NWC Telegraph and SFS Industrial

NOISE AND VIBRATION IMPACT ANALYSIS

CITY OF SANTA FE SPRINGS

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LIST OF ABBREVIATED TERMS

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

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this Noise and Vibration Impact Analysis to determine the potential noise and vibration impacts and the necessary mitigation measures, if any, for the proposed NWC Telegraph and SFS Industrial ("Project"). The proposed Project is to consist of two warehouse buildings totaling 584,678 square feet. This study has been prepared to satisfy applicable City of Santa Fe Springs standards and thresholds of significance based on guidance provided by Appendix G Guidelines for Implementation of the California Environmental Quality Act (State CEQA Guidelines). (1)

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

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

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

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1 INTRODUCTION

This Noise and Vibration Impact Analysis has been completed to determine the noise impacts associated with the development of the NWC Telegraph and SFS Industrial ("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 project is located at the northwest corner (NWC) Telegraph Road & Santa Fe Springs Road (APN: 8005-015-051) in the City of Santa Fe Springs as shown on Exhibit 1-A. The Project site encompasses a single parcel totaling approximately 26.77 acres. There are over 100 active, plugged, idle, and/or cancelled oil wells on the subject property, with six active pump-jacks along with tanks, pipes and associated infrastructure. The subject property consists of one, single-story office building on the western edge of the subject property, the remainder of the subject property parcel consists of vacant land utilized for oil production. The office building on the site is utilized by a construction company. The Project site is bounded by Telegraph Road to the south, Santa Fe Springs Road followed by industrial properties to the north, vacant lots to the east, a vacant lot and industrial property to the south, and industrial properties to the west.

1.2 PROJECT DESCRIPTION

The proposed Project includes development of two (2) buildings totaling 584,678 square feet (SF) as shown on Exhibit 1-B. Both buildings would be designated for 80 percent warehousing , with 10 high-cube cold storage, and 10 percent manufacturing. Additional improvements include parking lots, loading docks, decorative landscaping, associated on-site infrastructure, and construction of a cul-de-sac driveway. This report assumes the Project will operate 24 hours a day for seven days per week. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown, however any tenant would operate consistent with industrial use.

EXHIBIT 1-A: LOCATION MAP

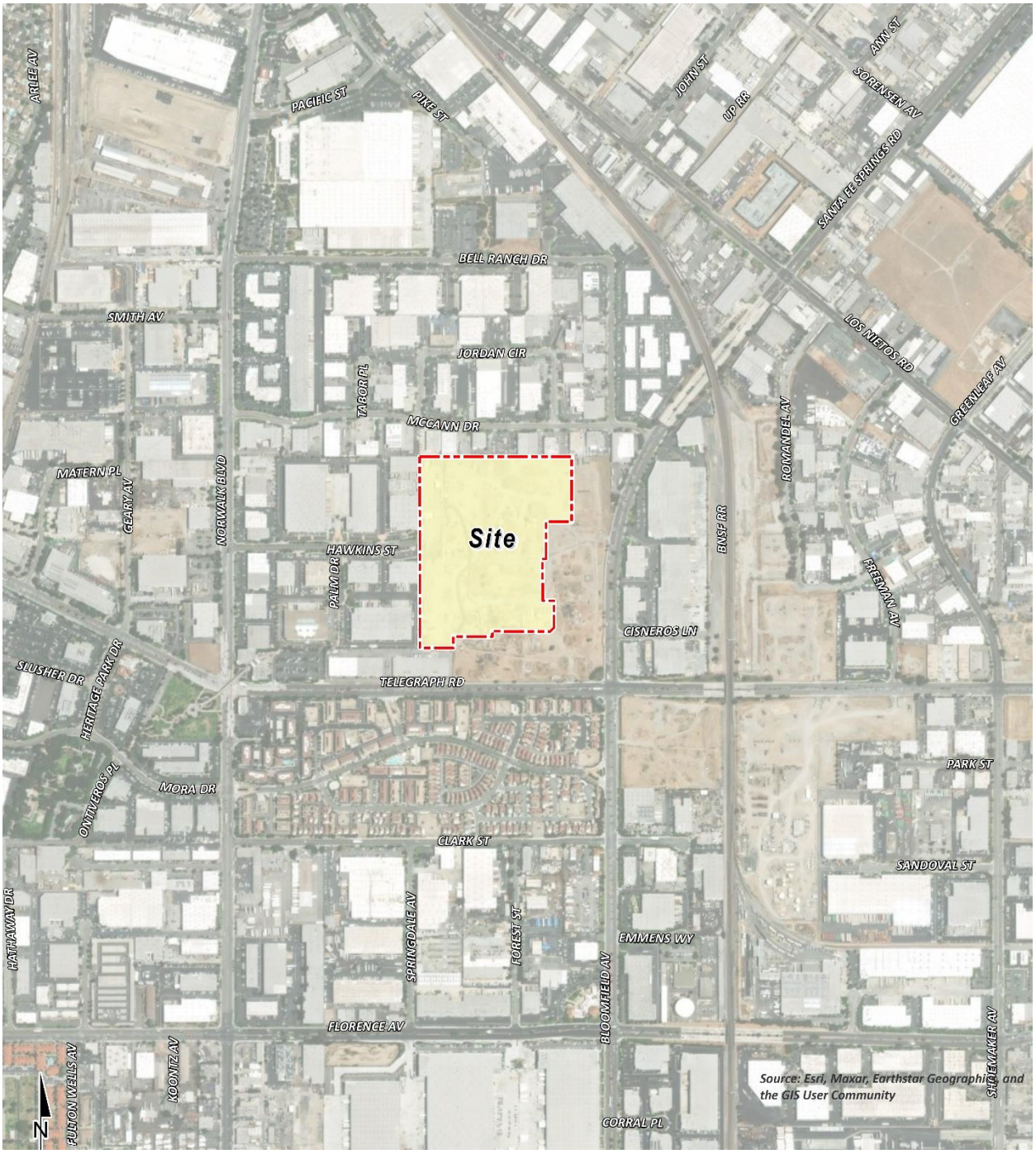
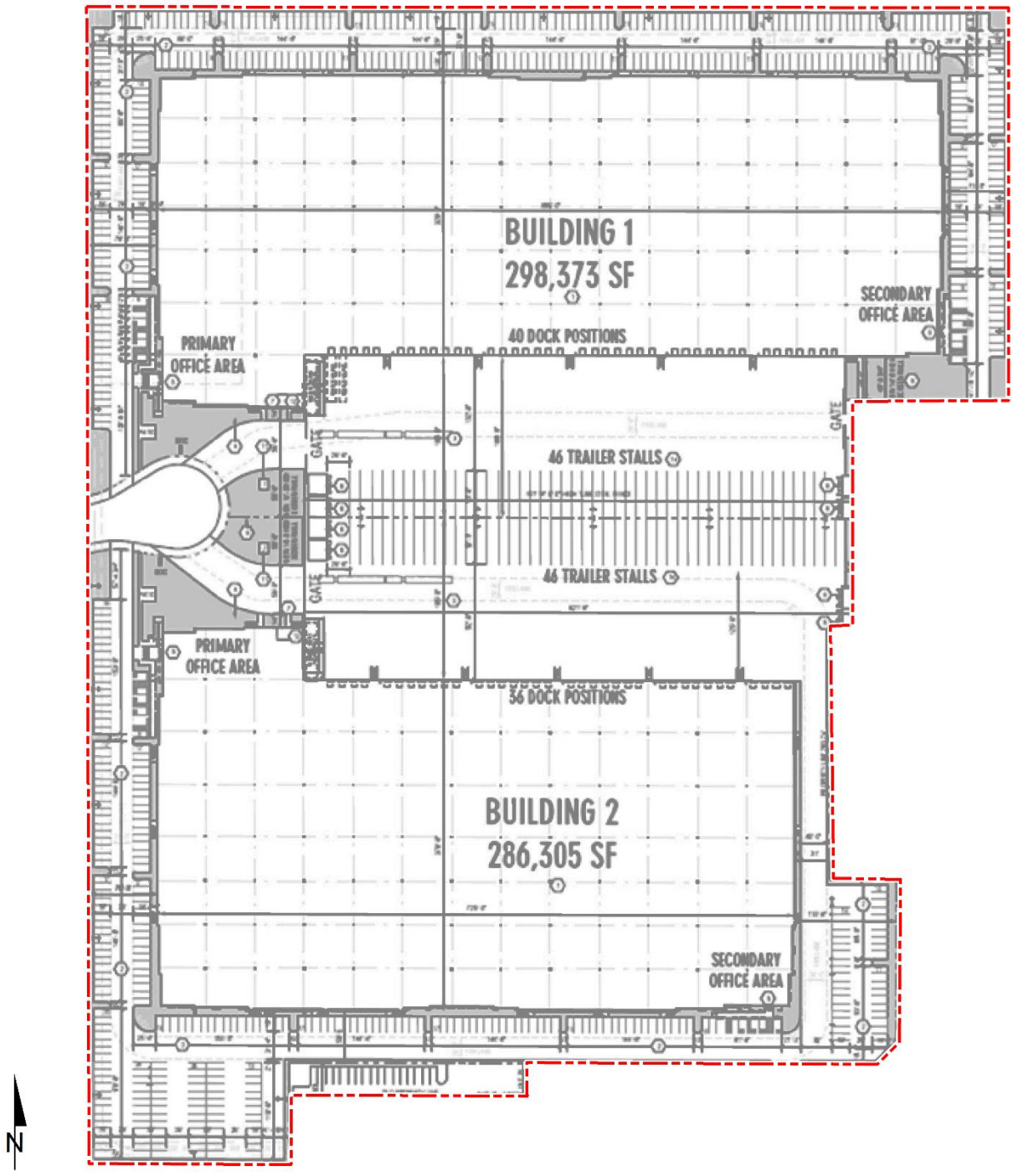


EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

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

at approximately 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 Santa Fe Springs relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

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

2.3.2 GROUND ABSORPTION

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

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

2.3.3 ATMOSPHERIC EFFECTS

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

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

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

2.6 LAND USE COMPATIBILITY WITH NOISE

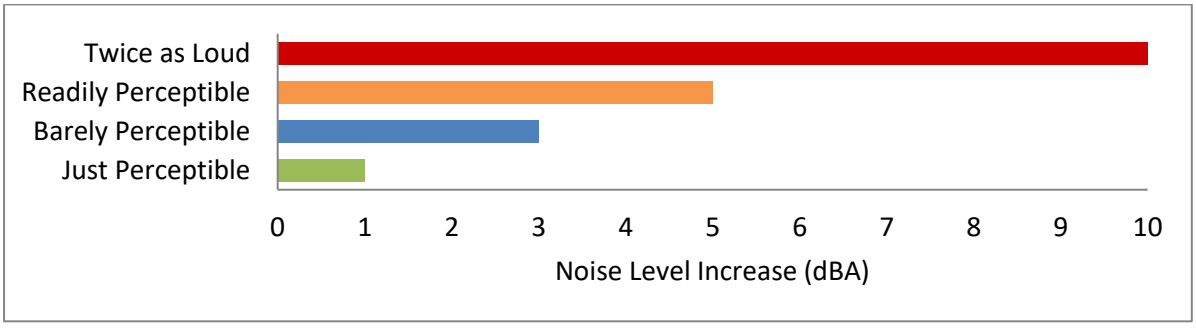
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development,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

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



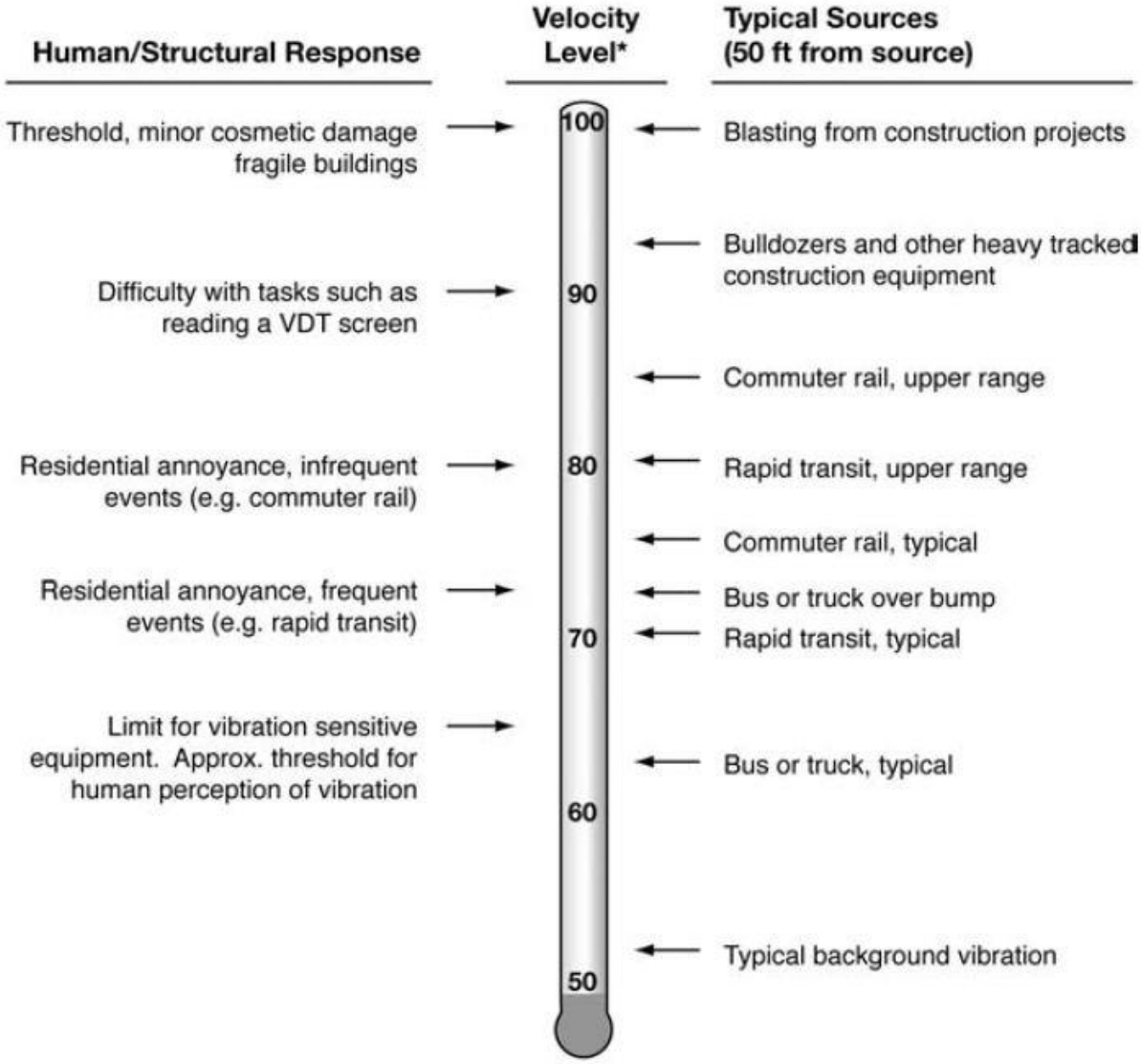
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise 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*

3 REGULATORY SETTING

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 SANTA FE SPRINGS GENERAL PLAN NOISE ELEMENT

The City of Santa Fe Springs *General Plan Noise Element* establishes a *comprehensive program for including noise control in the planning process*. (11) The *Noise Element* provides land use compatibility guidelines and transportation noise standards for future development and the future noise contour boundaries for major roadways in the City of Santa Fe Springs. The noise criteria identified in the City of Santa Fe Springs Noise Element (Table N-1) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility guidelines provide the city with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Noise Land Use Compatibility Guidelines* identify maximum exterior CNEL noise levels at the property line. For industrial land uses, such as the Project site, Table N-1 identifies a maximum exterior noise level of 75 dBA CNEL. For noise-sensitive residential land uses, the maximum exterior noise level is 65 dBA CNEL.

