.00	0.00
									6358859.07	2111875.68	20.00	0.00
									6358819.18	2111874.95	20.00	0.00
									6358818.45	2111899.44	20.00	0.00
									6358805.40	2111900.17	20.00	0.00
BUILDING			BUILDING00009	x	0		20.00	a	6358805.84	2111803.08	20.00	0.00
									6358833.41	2111802.93	20.00	0.00
									6358833.11	2111784.60	20.00	0.00
									6358864.94	2111784.45	20.00	0.00
									6358864.65	2111753.51	20.00	0.00
									6358821.53	2111754.68	20.00	0.00
									6358821.09	2111780.93	20.00	0.00
									6358806.28	2111780.49	20.00	0.00
BUILDING			BUILDING00010	x	0		20.00	a	6358815.42	2111379.19	20.00	0.00
									6358874.79	2111379.19	20.00	0.00
									6358875.84	2111350.37	20.00	0.00
									6358814.38	2111350.02	20.00	0.00
BUILDING			BUILDING00011	x	0		20.00	a	6358822.51	2111332.96	20.00	0.00
									6358870.50	2111331.45	20.00	0.00
									6358869.37	2111301.98	20.00	0.00
									6358845.94	2111301.60	20.00	0.00
									6358845.94	2111285.35	20.00	0.00
									6358815.71	2111285.35	20.00	0.00
									6358815.71	2111305.38	20.00	0.00
									6358821.75	2111305.76	20.00	0.00
BUILDING			BUILDING00012	x	0		20.00	a	6358815.71	2111270.23	20.00	0.00
									6358868.23	2111269.10	20.00	0.00
									6358868.23	2111227.91	20.00	0.00
									6358825.53	2111228.67	20.00	0.00
									6358823.64	2111254.74	20.00	0.00
									6358816.84	2111253.61	20.00	0.00
BUILDING			BUILDING00013	x	0		20.00	a	6358814.57	2111207.50	20.00	0.00
									6358848.21	2111209.01	20.00	0.00
									6358848.58	2111197.30	20.00	0.00
									6358869.37	2111196.17	20.00	0.00
									6358870.50	2111168.20	20.00	0.00
									6358825.91	2111168.20	20.00	0.00
BUILDING			BUILDING00014	x	0		20.00	a	6358830.44	2111151.20	20.00	0.00
									6358873.90	2111152.33	20.00	0.00
									6358875.41	2111123.23	20.00	0.00
									6358842.54	2111123.99	20.00	0.00
									6358842.91	2111105.47	20.00	0.00
									6358819.49	2111104.34	20.00	0.00
									6358819.49	2111127.01	20.00	0.00
BUILDING			BUILDING00015	x	0		45.00	a	6359543.15	2111220.35	45.00	0.00
									6360044.24	2111219.97	45.00	0.00
									6360044.62	2111079.02	45.00	0.00
									6359544.29	2111080.15	45.00	0.00
BUILDING			BUILDING00016	x	0		45.00	a	6359538.44	2110932.34	45.00	0.00
									6360036.70	2110928.87	45.00	0.00
									6360033.23	2110720.54	45.00	0.00
									6359540.18	2110725.75	45.00	0.00

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APPENDIX 9.2:

MITIGATED OPERATIONAL NOISE CALCULATIONS

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15639 - Spreckels Distribution Center

CadnaA Noise Prediction Model: 9.2_15639-03_Mitigated.cna
Date: 30.10.24
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	32.5	31.6	38.2	55.0	45.0	0.0				5.00	a	6359135.14	2112289.08	5.00
RECEIVERS		R2	49.5	49.5	56.1	60.0	55.0	0.0				5.00	a	6359416.32	2111841.45	5.00
RECEIVERS		R3	44.3	43.4	50.1	55.0	45.0	0.0				5.00	a	6358886.01	2111769.10	5.00
RECEIVERS		R4	44.3	43.9	50.6	55.0	45.0	0.0				5.00	a	6358887.63	2111368.75	5.00
RECEIVERS		R5	40.7	39.6	46.2	55.0	45.0	0.0				5.00	a	6358885.93	2111913.05	5.00
RECEIVERS		R6	45.1	44.9	51.6	55.0	45.0	0.0				5.00	a	6358895.58	2111147.66	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	6360017.48	2111483.38	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6360053.33	2111520.25	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6360097.37	2111487.47	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6360067.67	2111716.89	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6360101.46	2111750.69	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6359081.37	2111725.09	50.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6359044.50	2111750.69	50.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6359087.51	2111523.32	50.00
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6359045.52	2111492.60	50.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6359962.93	2111459.05	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	68.0	68.0	68.0	Lw	93.2									8	a
LINESOURCE		TRUCK02	93.2	93.2	93.2	66.0	66.0	66.0	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			6359173.55	2111438.31	8.00	0.00
						6360022.60	2111435.24	8.00	0.00
						6360162.92	2111434.22	8.00	0.00
						6360268.05	2111448.54	8.00	0.00
LINESOURCE	TRUCK02	8.00	a			6359173.55	2111438.31	8.00	0.00
						6359024.01	2111437.29	8.00	0.00
						6359016.60	2111439.63	8.00	0.00
						6359009.67	2111443.13	8.00	0.00
						6359003.39	2111447.72	8.00	0.00
						6358997.94	2111453.26	8.00	0.00
						6358993.46	2111459.61	8.00	0.00
						6358990.07	2111466.60	8.00	0.00
						6358987.85	2111474.05	8.00	0.00
						6358986.87	2111481.76	8.00	0.00
						6358987.14	2111489.52	8.00	0.00
						6358984.07	2111754.79	8.00	0.00
						6358989.44	2111765.18	8.00	0.00
						6358996.35	2111774.62	8.00	0.00
						6359004.63	2111782.89	8.00	0.00
						6359014.09	2111789.78	8.00	0.00
						6359024.49	2111795.13	8.00	0.00
						6359035.60	2111798.82	8.00	0.00
						6359047.14	2111800.75	8.00	0.00
						6359058.84	2111800.88	8.00	0.00
						6360165.99	2111799.85	8.00	0.00
						6360185.45	2111808.05	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		DRY01	103.4	103.4	103.4	66.8	66.8	66.8	Lw	103.4					8	a
AREASOURCE		COLD01	111.5	111.5	111.5	75.5	75.5	75.5	Lw	111.5					8	a
AREASOURCE		CAR01	81.1	81.1	81.1	59.6	59.6	59.6	Lw	81.1					5	a
AREASOURCE		CAR02	81.1	81.1	81.1	59.7	59.7	59.7	Lw	81.1					5	a
AREASOURCE		CAR03	81.1	81.1	81.1	60.9	60.9	60.9	Lw	81.1					5	a
AREASOURCE		CAR04	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a
AREASOURCE		CAR05	81.1	81.1	81.1	61.6	61.6	61.6	Lw	81.1					5	a
AREASOURCE		CAR06	81.1	81.1	81.1	58.6	58.6	58.6	Lw	81.1					5	a
AREASOURCE		CAR07	81.1	81.1	81.1	61.0	61.0	61.0	Lw	81.1					5	a
AREASOURCE		CAR08	81.1	81.1	81.1	61.3	61.3	61.3	Lw	81.1					5	a
AREASOURCE		CAR09	81.1	81.1	81.1	61.8	61.8	61.8	Lw	81.1					5	a
AREASOURCE		CAR10	81.1	81.1	81.1	60.6	60.6	60.6	Lw	81.1					5	a
AREASOURCE		CAR11	81.1	81.1	81.1	60.9	60.9	60.9	Lw	81.1					5	a
AREASOURCE		CAR12	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a
AREASOURCE		CAR13	81.1	81.1	81.1	60.9	60.9	60.9	Lw	81.1					5	a
AREASOURCE		CAR14	81.1	81.1	81.1	60.7	60.7	60.7	Lw	81.1					5	a
AREASOURCE		CAR15	81.1	81.1	81.1	64.8	64.8	64.8	Lw	81.1					5	a
AREASOURCE		CAR16	81.1	81.1	81.1	63.7	63.7	63.7	Lw	81.1					5	a
AREASOURCE		CAR17	81.1	81.1	81.1	61.2	61.2	61.2	Lw	81.1					5	a
AREASOURCE		CAR18	81.1	81.1	81.1	60.6	60.6	60.6	Lw	81.1					5	a
AREASOURCE		CAR19	81.1	81.1	81.1	60.7	60.7	60.7	Lw	81.1					5	a
AREASOURCE		CAR20	81.1	81.1	81.1	61.0	61.0	61.0	Lw	81.1					5	a
AREASOURCE		CAR21	81.1	81.1	81.1	60.7	60.7	60.7	Lw	81.1					5	a
AREASOURCE		CAR22	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a
AREASOURCE		CAR23	81.1	81.1	81.1	60.6	60.6	60.6	Lw	81.1					5	a
AREASOURCE		CAR24	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	DRY01	8.00	a			6359171.50	2111403.49	8.00	0.00
						6360014.41	2111404.51	8.00	0.00
						6360014.11	2111343.72	8.00	0.00
						6359170.36	2111347.20	8.00	0.00
AREASOURCE	COLD01	8.00	a			6359206.32	2111533.56	8.00	0.00
						6359931.45	2111530.49	8.00	0.00
						6359933.50	2111472.11	8.00	0.00
						6359205.30	2111473.14	8.00	0.00
AREASOURCE	CAR01	5.00	a			6360032.51	2111408.88	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6360130.82	2111407.87	5.00	0.00
						6360131.02	2111393.40	5.00	0.00
						6360032.11	2111392.39	5.00	0.00
AREASOURCE	CAR02	5.00	a			6360033.12	2111365.45	5.00	0.00
						6360131.22	2111365.25	5.00	0.00
						6360131.02	2111349.77	5.00	0.00
						6360032.71	2111350.37	5.00	0.00
AREASOURCE	CAR03	5.00	a			6360176.26	2111408.07	5.00	0.00
						6360249.03	2111407.67	5.00	0.00
						6360248.23	2111391.99	5.00	0.00
						6360176.46	2111392.79	5.00	0.00
AREASOURCE	CAR04	5.00	a			6360176.06	2111365.25	5.00	0.00
						6360249.23	2111365.25	5.00	0.00
						6360248.43	2111349.37	5.00	0.00
						6360175.85	2111349.77	5.00	0.00
AREASOURCE	CAR05	5.00	a			6360182.89	2111470.39	5.00	0.00
						6360167.41	2111470.19	5.00	0.00
						6360168.01	2111533.92	5.00	0.00
						6360182.89	2111533.52	5.00	0.00
AREASOURCE	CAR06	5.00	a			6360122.18	2111498.34	5.00	0.00
						6360123.99	2111614.54	5.00	0.00
						6360139.47	2111614.34	5.00	0.00
						6360139.87	2111498.34	5.00	0.00
AREASOURCE	CAR07	5.00	a			6360182.69	2111541.96	5.00	0.00
						6360167.61	2111541.36	5.00	0.00
						6360167.21	2111614.74	5.00	0.00
						6360182.29	2111614.34	5.00	0.00
AREASOURCE	CAR08	5.00	a			6360168.62	2111622.18	5.00	0.00
						6360168.21	2111694.55	5.00	0.00
						6360182.69	2111694.35	5.00	0.00
						6360182.49	2111621.98	5.00	0.00
AREASOURCE	CAR09	5.00	a			6360168.42	2111701.99	5.00	0.00
						6360168.01	2111765.52	5.00	0.00
						6360182.69	2111765.52	5.00	0.00
						6360182.69	2111701.79	5.00	0.00
AREASOURCE	CAR10	5.00	a			6360122.58	2111728.53	5.00	0.00
						6360139.87	2111728.93	5.00	0.00
						6360139.87	2111658.77	5.00	0.00
						6360122.58	2111658.37	5.00	0.00
AREASOURCE	CAR11	5.00	a			6359076.96	2111411.32	5.00	0.00
						6359149.82	2111410.93	5.00	0.00
						6359149.62	2111395.57	5.00	0.00
						6359077.55	2111395.57	5.00	0.00
AREASOURCE	CAR12	5.00	a			6359076.96	2111368.79	5.00	0.00
						6359149.82	2111368.79	5.00	0.00
						6359149.62	2111352.64	5.00	0.00
						6359076.56	2111353.04	5.00	0.00
AREASOURCE	CAR13	5.00	a			6358996.81	2111412.11	5.00	0.00
						6359069.47	2111411.13	5.00	0.00
						6359069.28	2111396.16	5.00	0.00
						6358996.61	2111396.36	5.00	0.00