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the NWC Telegraph and SFS Industrial Project, stationary-source (operational) noise such as the expected 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. The City of Santa Fe Springs Municipal Code base exterior noise level standards are shown on Table 3-1.

TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS

Jurisdiction	Receiving Land Use	Exterior Noise Level Standard (dBA L_{eq})[2]	
		Daytime	Nighttime
City of Santa Fe Springs[1]	Any school, church, or hospital	45	45
	A-1, R-1 or R-3 Zone	50	45
	C-1 or C-4 Zone	60	55
	ML, PF or BP Zone	60	60
	M-1 or M-2 Zone	70	70

[1] Source: City of Santa Fe Springs, Section 155.424 (Appendix 3.1).
L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period.
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

The City of Santa Fe Springs Municipal Code, Section 155.424, establishes exterior noise level limits by receiving land uses. For noise-sensitive residential properties, the Municipal Code identifies operational noise level limits for the daytime (7:00 a.m. to 10:00 p.m.) hours of 50 dBA L_{50} and 45 dBA L_{50} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. (12) In addition, Section 155.424[B] indicates that if the existing ambient noise levels already exceed any of the exterior noise level limit categories, then the standard can be adjusted to reflect the ambient conditions. Appendix 3.1 includes the City of Santa Fe Springs Municipal Code noise standards.

3.4 CONSTRUCTION NOISE STANDARDS

The City of Santa Fe Springs has set restrictions to control noise impacts associated with construction. Section 155.425[B] of the Municipal Code states that *it shall be unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device between the hours of 7:00 p.m. of one day and 7:00 a.m. of the next day.* (13) While the City establishes limits to the hours during which construction activity may take place, it does not identify specific noise level limits for construction noise levels at potentially affected receiver locations for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

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

3.5 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. (8) Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment, such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity. To analyze vibration impacts originating from the operation and construction of the NWC Telegraph and SFS Industrial, vibration-generating activities are appropriately evaluated against standards established under the Municipal Code if such standards exist. However, the City of Santa Fe Springs does not identify specific construction vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (9 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as “older residential structures” with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the State 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 described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders a noise impact significant.* (15) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

Sensitive receivers are areas where humans are participating in activities that may be subject to the stress of significant interference from noise and often include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Other receivers include office and industrial buildings, which are not considered as sensitive as single-family homes, but are still protected by the City of Santa Fe Springs land use compatibility standards, as discussed below.

4.1.1 NOISE-SENSITIVE RECEIVERS

The Federal Interagency Committee on Noise (FICON) (16) 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. (15) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance at noise sensitive receiver locations are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (17 p. 2_48).

4.1.2 NON-NOISE-SENSITIVE RECEIVERS

The City of Santa Fe Springs General Plan Noise Element, *Noise Land Use Compatibility Guidelines* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. For industrial land uses, such as the Project site, Table N-1 identifies a maximum exterior noise level of 75 dBA CNEL. To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the 75 dBA CNEL land use compatibility guidelines, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level guideline is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Santa Fe Springs General Plan, *Noise Land Use Compatibility Guidelines* 75 dBA CNEL exterior noise level criteria.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of the NWC Telegraph and SFS Industrial Project, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to

the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest airport is the Long Beach Airport (LGB) located roughly 9.7 miles southwest 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 Project. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[1]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[2]	If ambient is > 75 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Noise-Sensitive	Exterior Noise Level Standards[3]	See Table 3-1	
		If ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		If ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction		Unlawful between the hours of 7:00 p.m. to 7:00 a.m.[4]		
		Noise Level Threshold[5]	80 dBA L_{eq}	
		Vibration Level Threshold[6]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] City of Santa Fe Springs General Plan Noise Element Table N-1.
[3] City of Santa Fe Springs Municipal Code, Section 155.424. If the existing ambient noise levels already exceed any of the exterior noise level limit categories, then the standard can be adjusted to reflect the ambient conditions (Section 155.424[B]).
[4] City of Santa Fe Springs Municipal Code Section 155.425[B].
[5] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[6] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
"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 three locations in the Project study area. The noise level measurement locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Thursday, May 30, 2024. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (18)

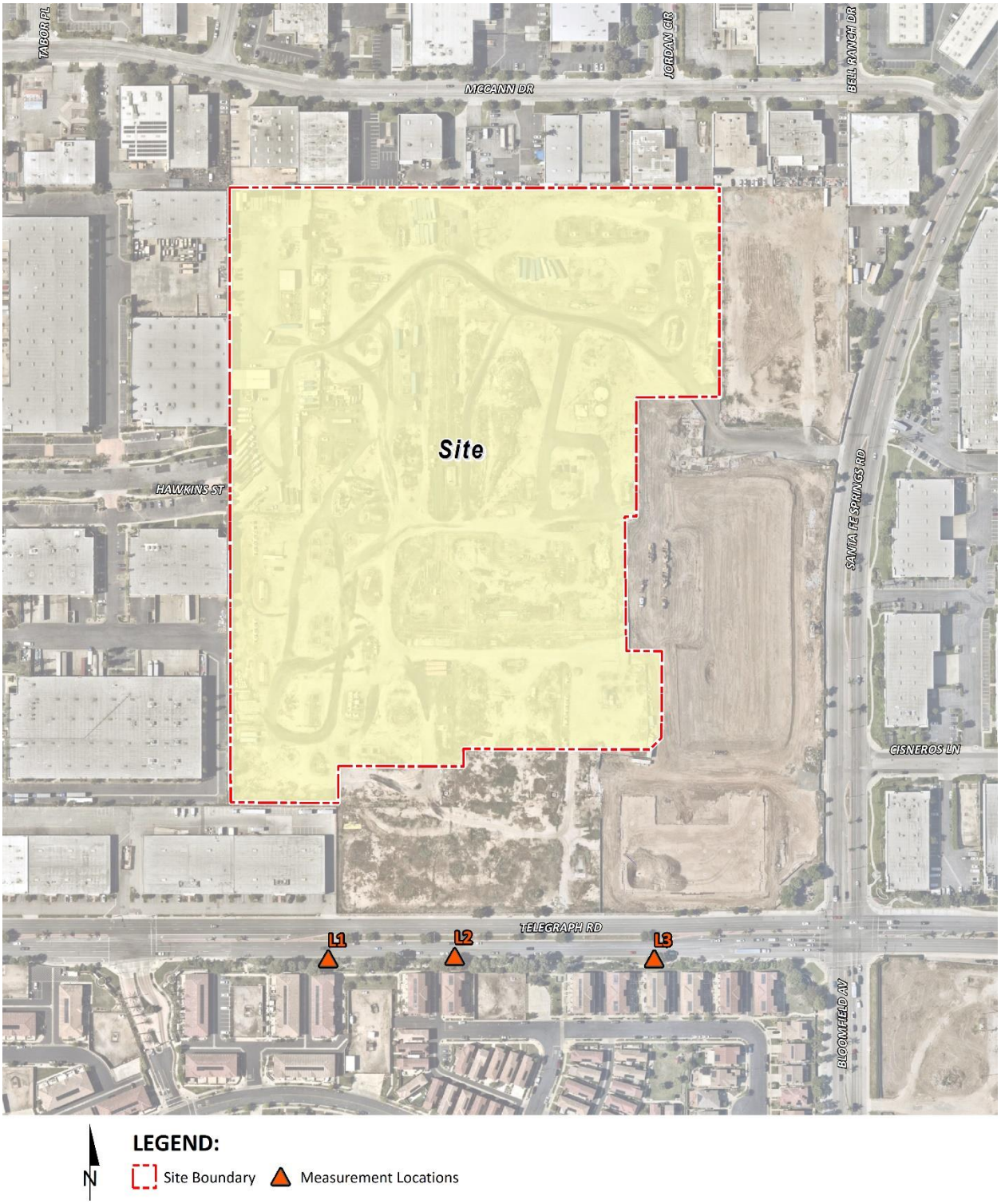
5.2 NOISE MEASUREMENT LOCATIONS

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

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

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

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



5.3 NOISE MEASUREMENT RESULTS

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

TABLE 5-1: AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located south of the site near the residence at 10404 Sycamore Ln.	67.8	65.1
L2	Located south of the site near the residence at 1410 Orchid Way.	68.5	65.7
L3	Located south of the site near the residence at 10404 Satinwood Ct.	66.9	64.0

[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. 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 *Noise Land Use Compatibility Guidelines*, all transportation related noise levels are presented in terms of the 24-hour CNEL's. Unlike a simple arithmetic average noise level, CNEL represents the logarithmic summation of the equivalent hourly noise levels with evening and nighttime noise penalties recognizing that noise may have different impacts on people depending on when it occurs.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (19) This methodology is commonly used to describe the off-site traffic noise levels throughout southern California. The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL) by vehicle type. REMEL represents the maximum sound level (L_{max}) of individual vehicle "pass by" events by vehicle type when measured at a "reference distance" of 50 feet from the center of the travel lane.

In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (20) 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. (21)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 12 off-site study area roadway segments, the distance from the centerline to the adjacent land use based on the functional roadway classifications per the City of Santa Fe Springs General Plan, and the vehicle speeds. It is expected that the Project related off-site traffic noise level contributions on other roadway segments outside the Project study area will dissipate as traffic disperses on the roadway network. The analysis below provides off-site roadway segment analysis for the following traffic scenarios.

- Existing
- Existing with Project
- Opening Year Cumulative (OYC) (2026) without Project
- Opening Year Cumulative (OYC) (2026) with Project

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

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification[1]	Receiving Land Use[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Norwalk Blvd.	n/o Telegraph Rd.	Major-4 Lane	Non-Sensitive	50'	40
2	Norwalk Blvd.	s/o Telegraph Rd.	Major-4 Lane	Sensitive	50'	40
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	Major-4 Lane	Non-Sensitive	50'	40
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	Major-4 Lane	Non-Sensitive	50'	40
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	Major-4 Lane	Sensitive	50'	40
6	Telegraph Rd.	w/o Heritage Park Dr.	Major-6 Lane	Non-Sensitive	60'	45
7	Telegraph Rd.	w/o Norwalk Blvd.	Major-6 Lane	Non-Sensitive	60'	45
8	Telegraph Rd.	e/o Norwalk Blvd.	Major-6 Lane	Sensitive	60'	45
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	Major-6 Lane	Sensitive	60'	45
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	Major-6 Lane	Non-Sensitive	60'	45
11	Telegraph Rd.	e/o Greenleaf Av.	Major-6 Lane	Non-Sensitive	60'	45
12	Hawkins St.	e/o Norwalk Blvd.	Local	Non-Sensitive	30'	40

[1] NWC Telegraph and SFS Industrial Traffic Impact Analysis, EPD Solutions, Inc.
[2] Based on a review of existing aerial imagery.
[3] Distance to receiving land use is based upon the right-of-way distances.

The ADT volumes used in this study area presented on Table 6-2 are based on *NWC Telegraph and SFS Industrial Traffic Impact Analysis*, prepared by EPD Solutions, Inc. (22) The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. To quantify the off-site noise levels, the Project related truck trips (actual trips) were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]			
			Existing		Opening Year Cumulative (OYC)	
			Without Project	With Project	Without Project	With Project
1	Norwalk Blvd.	n/o Telegraph Rd.	11,780	12,687	15,590	16,496
2	Norwalk Blvd.	s/o Telegraph Rd.	15,570	15,668	16,330	16,428
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	22,780	22,926	23,830	23,976
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	22,040	22,284	23,940	24,184
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	19,190	19,239	21,780	21,829
6	Telegraph Rd.	w/o Heritage Park Dr.	26,760	27,667	28,120	29,026
7	Telegraph Rd.	w/o Norwalk Blvd.	25,600	26,506	26,900	27,807
8	Telegraph Rd.	e/o Norwalk Blvd.	23,250	23,347	24,720	24,818
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	22,990	23,088	26,930	27,027
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	19,620	19,815	24,890	25,085
11	Telegraph Rd.	e/o Greenleaf Av.	16,360	16,555	17,140	17,335
12	Hawkins St.	e/o Norwalk Blvd.	150	1,056	1,010	1,916

[1] NWC Telegraph and SFS Industrial Traffic Impact Analysis, EPD Solutions, Inc.

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. 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 *NWC Telegraph and SFS Industrial Traffic Analysis*. Table 6-3 presents the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-4 to 6-5 show the vehicle mixes used for the with Project traffic scenarios.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time of Day	Vehicle Mix			Time of Day Split
	Autos	Medium Trucks	Heavy Trucks	
Daytime	75.50%	1.56%	0.64%	77.70%
Evening	12.57%	0.09%	0.02%	12.68%
Nighttime	9.35%	0.19%	0.08%	9.62%
Daily	97.42%	1.84%	0.74%	100.00%

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

TABLE 6-4: EXISTING WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Norwalk Blvd.	n/o Telegraph Rd.	94.30%	2.82%	2.88%	100.00%
2	Norwalk Blvd.	s/o Telegraph Rd.	97.44%	1.83%	0.74%	100.00%
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	97.44%	1.83%	0.74%	100.00%
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	97.45%	1.82%	0.73%	100.00%
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	97.43%	1.84%	0.74%	100.00%
6	Telegraph Rd.	w/o Heritage Park Dr.	95.99%	2.29%	1.72%	100.00%
7	Telegraph Rd.	w/o Norwalk Blvd.	95.93%	2.31%	1.76%	100.00%
8	Telegraph Rd.	e/o Norwalk Blvd.	97.43%	1.83%	0.74%	100.00%
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	97.43%	1.83%	0.74%	100.00%
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	97.45%	1.82%	0.73%	100.00%
11	Telegraph Rd.	e/o Greenleaf Av.	97.45%	1.82%	0.73%	100.00%
12	Hawkins St.	e/o Norwalk Blvd.	59.97%	13.61%	26.42%	100.00%

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

TABLE 6-5: OYC (2026) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Norwalk Blvd.	n/o Telegraph Rd.	95.02%	2.59%	2.38%	100.00%
2	Norwalk Blvd.	s/o Telegraph Rd.	97.44%	1.83%	0.74%	100.00%
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	97.44%	1.83%	0.74%	100.00%
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	97.45%	1.82%	0.73%	100.00%
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	97.43%	1.84%	0.74%	100.00%
6	Telegraph Rd.	w/o Heritage Park Dr.	96.06%	2.27%	1.67%	100.00%
7	Telegraph Rd.	w/o Norwalk Blvd.	96.00%	2.29%	1.72%	100.00%
8	Telegraph Rd.	e/o Norwalk Blvd.	97.43%	1.83%	0.74%	100.00%
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	97.43%	1.83%	0.74%	100.00%
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	97.44%	1.83%	0.73%	100.00%
11	Telegraph Rd.	e/o Greenleaf Av.	97.45%	1.82%	0.73%	100.00%
12	Hawkins St.	e/o Norwalk Blvd.	76.78%	8.33%	14.90%	100.00%