AREASOURCE	CAR14	5.00	a			6358996.61	2111370.17	5.00	0.00
						6359068.69	2111370.37	5.00	0.00
						6359069.08	2111353.43	5.00	0.00
						6358997.40	2111354.22	5.00	0.00
AREASOURCE	CAR15	5.00	a			6358961.95	2111370.76	5.00	0.00
						6358989.52	2111370.96	5.00	0.00
						6358988.54	2111353.82	5.00	0.00
						6358961.76	2111353.82	5.00	0.00
AREASOURCE	CAR16	5.00	a			6358944.43	2111372.73	5.00	0.00
						6358944.82	2111409.16	5.00	0.00
						6358960.97	2111408.96	5.00	0.00
						6358960.58	2111372.73	5.00	0.00
AREASOURCE	CAR17	5.00	a			6358945.37	2111420.96	5.00	0.00
						6358945.37	2111492.62	5.00	0.00
						6358960.16	2111492.44	5.00	0.00
						6358959.63	2111420.24	5.00	0.00
AREASOURCE	CAR18	5.00	a			6358945.19	2111501.00	5.00	0.00
						6358945.01	2111572.84	5.00	0.00
						6358962.30	2111572.84	5.00	0.00
						6358961.41	2111500.64	5.00	0.00
AREASOURCE	CAR19	5.00	a			6358945.19	2111581.04	5.00	0.00
						6358945.37	2111652.88	5.00	0.00
						6358961.95	2111652.52	5.00	0.00
						6358961.59	2111580.33	5.00	0.00
AREASOURCE	CAR20	5.00	a			6359017.39	2111580.33	5.00	0.00
						6359002.06	2111580.50	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6359002.77	2111652.70	5.00	0.00
						6359018.10	2111652.52	5.00	0.00
AREASOURCE	CAR21	5.00	a			6359019.88	2111501.00	5.00	0.00
						6359002.23	2111501.53	5.00	0.00
						6359001.88	2111573.02	5.00	0.00
						6359017.39	2111573.19	5.00	0.00
AREASOURCE	CAR22	5.00	a			6359002.77	2111660.72	5.00	0.00
						6359002.41	2111732.21	5.00	0.00
						6359019.88	2111731.85	5.00	0.00
						6359017.92	2111660.55	5.00	0.00
AREASOURCE	CAR23	5.00	a			6358945.01	2111660.90	5.00	0.00
						6358945.37	2111732.74	5.00	0.00
						6358962.12	2111732.92	5.00	0.00
						6358961.59	2111660.19	5.00	0.00
AREASOURCE	CAR24	5.00	a			6358945.55	2111813.50	5.00	0.00
						6358961.23	2111812.96	5.00	0.00
						6358961.95	2111740.94	5.00	0.00
						6358945.37	2111740.94	5.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6358928.77	2110282.00	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6359304.64	2112279.17	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358912.47	2111341.35	8.00	0.00
												6360037.87	2111338.57	8.00	0.00
BARRIERPLANNED			0						14.00	a		6358915.17	2111472.58	14.00	0.00
												6358918.00	2111341.25	14.00	0.00
												6359544.51	2111339.75	14.00	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	6359029.14	2111768.10	45.00	0.00
									6359096.73	2111780.39	45.00	0.00
									6360060.50	2111775.27	45.00	0.00
									6360116.83	2111761.96	45.00	0.00
									6360115.80	2111469.04	45.00	0.00
									6359933.50	2111472.11	45.00	0.00
									6359931.45	2111530.49	45.00	0.00
									6359206.32	2111533.56	45.00	0.00
									6359205.30	2111473.14	45.00	0.00
									6359022.99	2111474.16	45.00	0.00
BUILDING			BUILDING00002	x	0		30.00	a	6359230.66	2112236.13	30.00	0.00
									6359332.22	2112234.40	30.00	0.00
									6359330.49	2112174.50	30.00	0.00
									6359228.06	2112174.50	30.00	0.00
BUILDING			BUILDING00003	x	0		30.00	a	6359222.85	2112091.17	30.00	0.00
									6359286.22	2112092.04	30.00	0.00
									6359285.35	2111991.34	30.00	0.00
									6359226.32	2111989.60	30.00	0.00
BUILDING			BUILDING00004	x	0		30.00	a	6359504.97	2112209.22	30.00	0.00
									6359578.75	2112207.49	30.00	0.00
									6359577.01	2112044.29	30.00	0.00
									6359505.83	2112043.42	30.00	0.00
									6359506.70	2112069.47	30.00	0.00
									6359485.87	2112067.73	30.00	0.00
									6359487.60	2112184.92	30.00	0.00
									6359505.83	2112184.05	30.00	0.00
BUILDING			BUILDING00005	x	0		30.00	a	6359180.75	2111910.18	30.00	0.00
									6359325.06	2111911.26	30.00	0.00
									6359325.06	2111840.73	30.00	0.00
									6359199.19	2111839.65	30.00	0.00
									6359163.39	2111839.65	30.00	0.00
									6359165.56	2111879.80	30.00	0.00
BUILDING			BUILDING00006	x	0		30.00	a	6359420.55	2111912.35	30.00	0.00
									6359584.39	2111913.43	30.00	0.00
									6359583.31	2111842.90	30.00	0.00
									6359419.46	2111841.82	30.00	0.00
BUILDING			BUILDING00007	x	0		20.00	a	6359125.80	2112359.94	20.00	0.00
									6359150.75	2112360.08	20.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6359150.89	2112350.71	20.00	0.00
									6359175.26	2112350.13	20.00	0.00
									6359175.84	2112298.07	20.00	0.00
									6359125.94	2112298.36	20.00	0.00
BUILDING			BUILDING00008	x	0		20.00	a	6358804.52	2111922.90	20.00	0.00
									6358869.63	2111924.22	20.00	0.00
									6358870.22	2111900.32	20.00	0.00
									6358858.93	2111900.17	20.00	0.00
									6358859.07	2111875.68	20.00	0.00
									6358819.18	2111874.95	20.00	0.00
									6358818.45	2111899.44	20.00	0.00
									6358805.40	2111900.17	20.00	0.00
BUILDING			BUILDING00009	x	0		20.00	a	6358805.84	2111803.08	20.00	0.00
									6358833.41	2111802.93	20.00	0.00
									6358833.11	2111784.60	20.00	0.00
									6358864.94	2111784.45	20.00	0.00
									6358864.65	2111753.51	20.00	0.00
									6358821.53	2111754.68	20.00	0.00
									6358821.09	2111780.93	20.00	0.00
									6358806.28	2111780.49	20.00	0.00
BUILDING			BUILDING00010	x	0		20.00	a	6358815.42	2111379.19	20.00	0.00
									6358874.79	2111379.19	20.00	0.00
									6358875.84	2111350.37	20.00	0.00
									6358814.38	2111350.02	20.00	0.00
BUILDING			BUILDING00011	x	0		20.00	a	6358822.51	2111332.96	20.00	0.00
									6358870.50	2111331.45	20.00	0.00
									6358869.37	2111301.98	20.00	0.00
									6358845.94	2111301.60	20.00	0.00
									6358845.94	2111285.35	20.00	0.00
									6358815.71	2111285.35	20.00	0.00
									6358815.71	2111305.38	20.00	0.00
									6358821.75	2111305.76	20.00	0.00
BUILDING			BUILDING00012	x	0		20.00	a	6358815.71	2111270.23	20.00	0.00
									6358868.23	2111269.10	20.00	0.00
									6358868.23	2111227.91	20.00	0.00
									6358825.53	2111228.67	20.00	0.00
									6358823.64	2111254.74	20.00	0.00
									6358816.84	2111253.61	20.00	0.00
BUILDING			BUILDING00013	x	0		20.00	a	6358814.57	2111207.50	20.00	0.00
									6358848.21	2111209.01	20.00	0.00
									6358848.58	2111197.30	20.00	0.00
									6358869.37	2111196.17	20.00	0.00
									6358870.50	2111168.20	20.00	0.00
									6358825.91	2111168.20	20.00	0.00
BUILDING			BUILDING00014	x	0		20.00	a	6358830.44	2111151.20	20.00	0.00
									6358873.90	2111152.33	20.00	0.00
									6358875.41	2111123.23	20.00	0.00
									6358842.54	2111123.99	20.00	0.00
									6358842.91	2111105.47	20.00	0.00
									6358819.49	2111104.34	20.00	0.00
									6358819.49	2111127.01	20.00	0.00
BUILDING			BUILDING00015	x	0		45.00	a	6359543.15	2111220.35	45.00	0.00
									6360044.24	2111219.97	45.00	0.00
									6360044.62	2111079.02	45.00	0.00
									6359544.29	2111080.15	45.00	0.00
BUILDING			BUILDING00016	x	0		45.00	a	6359538.44	2110932.34	45.00	0.00
									6360036.70	2110928.87	45.00	0.00
									6360033.23	2110720.54	45.00	0.00
									6359540.18	2110725.75	45.00	0.00

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APPENDIX 10.1:

UNMITIGATED TYPICAL CONSTRUCTION NOISE CALCULATIONS

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15639 - Spreckels Distribution Center

CadnaA Noise Prediction Model: 10.1_15639-03 Construction.cna
Date: 30.10.24
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	48.7	43.7	51.2	55.0	45.0	0.0				5.00	a	6359135.14	2112289.08	5.00
RECEIVERS		R2	71.6	66.6	74.2	60.0	55.0	0.0				5.00	a	6359416.32	2111841.45	5.00
RECEIVERS		R3	63.8	58.8	66.4	55.0	45.0	0.0				5.00	a	6358886.01	2111769.10	5.00
RECEIVERS		R4	62.9	57.9	65.4	55.0	45.0	0.0				5.00	a	6358887.63	2111368.75	5.00
RECEIVERS		R5	58.8	53.8	61.4	55.0	45.0	0.0				5.00	a	6358885.93	2111913.05	5.00
RECEIVERS		R6	57.2	52.2	59.8	55.0	45.0	0.0				5.00	a	6358895.58	2111147.66	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	120.6	115.6	115.6	72.8	67.8	67.8	Lw	115.6					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	Construction	8.00	a			6358907.50	2111828.75	8.00	0.00
						6360176.50	2111824.25	8.00	0.00
						6360195.68	2111772.27	8.00	0.00
						6360212.86	2111719.60	8.00	0.00
						6360228.02	2111666.31	8.00	0.00
						6360241.13	2111612.48	8.00	0.00
						6360252.19	2111558.19	8.00	0.00
						6360261.16	2111503.51	8.00	0.00
						6360268.05	2111448.54	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6360272.83	2111393.34	8.00	0.00
						6360275.50	2111340.31	8.00	0.00
						6358917.01	2111344.22	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
				left	right		horz.	vert.	Begin		End		x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						8.00	a			6358898.04	2112279.17	8.00	0.00
													6358928.77	2110282.00	8.00	0.00
BARRIEREXISTING			0						8.00	a			6358898.04	2112279.17	8.00	0.00
													6359304.64	2112279.17	8.00	0.00
BARRIEREXISTING			0						8.00	a			6358912.47	2111341.35	8.00	0.00
													6360037.87	2111338.57	8.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00002	x	0		30.00	a	6359230.66	2112236.13	30.00	0.00
									6359332.22	2112234.40	30.00	0.00
									6359330.49	2112174.50	30.00	0.00
									6359228.06	2112174.50	30.00	0.00
BUILDING			BUILDING00003	x	0		30.00	a	6359222.85	2112091.17	30.00	0.00
									6359286.22	2112092.04	30.00	0.00
									6359285.35	2111991.34	30.00	0.00
									6359226.32	2111989.60	30.00	0.00
BUILDING			BUILDING00004	x	0		30.00	a	6359504.97	2112209.22	30.00	0.00
									6359578.75	2112207.49	30.00	0.00
									6359577.01	2112044.29	30.00	0.00
									6359505.83	2112043.42	30.00	0.00
									6359506.70	2112069.47	30.00	0.00
									6359485.87	2112067.73	30.00	0.00
									6359487.60	2112184.92	30.00	0.00
									6359505.83	2112184.05	30.00	0.00
BUILDING			BUILDING00005	x	0		30.00	a	6359180.75	2111910.18	30.00	0.00
									6359325.06	2111911.26	30.00	0.00
									6359325.06	2111840.73	30.00	0.00
									6359199.19	2111839.65	30.00	0.00
									6359163.39	2111839.65	30.00	0.00
									6359165.56	2111879.80	30.00	0.00
BUILDING			BUILDING00006	x	0		30.00	a	6359420.55	2111912.35	30.00	0.00
									6359584.39	2111913.43	30.00	0.00
									6359583.31	2111842.90	30.00	0.00
									6359419.46	2111841.82	30.00	0.00
BUILDING			BUILDING00007	x	0		20.00	a	6359125.80	2112359.94	20.00	0.00
									6359150.75	2112360.08	20.00	0.00
									6359150.89	2112350.71	20.00	0.00
									6359175.26	2112350.13	20.00	0.00
									6359175.84	2112298.07	20.00	0.00
									6359125.94	2112298.36	20.00	0.00
BUILDING			BUILDING00008	x	0		20.00	a	6358804.52	2111922.90	20.00	0.00
									6358869.63	2111924.22	20.00	0.00
									6358870.22	2111900.32	20.00	0.00
									6358858.93	2111900.17	20.00	0.00
									6358859.07	2111875.68	20.00	0.00
									6358819.18	2111874.95	20.00	0.00
									6358818.45	2111899.44	20.00	0.00
									6358805.40	2111900.17	20.00	0.00
BUILDING			BUILDING00009	x	0		20.00	a	6358805.84	2111803.08	20.00	0.00
									6358833.41	2111802.93	20.00	0.00
									6358833.11	2111784.60	20.00	0.00
									6358864.94	2111784.45	20.00	0.00
									6358864.65	2111753.51	20.00	0.00
									6358821.53	2111754.68	20.00	0.00
									6358821.09	2111780.93	20.00	0.00
									6358806.28	2111780.49	20.00	0.00
BUILDING			BUILDING00010	x	0		20.00	a	6358815.42	2111379.19	20.00	0.00
									6358874.79	2111379.19	20.00	0.00
									6358875.84	2111350.37	20.00	0.00
									6358814.38	2111350.02	20.00	0.00
BUILDING			BUILDING00011	x	0		20.00	a	6358822.51	2111332.96	20.00	0.00
									6358870.50	2111331.45	20.00	0.00
									6358869.37	2111301.98	20.00	0.00
									6358845.94	2111301.60	20.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6358845.94	2111285.35	20.00	0.00
									6358815.71	2111285.35	20.00	0.00
									6358815.71	2111305.38	20.00	0.00
									6358821.75	2111305.76	20.00	0.00
BUILDING			BUILDING00012	x	0		20.00	a	6358815.71	2111270.23	20.00	0.00
									6358868.23	2111269.10	20.00	0.00
									6358868.23	2111227.91	20.00	0.00
									6358825.53	2111228.67	20.00	0.00
									6358823.64	2111254.74	20.00	0.00
									6358816.84	2111253.61	20.00	0.00
BUILDING			BUILDING00013	x	0		20.00	a	6358814.57	2111207.50	20.00	0.00
									6358848.21	2111209.01	20.00	0.00
									6358848.58	2111197.30	20.00	0.00
									6358869.37	2111196.17	20.00	0.00
									6358870.50	2111168.20	20.00	0.00
									6358825.91	2111168.20	20.00	0.00
BUILDING			BUILDING00014	x	0		20.00	a	6358830.44	2111151.20	20.00	0.00
									6358873.90	2111152.33	20.00	0.00
									6358875.41	2111123.23	20.00	0.00
									6358842.54	2111123.99	20.00	0.00
									6358842.91	2111105.47	20.00	0.00
									6358819.49	2111104.34	20.00	0.00
									6358819.49	2111127.01	20.00	0.00
BUILDING			BUILDING00015	x	0		45.00	a	6359543.15	2111220.35	45.00	0.00
									6360044.24	2111219.97	45.00	0.00
									6360044.62	2111079.02	45.00	0.00
									6359544.29	2111080.15	45.00	0.00
BUILDING			BUILDING00016	x	0		45.00	a	6359538.44	2110932.34	45.00	0.00
									6360036.70	2110928.87	45.00	0.00
									6360033.23	2110720.54	45.00	0.00
									6359540.18	2110725.75	45.00	0.00

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APPENDIX 10.2:

UNMITIGATED LOUDEST CONSTRUCTION NOISE CALCULATIONS

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15639 - Spreckels Distribution Center

CadnaA Noise Prediction Model: 10.2_15639-03 Loudest.cna
Date: 30.10.24
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	57.1	57.1	63.8	55.0	45.0	0.0				5.00	a	6359135.14	2112289.08	5.00
RECEIVERS		R2	83.8	83.8	90.5	60.0	55.0	0.0				5.00	a	6359416.32	2111841.45	5.00
RECEIVERS		R3	77.1	77.1	83.8	55.0	45.0	0.0				5.00	a	6358886.01	2111769.10	5.00
RECEIVERS		R4	75.4	75.4	82.0	55.0	45.0	0.0				5.00	a	6358887.63	2111368.75	5.00
RECEIVERS		R5	70.3	70.3	77.0	55.0	45.0	0.0				5.00	a	6358885.93	2111913.05	5.00
RECEIVERS		R6	63.8	63.8	70.5	55.0	45.0	0.0				5.00	a	6358895.58	2111147.66	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)
LOUDEST		LOUD1	115.6	115.6	115.6	Lw	115.6					8.00	a	6359421.37	2111801.94	8.00
LOUDEST		LOUD2	115.6	115.6	115.6	Lw	115.6					8.00	a	6358940.82	2111362.44	8.00
LOUDEST		LOUD3	115.6	115.6	115.6	Lw	115.6					8.00	a	6358937.82	2111750.88	8.00
LOUDEST		LOUD4	115.6	115.6	115.6	Lw	115.6					8.00	a	6358937.82	2111809.95	8.00
LOUDEST		LOUD5	115.6	115.6	115.6	Lw	115.6					8.00	a	6359124.03	2111811.95	8.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6358928.77	2110282.00	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
				left	right		horz.	vert.	Begin		End		x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
													6359304.64	2112279.17	8.00	0.00
BARRIEREXISTING			0						8.00	a			6358912.47	2111341.35	8.00	0.00
													6360037.87	2111338.57	8.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00002	x	0		30.00	a	6359230.66	2112236.13	30.00	0.00
									6359332.22	2112234.40	30.00	0.00
									6359330.49	2112174.50	30.00	0.00
									6359228.06	2112174.50	30.00	0.00
BUILDING			BUILDING00003	x	0		30.00	a	6359222.85	2112091.17	30.00	0.00
									6359286.22	2112092.04	30.00	0.00
									6359285.35	2111991.34	30.00	0.00
									6359226.32	2111989.60	30.00	0.00
BUILDING			BUILDING00004	x	0		30.00	a	6359504.97	2112209.22	30.00	0.00
									6359578.75	2112207.49	30.00	0.00
									6359577.01	2112044.29	30.00	0.00
									6359505.83	2112043.42	30.00	0.00
									6359506.70	2112069.47	30.00	0.00
									6359485.87	2112067.73	30.00	0.00
									6359487.60	2112184.92	30.00	0.00
									6359505.83	2112184.05	30.00	0.00
BUILDING			BUILDING00005	x	0		30.00	a	6359180.75	2111910.18	30.00	0.00
									6359325.06	2111911.26	30.00	0.00
									6359325.06	2111840.73	30.00	0.00
									6359199.19	2111839.65	30.00	0.00
									6359163.39	2111839.65	30.00	0.00
									6359165.56	2111879.80	30.00	0.00
BUILDING			BUILDING00006	x	0		30.00	a	6359420.55	2111912.35	30.00	0.00
									6359584.39	2111913.43	30.00	0.00
									6359583.31	2111842.90	30.00	0.00
									6359419.46	2111841.82	30.00	0.00
BUILDING			BUILDING00007	x	0		20.00	a	6359125.80	2112359.94	20.00	0.00
									6359150.75	2112360.08	20.00	0.00
									6359150.89	2112350.71	20.00	0.00
									6359175.26	2112350.13	20.00	0.00
									6359175.84	2112298.07	20.00	0.00
									6359125.94	2112298.36	20.00	0.00
BUILDING			BUILDING00008	x	0		20.00	a	6358804.52	2111922.90	20.00	0.00
									6358869.63	2111924.22	20.00	0.00
									6358870.22	2111900.32	20.00	0.00
									6358858.93	2111900.17	20.00	0.00
									6358859.07	2111875.68	20.00	0.00
									6358819.18	2111874.95	20.00	0.00
									6358818.45	2111899.44	20.00	0.00
									6358805.40	2111900.17	20.00	0.00
BUILDING			BUILDING00009	x	0		20.00	a	6358805.84	2111803.08	20.00	0.00
									6358833.41	2111802.93	20.00	0.00
									6358833.11	2111784.60	20.00	0.00
									6358864.94	2111784.45	20.00	0.00
									6358864.65	2111753.51	20.00	0.00
									6358821.53	2111754.68	20.00	0.00
									6358821.09	2111780.93	20.00	0.00
									6358806.28	2111780.49	20.00	0.00
BUILDING			BUILDING00010	x	0		20.00	a	6358815.42	2111379.19	20.00	0.00
									6358874.79	2111379.19	20.00	0.00
									6358875.84	2111350.37	20.00	0.00
									6358814.38	2111350.02	20.00	0.00
BUILDING			BUILDING00011	x	0		20.00	a	6358822.51	2111332.96	20.00	0.00
									6358870.50	2111331.45	20.00	0.00
									6358869.37	2111301.98	20.00	0.00
									6358845.94	2111301.60	20.00	0.00
									6358845.94	2111285.35	20.00	0.00
									6358815.71	2111285.35	20.00	0.00
									6358815.71	2111305.38	20.00	0.00
									6358821.75	2111305.76	20.00	0.00
BUILDING			BUILDING00012	x	0		20.00	a	6358815.71	2111270.23	20.00	0.00
									6358868.23	2111269.10	20.00	0.00
									6358868.23	2111227.91	20.00	0.00
									6358825.53	2111228.67	20.00	0.00
									6358823.64	2111254.74	20.00	0.00
									6358816.84	2111253.61	20.00	0.00
BUILDING			BUILDING00013	x	0		20.00	a	6358814.57	2111207.50	20.00	0.00
									6358848.21	2111209.01	20.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6358848.58	2111197.30	20.00	0.00
									6358869.37	2111196.17	20.00	0.00
									6358870.50	2111168.20	20.00	0.00
									6358825.91	2111168.20	20.00	0.00
BUILDING			BUILDING00014	x	0		20.00	a	6358830.44	2111151.20	20.00	0.00
									6358873.90	2111152.33	20.00	0.00
									6358875.41	2111123.23	20.00	0.00
									6358842.54	2111123.99	20.00	0.00
									6358842.91	2111105.47	20.00	0.00
									6358819.49	2111104.34	20.00	0.00
									6358819.49	2111127.01	20.00	0.00
BUILDING			BUILDING00015	x	0		45.00	a	6359543.15	2111220.35	45.00	0.00
									6360044.24	2111219.97	45.00	0.00
									6360044.62	2111079.02	45.00	0.00
									6359544.29	2111080.15	45.00	0.00
BUILDING			BUILDING00016	x	0		45.00	a	6359538.44	2110932.34	45.00	0.00
									6360036.70	2110928.87	45.00	0.00
									6360033.23	2110720.54	45.00	0.00
									6359540.18	2110725.75	45.00	0.00