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

7 OFF-SITE TRAFFIC NOISE ANALYSIS

As described in Section 4.1, the off-site traffic noise impacts are evaluated based on noise level increases resulting from the Project. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. To assess the off-site transportation CNEL noise level impacts associated with development of the Project, noise contours were developed for each of the Project conditions outlined in the *NWC Telegraph and SFS Industrial Traffic Impact Analysis* prepared by EPD Solutions, Inc. (22)

7.1 TRAFFIC NOISE CONTOURS

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

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Norwalk Blvd.	n/o Telegraph Rd.	Non-Sensitive	68.1	56	122	262
2	Norwalk Blvd.	s/o Telegraph Rd.	Sensitive	69.3	RW	111	240
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	Non-Sensitive	70.9	RW	75	161
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	Non-Sensitive	70.8	75	162	350
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	Sensitive	70.2	75	161	347
6	Telegraph Rd.	w/o Heritage Park Dr.	Non-Sensitive	72.2	170	367	790
7	Telegraph Rd.	w/o Norwalk Blvd.	Non-Sensitive	72.0	166	358	770
8	Telegraph Rd.	e/o Norwalk Blvd.	Sensitive	71.6	166	358	771
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	Sensitive	71.6	314	677	1459
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	Non-Sensitive	70.9	269	579	1248
11	Telegraph Rd.	e/o Greenleaf Av.	Non-Sensitive	70.1	262	564	1215
12	Hawkins St.	e/o Norwalk Blvd.	Non-Sensitive	50.5	247	533	1147

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

TABLE 7-2: EXISTING WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Norwalk Blvd.	n/o Telegraph Rd.	Non-Sensitive	70.6	55	118	253
2	Norwalk Blvd.	s/o Telegraph Rd.	Sensitive	69.3	RW	97	208
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	Non-Sensitive	70.9	58	124	268
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	Non-Sensitive	70.8	57	122	263
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	Sensitive	70.2	51	111	239
6	Telegraph Rd.	w/o Heritage Park Dr.	Non-Sensitive	73.4	101	218	469
7	Telegraph Rd.	w/o Norwalk Blvd.	Non-Sensitive	73.2	99	213	458
8	Telegraph Rd.	e/o Norwalk Blvd.	Sensitive	71.6	77	166	357
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	Sensitive	71.6	76	164	354
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	Non-Sensitive	70.9	69	148	319
11	Telegraph Rd.	e/o Greenleaf Av.	Non-Sensitive	70.1	61	131	283
12	Hawkins St.	e/o Norwalk Blvd.	Non-Sensitive	68.4	RW	51	110

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

TABLE 7-3: OYC (2026) WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Norwalk Blvd.	n/o Telegraph Rd.	Non-Sensitive	69.3	RW	96	208
2	Norwalk Blvd.	s/o Telegraph Rd.	Sensitive	69.5	RW	99	214
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	Non-Sensitive	71.1	59	128	275
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	Non-Sensitive	71.1	60	128	276
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	Sensitive	70.7	56	120	259
6	Telegraph Rd.	w/o Heritage Park Dr.	Non-Sensitive	72.4	87	188	404
7	Telegraph Rd.	w/o Norwalk Blvd.	Non-Sensitive	72.2	85	182	392
8	Telegraph Rd.	e/o Norwalk Blvd.	Sensitive	71.9	80	172	371
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	Sensitive	72.2	85	182	393
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	Non-Sensitive	71.9	80	173	373
11	Telegraph Rd.	e/o Greenleaf Av.	Non-Sensitive	70.3	63	135	290
12	Hawkins St.	e/o Norwalk Blvd.	Non-Sensitive	58.7	RW	RW	RW

[1] Based on a review of existing aerial imagery.
[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: OYC (2026) 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	Norwalk Blvd.	n/o Telegraph Rd.	Non-Sensitive	71.3	61	131	283
2	Norwalk Blvd.	s/o Telegraph Rd.	Sensitive	69.5	RW	100	215
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	Non-Sensitive	71.1	59	128	276
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	Non-Sensitive	71.2	60	129	277
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	Sensitive	70.7	56	121	260
6	Telegraph Rd.	w/o Heritage Park Dr.	Non-Sensitive	73.6	104	223	481
7	Telegraph Rd.	w/o Norwalk Blvd.	Non-Sensitive	73.4	101	218	470
8	Telegraph Rd.	e/o Norwalk Blvd.	Sensitive	71.9	80	172	371
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	Sensitive	72.2	85	183	393
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	Non-Sensitive	71.9	81	174	374
11	Telegraph Rd.	e/o Greenleaf Av.	Non-Sensitive	70.3	63	136	292
12	Hawkins St.	e/o Norwalk Blvd.	Non-Sensitive	68.8	RW	54	116

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

7.2 EXISTING PROJECT NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the *NWC Telegraph and SFS Industrial Traffic Impact Analysis*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 50.5 to 72.2 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 68.4 to 73.4 dBA CNEL. Table 7-5 shows that the Project off-site traffic noise level impacts will range from 0.0 to 17.9 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, the land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to existing with Project-related traffic noise level increases.

For an off-site traffic noise level impact to be considered significant, receivers need to perceive an increase of traffic noise levels over time. Therefore, off-site traffic impacts are limited to noise sensitive residential receivers that are likely to perceive this increase. While the analysis shows that the non-sensitive industrial uses will experience an off-site traffic noise level increase of up to 17.9 dBA CNEL, this is not considered a significant noise level impact since there are no adjacent receivers that will experience this increase over time. In addition, the Project-related off-site traffic noise level increase is largely due to the low traffic volumes that currently exist.

7.3 OYC (2026) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 shows the OYC without Project conditions CNEL noise levels. The OYC without Project exterior noise levels are expected to range from 58.7 to 72.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows that the OYC with Project conditions will range from 68.8 to 73.6 dBA CNEL. Table 7-6 shows that the OYC Project off-site traffic noise level impacts will range from 0.0 to 10.1 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, the land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to existing with Project-related traffic noise level increases.

For an off-site traffic noise level impact to be considered significant, receivers need to perceive an increase of traffic noise levels over time. Therefore, off-site traffic impacts are limited to noise sensitive residential receivers that are likely to perceive this increase. While the analysis shows that the non-sensitive industrial uses will experience an off-site traffic noise level increase of up to 10.1 dBA CNEL, this is not considered a significant noise level impact since there are no adjacent receivers that will experience this increase over time. In addition, the Project-related off-site traffic noise level increase is largely due to the low traffic volumes that currently exist.