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APPENDIX 10.3:

MITIGATED TYPICAL CONSTRUCTION NOISE CALCULATIONS

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15639 - Spreckels Distribution Center

CadnaA Noise Prediction Model: 10.3_15639-03 Construction_Mitigated.cna
Date: 30.10.24
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	45.8	40.8	48.4	55.0	45.0	0.0				5.00	a	6359135.14	2112289.08	5.00
RECEIVERS		R2	60.7	55.7	63.3	60.0	55.0	0.0				5.00	a	6359416.32	2111841.45	5.00
RECEIVERS		R3	59.1	54.1	61.6	55.0	45.0	0.0				5.00	a	6358886.01	2111769.10	5.00
RECEIVERS		R4	58.7	53.7	61.3	55.0	45.0	0.0				5.00	a	6358887.63	2111368.75	5.00
RECEIVERS		R5	55.9	50.9	58.4	55.0	45.0	0.0				5.00	a	6358885.93	2111913.05	5.00
RECEIVERS		R6	56.6	51.6	59.1	55.0	45.0	0.0				5.00	a	6358895.58	2111147.66	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	120.6	115.6	115.6	72.9	67.9	67.9	Lw	115.6					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	Construction	8.00	a			6358906.66	2111824.54	8.00	0.00
						6360175.66	2111820.04	8.00	0.00
						6360194.84	2111768.06	8.00	0.00
						6360212.02	2111715.39	8.00	0.00
						6360227.18	2111662.10	8.00	0.00
						6360240.29	2111608.27	8.00	0.00
						6360251.35	2111553.98	8.00	0.00
						6360260.32	2111499.31	8.00	0.00
						6360267.20	2111444.33	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6360271.99	2111389.13	8.00	0.00
						6360274.03	2111339.47	8.00	0.00
						6358914.70	2111344.85	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6358928.77	2110282.00	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6359304.64	2112279.17	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358912.47	2111341.35	8.00	0.00
												6360037.87	2111338.57	8.00	0.00
BARRIERTEMP			0						12.00	a		6359600.00	2111826.25	12.00	0.00
												6358905.00	2111826.46	12.00	0.00
												6358912.32	2111341.46	12.00	0.00
												6359019.75	2111341.01	12.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00002	x	0		30.00	a	6359230.66	2112236.13	30.00	0.00
									6359332.22	2112234.40	30.00	0.00
									6359330.49	2112174.50	30.00	0.00
									6359228.06	2112174.50	30.00	0.00
BUILDING			BUILDING00003	x	0		30.00	a	6359222.85	2112091.17	30.00	0.00
									6359286.22	2112092.04	30.00	0.00
									6359285.35	2111991.34	30.00	0.00
									6359226.32	2111989.60	30.00	0.00
BUILDING			BUILDING00004	x	0		30.00	a	6359504.97	2112209.22	30.00	0.00
									6359578.75	2112207.49	30.00	0.00
									6359577.01	2112044.29	30.00	0.00
									6359505.83	2112043.42	30.00	0.00
									6359506.70	2112069.47	30.00	0.00
									6359485.87	2112067.73	30.00	0.00
									6359487.60	2112184.92	30.00	0.00
									6359505.83	2112184.05	30.00	0.00
BUILDING			BUILDING00005	x	0		30.00	a	6359180.75	2111910.18	30.00	0.00
									6359325.06	2111911.26	30.00	0.00
									6359325.06	2111840.73	30.00	0.00
									6359199.19	2111839.65	30.00	0.00
									6359163.39	2111839.65	30.00	0.00
									6359165.56	2111879.80	30.00	0.00
BUILDING			BUILDING00006	x	0		30.00	a	6359420.55	2111912.35	30.00	0.00
									6359584.39	2111913.43	30.00	0.00
									6359583.31	2111842.90	30.00	0.00
									6359419.46	2111841.82	30.00	0.00
BUILDING			BUILDING00007	x	0		20.00	a	6359125.80	2112359.94	20.00	0.00
									6359150.75	2112360.08	20.00	0.00
									6359150.89	2112350.71	20.00	0.00
									6359175.26	2112350.13	20.00	0.00
									6359175.84	2112298.07	20.00	0.00
									6359125.94	2112298.36	20.00	0.00
BUILDING			BUILDING00008	x	0		20.00	a	6358804.52	2111922.90	20.00	0.00
									6358869.63	2111924.22	20.00	0.00
									6358870.22	2111900.32	20.00	0.00
									6358858.93	2111900.17	20.00	0.00
									6358859.07	2111875.68	20.00	0.00
									6358819.18	2111874.95	20.00	0.00
									6358818.45	2111899.44	20.00	0.00
									6358805.40	2111900.17	20.00	0.00
BUILDING			BUILDING00009	x	0		20.00	a	6358805.84	2111803.08	20.00	0.00
									6358833.41	2111802.93	20.00	0.00
									6358833.11	2111784.60	20.00	0.00
									6358864.94	2111784.45	20.00	0.00
									6358864.65	2111753.51	20.00	0.00
									6358821.53	2111754.68	20.00	0.00
									6358821.09	2111780.93	20.00	0.00
									6358806.28	2111780.49	20.00	0.00
BUILDING			BUILDING00010	x	0		20.00	a	6358815.42	2111379.19	20.00	0.00
									6358874.79	2111379.19	20.00	0.00
									6358875.84	2111350.37	20.00	0.00
									6358814.38	2111350.02	20.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00011	x	0		20.00	a	6358822.51	2111332.96	20.00	0.00
									6358870.50	2111331.45	20.00	0.00
									6358869.37	2111301.98	20.00	0.00
									6358845.94	2111301.60	20.00	0.00
									6358845.94	2111285.35	20.00	0.00
									6358815.71	2111285.35	20.00	0.00
									6358815.71	2111305.38	20.00	0.00
									6358821.75	2111305.76	20.00	0.00
BUILDING			BUILDING00012	x	0		20.00	a	6358815.71	2111270.23	20.00	0.00
									6358868.23	2111269.10	20.00	0.00
									6358868.23	2111227.91	20.00	0.00
									6358825.53	2111228.67	20.00	0.00
									6358823.64	2111254.74	20.00	0.00
									6358816.84	2111253.61	20.00	0.00
BUILDING			BUILDING00013	x	0		20.00	a	6358814.57	2111207.50	20.00	0.00
									6358848.21	2111209.01	20.00	0.00
									6358848.58	2111197.30	20.00	0.00
									6358869.37	2111196.17	20.00	0.00
									6358870.50	2111168.20	20.00	0.00
									6358825.91	2111168.20	20.00	0.00
BUILDING			BUILDING00014	x	0		20.00	a	6358830.44	2111151.20	20.00	0.00
									6358873.90	2111152.33	20.00	0.00
									6358875.41	2111123.23	20.00	0.00
									6358842.54	2111123.99	20.00	0.00
									6358842.91	2111105.47	20.00	0.00
									6358819.49	2111104.34	20.00	0.00
									6358819.49	2111127.01	20.00	0.00
BUILDING			BUILDING00015	x	0		45.00	a	6359543.15	2111220.35	45.00	0.00
									6360044.24	2111219.97	45.00	0.00
									6360044.62	2111079.02	45.00	0.00
									6359544.29	2111080.15	45.00	0.00
BUILDING			BUILDING00016	x	0		45.00	a	6359538.44	2110932.34	45.00	0.00
									6360036.70	2110928.87	45.00	0.00
									6360033.23	2110720.54	45.00	0.00
									6359540.18	2110725.75	45.00	0.00

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APPENDIX 10.4:

MITIGATED LOUDEST CONSTRUCTION NOISE CALCULATIONS

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15639 - Spreckels Distribution Center

CadnaA Noise Prediction Model: 10.4_15639-03 Loudest_Mitigated.cna
Date: 30.10.24
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	51.8	51.8	58.5	55.0	45.0	0.0				5.00	a	6359135.14	2112289.08	5.00	
RECEIVERS		R2	71.5	71.5	78.2	60.0	55.0	0.0				5.00	a	6359416.32	2111841.45	5.00	
RECEIVERS		R3	72.0	72.0	78.7	55.0	45.0	0.0				5.00	a	6358886.01	2111769.10	5.00	
RECEIVERS		R4	70.5	70.5	77.2	55.0	45.0	0.0				5.00	a	6358887.63	2111368.75	5.00	
RECEIVERS		R5	65.5	65.5	72.1	55.0	45.0	0.0				5.00	a	6358885.93	2111913.05	5.00	
RECEIVERS		R6	61.6	61.6	68.3	55.0	45.0	0.0				5.00	a	6358895.58	2111147.66	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)	
LOUDEST		LOUD1	115.6	115.6	115.6	Lw	115.6					8.00	a	6359421.37	2111801.94	8.00	
LOUDEST		LOUD2	115.6	115.6	115.6	Lw	115.6					8.00	a	6358940.82	2111362.44	8.00	
LOUDEST		LOUD3	115.6	115.6	115.6	Lw	115.6					8.00	a	6358937.82	2111750.88	8.00	
LOUDEST		LOUD4	115.6	115.6	115.6	Lw	115.6					8.00	a	6358937.82	2111809.95	8.00	
LOUDEST		LOUD5	115.6	115.6	115.6	Lw	115.6					8.00	a	6359124.03	2111811.95	8.00	

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
				left	right		horz.	vert.	Begin		End		x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						8.00	a			6358898.04	2112279.17	8.00	0.00
													6358928.77	2110282.00	8.00	0.00
BARRIEREXISTING			0						8.00	a			6358898.04	2112279.17	8.00	0.00

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
												6359304.64	2112279.17	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358912.47	2111341.35	8.00	0.00
												6360037.87	2111338.57	8.00	0.00
BARRIERTEMP			0						12.00	a		6359600.00	2111826.25	12.00	0.00
												6358905.00	2111826.46	12.00	0.00
												6358918.00	2111341.25	12.00	0.00
												6359019.75	2111341.01	12.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00002	x	0		30.00	a	6359230.66	2112236.13	30.00	0.00
									6359332.22	2112234.40	30.00	0.00
									6359330.49	2112174.50	30.00	0.00
									6359228.06	2112174.50	30.00	0.00
BUILDING			BUILDING00003	x	0		30.00	a	6359222.85	2112091.17	30.00	0.00
									6359286.22	2112092.04	30.00	0.00
									6359285.35	2111991.34	30.00	0.00
									6359226.32	2111989.60	30.00	0.00
BUILDING			BUILDING00004	x	0		30.00	a	6359504.97	2112209.22	30.00	0.00
									6359578.75	2112207.49	30.00	0.00
									6359577.01	2112044.29	30.00	0.00
									6359505.83	2112043.42	30.00	0.00
									6359506.70	2112069.47	30.00	0.00
									6359485.87	2112067.73	30.00	0.00
									6359487.60	2112184.92	30.00	0.00
									6359505.83	2112184.05	30.00	0.00
BUILDING			BUILDING00005	x	0		30.00	a	6359180.75	2111910.18	30.00	0.00
									6359325.06	2111911.26	30.00	0.00
									6359325.06	2111840.73	30.00	0.00
									6359199.19	2111839.65	30.00	0.00
									6359163.39	2111839.65	30.00	0.00
									6359165.56	2111879.80	30.00	0.00
BUILDING			BUILDING00006	x	0		30.00	a	6359420.55	2111912.35	30.00	0.00
									6359584.39	2111913.43	30.00	0.00
									6359583.31	2111842.90	30.00	0.00
									6359419.46	2111841.82	30.00	0.00
BUILDING			BUILDING00007	x	0		20.00	a	6359125.80	2112359.94	20.00	0.00
									6359150.75	2112360.08	20.00	0.00
									6359150.89	2112350.71	20.00	0.00
									6359175.26	2112350.13	20.00	0.00
									6359175.84	2112298.07	20.00	0.00
									6359125.94	2112298.36	20.00	0.00
BUILDING			BUILDING00008	x	0		20.00	a	6358804.52	2111922.90	20.00	0.00
									6358869.63	2111924.22	20.00	0.00
									6358870.22	2111900.32	20.00	0.00
									6358858.93	2111900.17	20.00	0.00
									6358859.07	2111875.68	20.00	0.00
									6358819.18	2111874.95	20.00	0.00
									6358818.45	2111899.44	20.00	0.00
									6358805.40	2111900.17	20.00	0.00
BUILDING			BUILDING00009	x	0		20.00	a	6358805.84	2111803.08	20.00	0.00
									6358833.41	2111802.93	20.00	0.00
									6358833.11	2111784.60	20.00	0.00
									6358864.94	2111784.45	20.00	0.00
									6358864.65	2111753.51	20.00	0.00
									6358821.53	2111754.68	20.00	0.00
									6358821.09	2111780.93	20.00	0.00
									6358806.28	2111780.49	20.00	0.00
BUILDING			BUILDING00010	x	0		20.00	a	6358815.42	2111379.19	20.00	0.00
									6358874.79	2111379.19	20.00	0.00
									6358875.84	2111350.37	20.00	0.00
									6358814.38	2111350.02	20.00	0.00
BUILDING			BUILDING00011	x	0		20.00	a	6358822.51	2111332.96	20.00	0.00
									6358870.50	2111331.45	20.00	0.00
									6358869.37	2111301.98	20.00	0.00
									6358845.94	2111301.60	20.00	0.00
									6358845.94	2111285.35	20.00	0.00
									6358815.71	2111285.35	20.00	0.00
									6358815.71	2111305.38	20.00	0.00
									6358821.75	2111305.76	20.00	0.00
BUILDING			BUILDING00012	x	0		20.00	a	6358815.71	2111270.23	20.00	0.00
									6358868.23	2111269.10	20.00	0.00
									6358868.23	2111227.91	20.00	0.00
									6358825.53	2111228.67	20.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6358823.64	2111254.74	20.00	0.00
									6358816.84	2111253.61	20.00	0.00
BUILDING			BUILDING00013	x	0		20.00	a	6358814.57	2111207.50	20.00	0.00
									6358848.21	2111209.01	20.00	0.00
									6358848.58	2111197.30	20.00	0.00
									6358869.37	2111196.17	20.00	0.00
									6358870.50	2111168.20	20.00	0.00
									6358825.91	2111168.20	20.00	0.00
BUILDING			BUILDING00014	x	0		20.00	a	6358830.44	2111151.20	20.00	0.00
									6358873.90	2111152.33	20.00	0.00
									6358875.41	2111123.23	20.00	0.00
									6358842.54	2111123.99	20.00	0.00
									6358842.91	2111105.47	20.00	0.00
									6358819.49	2111104.34	20.00	0.00
									6358819.49	2111127.01	20.00	0.00
BUILDING			BUILDING00015	x	0		45.00	a	6359543.15	2111220.35	45.00	0.00
									6360044.24	2111219.97	45.00	0.00
									6360044.62	2111079.02	45.00	0.00
									6359544.29	2111080.15	45.00	0.00
BUILDING			BUILDING00016	x	0		45.00	a	6359538.44	2110932.34	45.00	0.00
									6360036.70	2110928.87	45.00	0.00
									6360033.23	2110720.54	45.00	0.00
									6359540.18	2110725.75	45.00	0.00