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	Norwalk Blvd.	n/o Telegraph Rd.	Non-Sensitive	68.1	70.6	2.5	n/a	No
2	Norwalk Blvd.	s/o Telegraph Rd.	Sensitive	69.3	69.3	0.0	1.5	No
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	Non-Sensitive	70.9	70.9	0.0	n/a	No
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	Non-Sensitive	70.8	70.8	0.0	n/a	No
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	Sensitive	70.2	70.2	0.0	1.5	No
6	Telegraph Rd.	w/o Heritage Park Dr.	Non-Sensitive	72.2	73.4	1.2	n/a	No
7	Telegraph Rd.	w/o Norwalk Blvd.	Non-Sensitive	72.0	73.2	1.2	n/a	No
8	Telegraph Rd.	e/o Norwalk Blvd.	Sensitive	71.6	71.6	0.0	1.5	No
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	Sensitive	71.6	71.6	0.0	1.5	No
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	Non-Sensitive	70.9	70.9	0.0	n/a	No
11	Telegraph Rd.	e/o Greenleaf Av.	Non-Sensitive	70.1	70.1	0.0	n/a	No
12	Hawkins St.	e/o Norwalk Blvd.	Non-Sensitive	50.5	68.4	17.9	n/a	No

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

TABLE 7-6: OYC (2026) 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	Norwalk Blvd.	n/o Telegraph Rd.	Non-Sensitive	69.3	71.3	2.0	n/a	No
2	Norwalk Blvd.	s/o Telegraph Rd.	Sensitive	69.5	69.5	0.0	1.5	No
3	Santa Fe Springs Rd.	s/o Los Nietos Rd.	Non-Sensitive	71.1	71.1	0.0	n/a	No
4	Santa Fe Springs Rd.	n/o Telegraph Rd.	Non-Sensitive	71.1	71.2	0.1	n/a	No
5	Santa Fe Springs Rd.	s/o Telegraph Rd.	Sensitive	70.7	70.7	0.0	1.5	No
6	Telegraph Rd.	w/o Heritage Park Dr.	Non-Sensitive	72.4	73.6	1.2	n/a	No
7	Telegraph Rd.	w/o Norwalk Blvd.	Non-Sensitive	72.2	73.4	1.2	n/a	No
8	Telegraph Rd.	e/o Norwalk Blvd.	Sensitive	71.9	71.9	0.0	1.5	No
9	Telegraph Rd.	w/o Santa Fe Springs Rd.	Sensitive	72.2	72.2	0.0	1.5	No
10	Telegraph Rd.	e/o Santa Fe Springs Rd.	Non-Sensitive	71.9	71.9	0.0	n/a	No
11	Telegraph Rd.	e/o Greenleaf Av.	Non-Sensitive	70.3	70.3	0.0	n/a	No
12	Hawkins St.	e/o Norwalk Blvd.	Non-Sensitive	58.7	68.8	10.1	n/a	No

[1] Based on a review of existing aerial imagery.

[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 sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, 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.

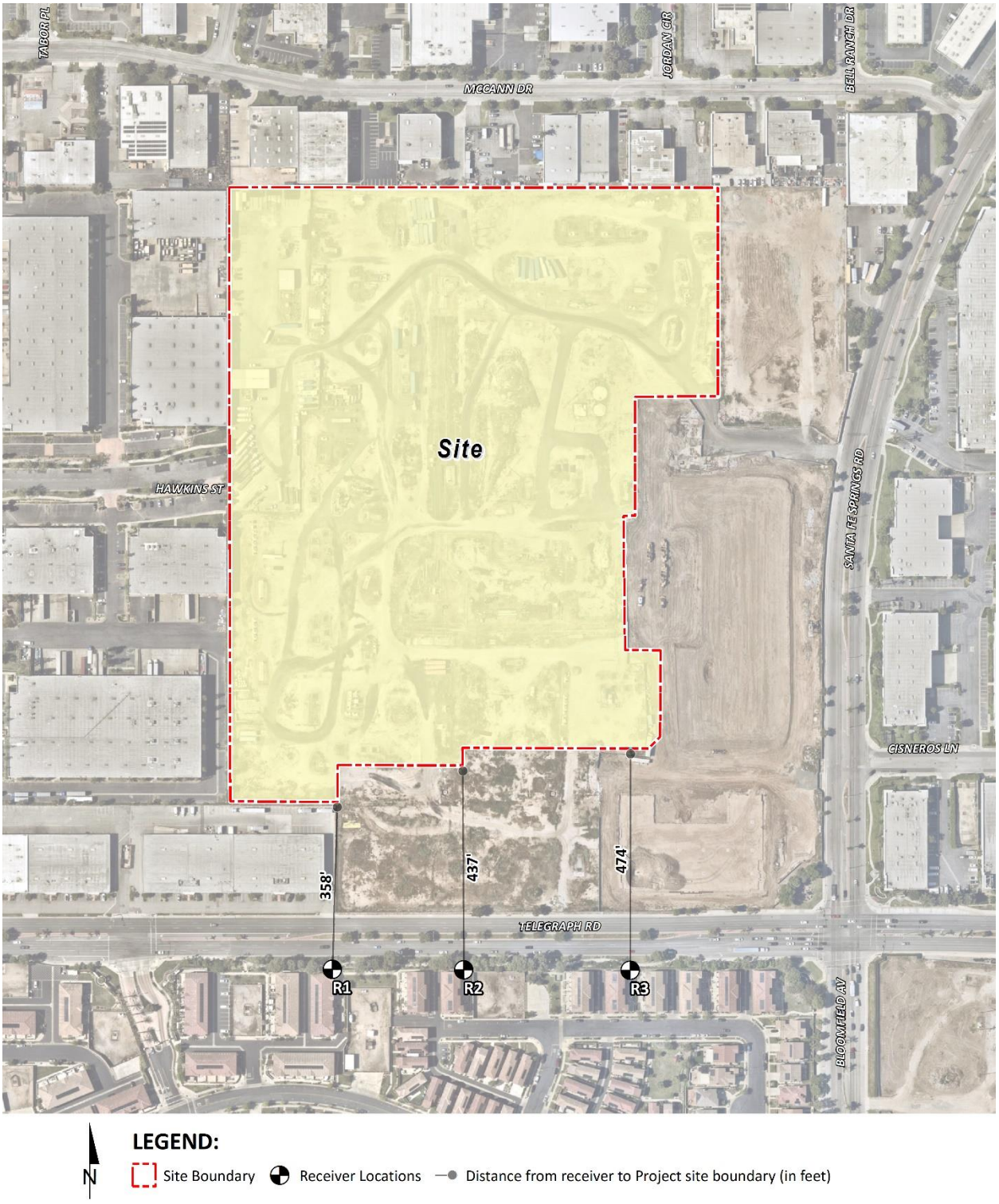
To describe the potential off-site Project noise levels, three receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents the existing noise sensitive residence at 10404 Sycamore Lane, approximately 358 feet south of the Project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 1410 Orchid Way, approximately 437 feet south of the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 10404 Satinwood Court, approximately 474 feet south of 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



9 OPERATIONAL NOISE IMPACTS

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

9.1 OPERATIONAL NOISE SOURCES

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

9.2 REFERENCE NOISE LEVELS

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

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precision sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (18)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