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APPENDIX 10.5:

UNMITIGATED NIGHTTIME CONCRETE POUR NOISE CALCULATIONS

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15639 - Spreckels Distribution Center

CadnaA Noise Prediction Model: 10.5_15639-03 Pour_Mitigated.cna
Date: 30.10.24
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	30.5	25.5	33.1	55.0	45.0	0.0				5.00	a	6359135.14	2112289.08	5.00
RECEIVERS		R2	45.4	40.4	48.0	60.0	55.0	0.0				5.00	a	6359416.32	2111841.45	5.00
RECEIVERS		R3	43.8	38.8	46.3	55.0	45.0	0.0				5.00	a	6358886.01	2111769.10	5.00
RECEIVERS		R4	43.4	38.4	46.0	55.0	45.0	0.0				5.00	a	6358887.63	2111368.75	5.00
RECEIVERS		R5	40.6	35.6	43.1	55.0	45.0	0.0				5.00	a	6358885.93	2111913.05	5.00
RECEIVERS		R6	41.3	36.3	43.8	55.0	45.0	0.0				5.00	a	6358895.58	2111147.66	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	105.3	100.3	100.3	57.6	52.6	52.6	Lw	100.3					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	Construction	8.00	a			6358906.66	2111824.54	8.00	0.00
						6360175.66	2111820.04	8.00	0.00
						6360194.84	2111768.06	8.00	0.00
						6360212.02	2111715.39	8.00	0.00
						6360227.18	2111662.10	8.00	0.00
						6360240.29	2111608.27	8.00	0.00
						6360251.35	2111553.98	8.00	0.00
						6360260.32	2111499.31	8.00	0.00
						6360267.20	2111444.33	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6360271.99	2111389.13	8.00	0.00
						6360274.03	2111339.47	8.00	0.00
						6358914.70	2111344.85	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6358928.77	2110282.00	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358898.04	2112279.17	8.00	0.00
												6359304.64	2112279.17	8.00	0.00
BARRIEREXISTING			0						8.00	a		6358912.47	2111341.35	8.00	0.00
												6360037.87	2111338.57	8.00	0.00
BARRIERTEMP			0						12.00	a		6359600.00	2111826.25	12.00	0.00
												6358905.00	2111826.46	12.00	0.00
												6358912.32	2111341.46	12.00	0.00
												6359019.75	2111341.01	12.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00002	x	0		30.00	a	6359230.66	2112236.13	30.00	0.00
									6359332.22	2112234.40	30.00	0.00
									6359330.49	2112174.50	30.00	0.00
									6359228.06	2112174.50	30.00	0.00
BUILDING			BUILDING00003	x	0		30.00	a	6359222.85	2112091.17	30.00	0.00
									6359286.22	2112092.04	30.00	0.00
									6359285.35	2111991.34	30.00	0.00
									6359226.32	2111989.60	30.00	0.00
BUILDING			BUILDING00004	x	0		30.00	a	6359504.97	2112209.22	30.00	0.00
									6359578.75	2112207.49	30.00	0.00
									6359577.01	2112044.29	30.00	0.00
									6359505.83	2112043.42	30.00	0.00
									6359506.70	2112069.47	30.00	0.00
									6359485.87	2112067.73	30.00	0.00
									6359487.60	2112184.92	30.00	0.00
									6359505.83	2112184.05	30.00	0.00
BUILDING			BUILDING00005	x	0		30.00	a	6359180.75	2111910.18	30.00	0.00
									6359325.06	2111911.26	30.00	0.00
									6359325.06	2111840.73	30.00	0.00
									6359199.19	2111839.65	30.00	0.00
									6359163.39	2111839.65	30.00	0.00
									6359165.56	2111879.80	30.00	0.00
BUILDING			BUILDING00006	x	0		30.00	a	6359420.55	2111912.35	30.00	0.00
									6359584.39	2111913.43	30.00	0.00
									6359583.31	2111842.90	30.00	0.00
									6359419.46	2111841.82	30.00	0.00
BUILDING			BUILDING00007	x	0		20.00	a	6359125.80	2112359.94	20.00	0.00
									6359150.75	2112360.08	20.00	0.00
									6359150.89	2112350.71	20.00	0.00
									6359175.26	2112350.13	20.00	0.00
									6359175.84	2112298.07	20.00	0.00
									6359125.94	2112298.36	20.00	0.00
BUILDING			BUILDING00008	x	0		20.00	a	6358804.52	2111922.90	20.00	0.00
									6358869.63	2111924.22	20.00	0.00
									6358870.22	2111900.32	20.00	0.00
									6358858.93	2111900.17	20.00	0.00
									6358859.07	2111875.68	20.00	0.00
									6358819.18	2111874.95	20.00	0.00
									6358818.45	2111899.44	20.00	0.00
									6358805.40	2111900.17	20.00	0.00
BUILDING			BUILDING00009	x	0		20.00	a	6358805.84	2111803.08	20.00	0.00
									6358833.41	2111802.93	20.00	0.00
									6358833.11	2111784.60	20.00	0.00
									6358864.94	2111784.45	20.00	0.00
									6358864.65	2111753.51	20.00	0.00
									6358821.53	2111754.68	20.00	0.00
									6358821.09	2111780.93	20.00	0.00
									6358806.28	2111780.49	20.00	0.00
BUILDING			BUILDING00010	x	0		20.00	a	6358815.42	2111379.19	20.00	0.00
									6358874.79	2111379.19	20.00	0.00
									6358875.84	2111350.37	20.00	0.00
									6358814.38	2111350.02	20.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00011	x	0		20.00	a	6358822.51	2111332.96	20.00	0.00
									6358870.50	2111331.45	20.00	0.00
									6358869.37	2111301.98	20.00	0.00
									6358845.94	2111301.60	20.00	0.00
									6358845.94	2111285.35	20.00	0.00
									6358815.71	2111285.35	20.00	0.00
									6358815.71	2111305.38	20.00	0.00
									6358821.75	2111305.76	20.00	0.00
BUILDING			BUILDING00012	x	0		20.00	a	6358815.71	2111270.23	20.00	0.00
									6358868.23	2111269.10	20.00	0.00
									6358868.23	2111227.91	20.00	0.00
									6358825.53	2111228.67	20.00	0.00
									6358823.64	2111254.74	20.00	0.00
									6358816.84	2111253.61	20.00	0.00
BUILDING			BUILDING00013	x	0		20.00	a	6358814.57	2111207.50	20.00	0.00
									6358848.21	2111209.01	20.00	0.00
									6358848.58	2111197.30	20.00	0.00
									6358869.37	2111196.17	20.00	0.00
									6358870.50	2111168.20	20.00	0.00
									6358825.91	2111168.20	20.00	0.00
BUILDING			BUILDING00014	x	0		20.00	a	6358830.44	2111151.20	20.00	0.00
									6358873.90	2111152.33	20.00	0.00
									6358875.41	2111123.23	20.00	0.00
									6358842.54	2111123.99	20.00	0.00
									6358842.91	2111105.47	20.00	0.00
									6358819.49	2111104.34	20.00	0.00
									6358819.49	2111127.01	20.00	0.00
BUILDING			BUILDING00015	x	0		45.00	a	6359543.15	2111220.35	45.00	0.00
									6360044.24	2111219.97	45.00	0.00
									6360044.62	2111079.02	45.00	0.00
									6359544.29	2111080.15	45.00	0.00
BUILDING			BUILDING00016	x	0		45.00	a	6359538.44	2110932.34	45.00	0.00
									6360036.70	2110928.87	45.00	0.00
									6360033.23	2110720.54	45.00	0.00
									6359540.18	2110725.75	45.00	0.00

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APPENDIX 10.6:

MITIGATED NIGHTTIME CONCRETE POUR NOISE CALCULATIONS

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15639 - Spreckels Distribution Center

CadnaA Noise Prediction Model: 10.5_15639-03 Pour_UnMitigated.cna
Date: 20.02.25
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (ft)	**10000.00**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (ft)	**3280.80**
Min. Length of Section (ft)	**3.30**
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	**328.08**
Search Radius Rcvr	**328.08**
Max. Distance Source - Rcvr	**3280.84 3280.84**
Min. Distance Rvcr - Reflector	**3.28 3.28**
Min. Distance Source - Reflector	**0.33**
Industrial (ISO 9613 (1996))	
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 (°F)	**50**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (mph)	**6.7**
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	33.4	28.4	35.9	55.0	45.0	0.0				5.00	a	6359135.14	2112289.08	5.00
RECEIVERS		R2	55.9	50.9	58.5	60.0	55.0	0.0				5.00	a	6359416.32	2111841.45	5.00
RECEIVERS		R3	48.6	43.6	51.2	55.0	45.0	0.0				5.00	a	6358886.01	2111769.10	5.00
RECEIVERS		R4	47.8	42.8	50.4	55.0	45.0	0.0				5.00	a	6358887.63	2111368.75	5.00
RECEIVERS		R5	43.5	38.5	46.0	55.0	45.0	0.0				5.00	a	6358885.93	2111913.05	5.00
RECEIVERS		R6	41.9	36.9	44.5	55.0	45.0	0.0				5.00	a	6358895.58	2111147.66	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	105.3	100.3	100.3	57.6	52.6	52.6	Lw	100.3					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	Construction	8.00	a			6358906.66	2111824.54	8.00	0.00
						6360175.66	2111820.04	8.00	0.00
						6360194.84	2111768.06	8.00	0.00
						6360212.02	2111715.39	8.00	0.00
						6360227.18	2111662.10	8.00	0.00
						6360240.29	2111608.27	8.00	0.00
						6360251.35	2111553.98	8.00	0.00
						6360260.32	2111499.31	8.00	0.00
						6360267.20	2111444.33	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6360271.99	2111389.13	8.00	0.00
						6360274.03	2111339.47	8.00	0.00
						6358914.70	2111344.85	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
				left	right		horz.	vert.	Begin		End		x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						8.00	a			6358898.04	2112279.17	8.00	0.00
													6358928.77	2110282.00	8.00	0.00
BARRIEREXISTING			0						8.00	a			6358898.04	2112279.17	8.00	0.00
													6359304.64	2112279.17	8.00	0.00
BARRIEREXISTING			0						8.00	a			6358912.47	2111341.35	8.00	0.00
													6360037.87	2111338.57	8.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00002	x	0		30.00	a	6359230.66	2112236.13	30.00	0.00
									6359332.22	2112234.40	30.00	0.00
									6359330.49	2112174.50	30.00	0.00
									6359228.06	2112174.50	30.00	0.00
BUILDING			BUILDING00003	x	0		30.00	a	6359222.85	2112091.17	30.00	0.00
									6359286.22	2112092.04	30.00	0.00
									6359285.35	2111991.34	30.00	0.00
									6359226.32	2111989.60	30.00	0.00
BUILDING			BUILDING00004	x	0		30.00	a	6359504.97	2112209.22	30.00	0.00
									6359578.75	2112207.49	30.00	0.00
									6359577.01	2112044.29	30.00	0.00
									6359505.83	2112043.42	30.00	0.00
									6359506.70	2112069.47	30.00	0.00
									6359485.87	2112067.73	30.00	0.00
									6359487.60	2112184.92	30.00	0.00
									6359505.83	2112184.05	30.00	0.00
BUILDING			BUILDING00005	x	0		30.00	a	6359180.75	2111910.18	30.00	0.00
									6359325.06	2111911.26	30.00	0.00
									6359325.06	2111840.73	30.00	0.00
									6359199.19	2111839.65	30.00	0.00
									6359163.39	2111839.65	30.00	0.00
									6359165.56	2111879.80	30.00	0.00
BUILDING			BUILDING00006	x	0		30.00	a	6359420.55	2111912.35	30.00	0.00
									6359584.39	2111913.43	30.00	0.00
									6359583.31	2111842.90	30.00	0.00
									6359419.46	2111841.82	30.00	0.00
BUILDING			BUILDING00007	x	0		20.00	a	6359125.80	2112359.94	20.00	0.00
									6359150.75	2112360.08	20.00	0.00
									6359150.89	2112350.71	20.00	0.00
									6359175.26	2112350.13	20.00	0.00
									6359175.84	2112298.07	20.00	0.00
									6359125.94	2112298.36	20.00	0.00
BUILDING			BUILDING00008	x	0		20.00	a	6358804.52	2111922.90	20.00	0.00
									6358869.63	2111924.22	20.00	0.00
									6358870.22	2111900.32	20.00	0.00
									6358858.93	2111900.17	20.00	0.00
									6358859.07	2111875.68	20.00	0.00
									6358819.18	2111874.95	20.00	0.00
									6358818.45	2111899.44	20.00	0.00
									6358805.40	2111900.17	20.00	0.00
BUILDING			BUILDING00009	x	0		20.00	a	6358805.84	2111803.08	20.00	0.00
									6358833.41	2111802.93	20.00	0.00
									6358833.11	2111784.60	20.00	0.00
									6358864.94	2111784.45	20.00	0.00
									6358864.65	2111753.51	20.00	0.00
									6358821.53	2111754.68	20.00	0.00
									6358821.09	2111780.93	20.00	0.00
									6358806.28	2111780.49	20.00	0.00
BUILDING			BUILDING00010	x	0		20.00	a	6358815.42	2111379.19	20.00	0.00
									6358874.79	2111379.19	20.00	0.00
									6358875.84	2111350.37	20.00	0.00
									6358814.38	2111350.02	20.00	0.00
BUILDING			BUILDING00011	x	0		20.00	a	6358822.51	2111332.96	20.00	0.00
									6358870.50	2111331.45	20.00	0.00
									6358869.37	2111301.98	20.00	0.00
									6358845.94	2111301.60	20.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6358845.94	2111285.35	20.00	0.00
									6358815.71	2111285.35	20.00	0.00
									6358815.71	2111305.38	20.00	0.00
									6358821.75	2111305.76	20.00	0.00
BUILDING			BUILDING00012	x	0		20.00	a	6358815.71	2111270.23	20.00	0.00
									6358868.23	2111269.10	20.00	0.00
									6358868.23	2111227.91	20.00	0.00
									6358825.53	2111228.67	20.00	0.00
									6358823.64	2111254.74	20.00	0.00
									6358816.84	2111253.61	20.00	0.00
BUILDING			BUILDING00013	x	0		20.00	a	6358814.57	2111207.50	20.00	0.00
									6358848.21	2111209.01	20.00	0.00
									6358848.58	2111197.30	20.00	0.00
									6358869.37	2111196.17	20.00	0.00
									6358870.50	2111168.20	20.00	0.00
									6358825.91	2111168.20	20.00	0.00
BUILDING			BUILDING00014	x	0		20.00	a	6358830.44	2111151.20	20.00	0.00
									6358873.90	2111152.33	20.00	0.00
									6358875.41	2111123.23	20.00	0.00
									6358842.54	2111123.99	20.00	0.00
									6358842.91	2111105.47	20.00	0.00
									6358819.49	2111104.34	20.00	0.00
									6358819.49	2111127.01	20.00	0.00
BUILDING			BUILDING00015	x	0		45.00	a	6359543.15	2111220.35	45.00	0.00
									6360044.24	2111219.97	45.00	0.00
									6360044.62	2111079.02	45.00	0.00
									6359544.29	2111080.15	45.00	0.00
BUILDING			BUILDING00016	x	0		45.00	a	6359538.44	2110932.34	45.00	0.00
									6360036.70	2110928.87	45.00	0.00
									6360033.23	2110720.54	45.00	0.00
									6359540.18	2110725.75	45.00	0.00

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