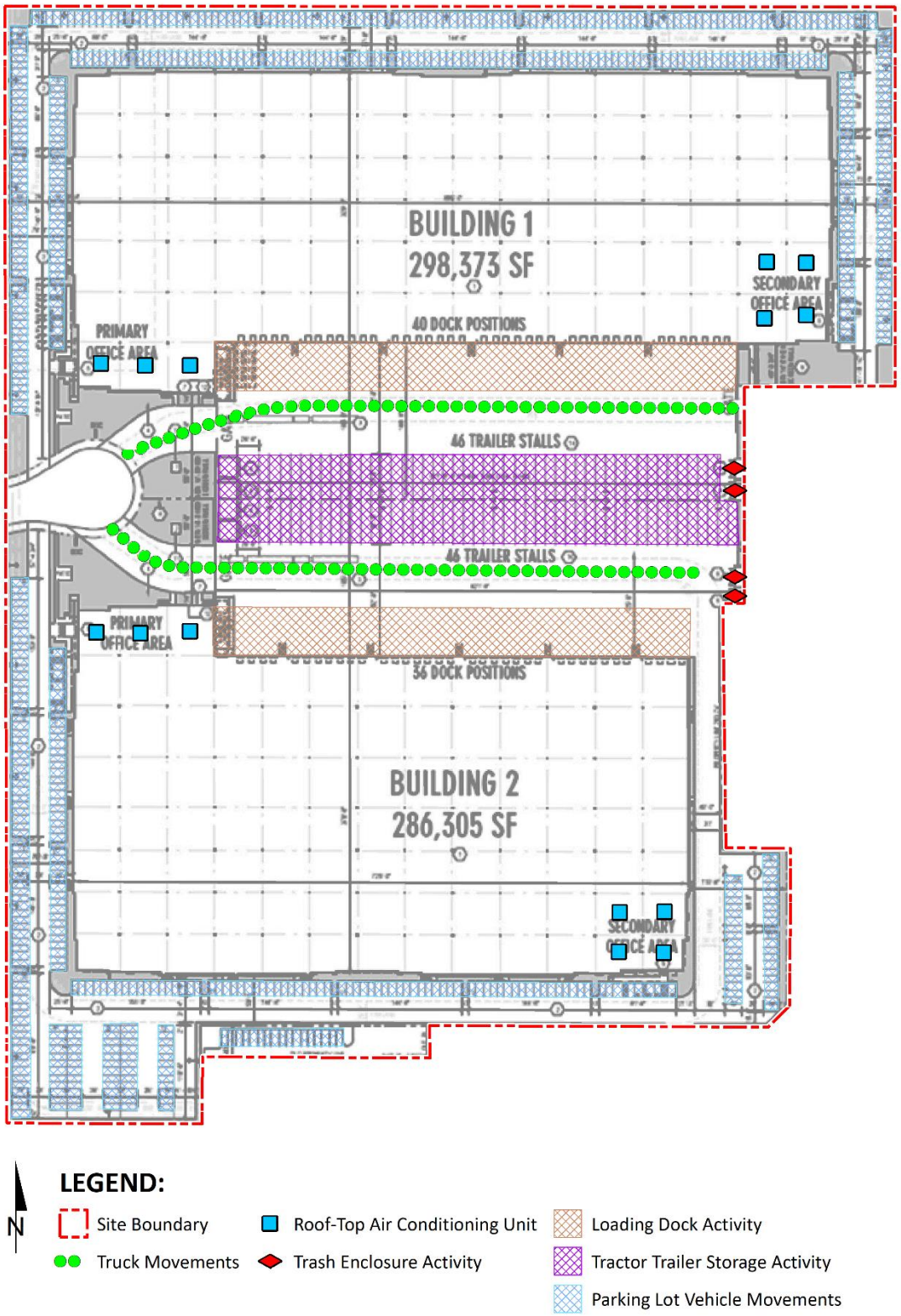


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

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

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

[2] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

9.2.2 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical outdoor operational noise activities associated with the Project. This includes truck idling, reefer activity (refrigerator truck/cold storage), deliveries, backup alarms, trailer docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background operation activities. Since the noise levels generated by cold storage loading dock activity can be slightly higher due to the use of refrigerated trucks or reefers, this reference noise level conservatively assumes that all loading dock activity is associated with cold storage facilities. 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, tractor trailer movements and storage activities, Urban Crossroads collected a reference noise level measurement at an existing parcel hub facility to describe the potential operational noise levels associated with Project tractor trailer storage activities. The measured reference noise level at 50 feet from activity was measured at 62.8 dBA L_{eq}. The reference noise level measurement includes a semi-truck with trailer pass-by event, background switcher cab trailer towing, drop-off, idling, and backup alarm events. Tractor trailer activity is estimated during all the daytime, evening, and nighttime hours.

9.2.4 ROOF-TOP AIR CONDITIONING UNITS

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

9.2.5 PARKING LOT VEHICLE MOVEMENTS

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

9.2.6 TRASH ENCLOSURE ACTIVITY

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

9.2.7 TRUCK MOVEMENTS

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

9.3 CADNAA NOISE PREDICTION MODEL

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

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

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, tractor trailer storage activity, roof-top air conditioning units, parking lot vehicle movements, trash enclosure activity and truck movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 9-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 38.2 to 42.6 dBA L_{eq} at the existing noise sensitive receiver locations.

TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)		
	R1	R2	R3
Loading Dock Activity	33.2	33.2	39.9
Tractor Trailer Storage Activity	22.2	22.3	31.3
Roof-Top Air Conditioning Units	34.2	35.6	36.3
Parking Lot Vehicle Movements	32.1	31.1	29.6
Trash Enclosure Activity	12.2	14.1	32.0
Truck Movements	14.9	15.0	21.6
Total (All Noise Sources)	**38.2**	**38.6**	**42.6**

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

Table 9-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 37.3 to 41.8 dBA L_{eq} at the existing noise sensitive receiver locations. The differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 9-1 and Appendix 9.1.

TABLE 9-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)		
	R1	R2	R3
Loading Dock Activity	33.2	33.2	39.9
Tractor Trailer Storage Activity	22.2	22.3	31.3
Roof-Top Air Conditioning Units	31.8	33.2	33.9
Parking Lot Vehicle Movements	32.1	31.1	29.6
Trash Enclosure Activity	8.2	10.1	28.1
Truck Movements	14.9	15.0	21.6
Total (All Noise Sources)	**37.3**	**37.5**	**41.8**

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

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Santa Fe Springs exterior noise level standards at nearby noise-sensitive receiver locations. Table 9-4 shows the operational noise levels associated with the Project will not exceed the City of Santa Fe Springs exterior noise level standards. Therefore, the stationary operational noise impacts are considered *less than significant* at the nearest noise-sensitive receiver locations.

TABLE 9-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Measurement Location	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	L1	38.2	37.3	50	45	No	No
R2	L2	38.6	37.5	50	45	No	No
R3	L3	42.6	41.8	50	45	No	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-2 and 9-3.
[3] City of Santa Fe Springs Municipal Code, Section 155.424.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

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

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

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

TABLE 9-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	38.2	L1	67.8	67.8	0.0	1.5	No
R2	38.6	L2	68.5	68.5	0.0	1.5	No
R3	42.6	L3	66.9	66.9	0.0	1.5	No

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

TABLE 9-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	37.3	L1	65.1	65.1	0.0	1.5	No
R2	37.5	L2	65.7	65.7	0.0	1.5	No
R3	41.8	L3	64.0	64.0	0.0	5.0	No

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

10 CONSTRUCTION ANALYSIS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction activity boundaries in relation to the nearest sensitive receiver locations previously described in Section 6. Section 155.425[B] of the Municipal Code states that *it shall be unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device between the hours of 7:00 p.m. of one day and 7:00 a.m. of the next day.* (13)

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

10.1 CONSTRUCTION NOISE LEVELS

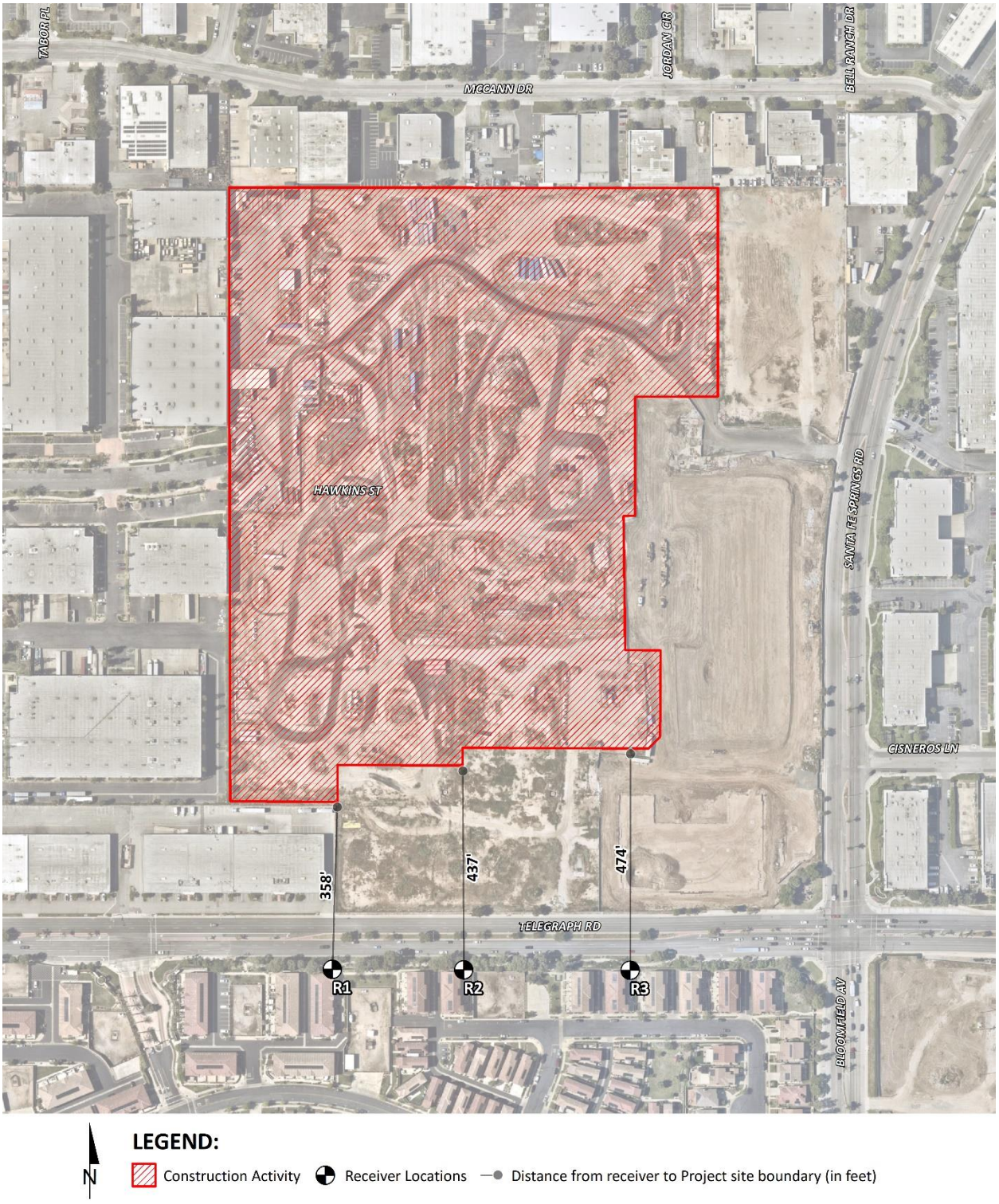
The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed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

- Demolition
- 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. (23) 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 Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for detailed construction noise assessment, Table 10-1 presents the combined noise levels for the loudest construction equipment, assuming all equipment operates at the same time. To account for the dynamic nature of construction activities, the CadnaA construction noise analysis evaluates the equipment as multiple moving point sources within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown in Table 10-2, the construction noise levels are expected to range from 52.8 to 64.2 dBA L_{eq} at the nearby receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

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

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

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition/ Crushing	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	64.2	64.2	60.7	58.0	55.2	53.6	64.2
R2	64.2	64.2	60.7	58.0	55.2	53.6	64.2
R3	63.4	63.4	59.9	57.2	54.4	52.8	63.4

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

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at the nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will not exceed the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown in Table 10-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 10-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	64.2	80	No
R2	64.2	80	No
R3	63.4	80	No

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

10.5 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 in Table 10-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To calculate the vibration levels, the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 10-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 358 to 474 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.003 to 0.004 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at all the sensitive locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site. Moreover, the vibration levels reported at the sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 10-5: PROJECT CONSTRUCTION VIBRATION LEVELS

Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jack-hammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
R1	358'	0.000	0.001	0.001	0.002	0.004	0.004	0.3	No
R2	437'	0.000	0.000	0.001	0.001	0.003	0.003	0.3	No
R3	474'	0.000	0.000	0.001	0.001	0.003	0.003	0.3	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Distance from receiver building facade to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 10-5).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

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11 REFERENCES

1. **California Natural Resources Agency.** *2024 California Environmental Quality Act (CEQA) Statue and Guidelines.* s.l. : Association of Environmental Professionals.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123.* September 2018.
9. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
10. **Office of Planning and Research.** *State of California General Plan Guidlines.* October 2019.
11. **City of Santa Fe Springs.** *General Plan Noise Element.* January 2022.
12. —. *Municipal Code, Sections 155.423 - 155.427.*
13. —. *Municipal Code Section 155.425[B].*
14. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
15. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
16. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
17. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
18. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
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. **EPD Solutions, Inc.** *NWC Telegraph and SFS Industrial Traffic Impact Analysis.* July 2024.

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

12 CERTIFICATIONS

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed NWC Telegraph and SFS Industrial 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 SANTA FE SPRINGS MUNICIPAL CODE

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§ 155.421 DECLARATION OF POLICY PERTAINING TO NOISE.

It is hereby declared to be the policy of the city to prohibit unnecessary, excessive, and annoying noises from all sources subject to its police power. At certain levels noises are detrimental to the health and welfare of the citizenry and in the public interest shall be systematically proscribed.

('64 Code, § 52.30) (Am. Ord. 712, passed 6-11-87)

§ 155.422 EXEMPTIONS FROM NOISE CONTROL PROVISIONS.

The following activities shall be exempt from noise control provisions of this subchapter:

(A) Activities conducted on public parks, public playgrounds and public or private school grounds including but not limited to school athletics and school entertainment events.

(B) Occasional outdoor gatherings, public dancing shows and sporting and entertainment events provided said events are conducted pursuant to any required permit or City Council authorization.

(C) Any mechanical device, apparatus or equipment when used, related to or connected with emergency work.

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

('64 Code, § 52.31) (Am. Ord. 712, passed 6-11-87)

§ 155.423 NOISE LEVEL MEASUREMENT PROCEDURES.

Any noise level measurement made pursuant to the provisions of this subchapter shall be measured with a sound level meter in accordance with the following:

(A) Measurements shall be made in decibels (dB) using the A-weighted scale with slow response, following the manufacturer's instructions, except the fast response shall be used for impulsive sounds.

(B) Outdoor noise shall be measured at the lot line and/or at any point with the land parcel receiving the noise, where possible, the microphone shall be positioned at least 10 feet from the nearest reflective surface. For the purpose of this measurement the boundaries of any lease agreement, or operating unit or group of contiguous fee properties operated as a unit, shall be considered as the lot line.

(C) Measurements shall be made with the microphone at a height not less than five feet above the ground or floor level for outdoor measurements and for measurements within a building or on a balcony or deck, respectively.

(D) Measurements within a building for determining the noise level from exterior noises shall be made with the microphone five feet from the window (closed) and/or wall of the structure.

(E) The ambient noise level shall be measured while the alleged intruding noise source is inoperative. If for any reason the alleged intruding noise source cannot be turned off, the ambient noise level shall be estimated, if possible, by performing a measurement in the same general area of the alleged intruding noise source but a sufficient distance such that the noise from the alleged intruding noise source is at least 10 dB below the ambient noise level in order that only the actual ambient noise level be measured. If a difference of 10 dB as specified in the preceding sentence cannot be obtained within the same general area, but the alleged intruding noise source is five to 10 dB below the ambient, then the level of the ambient noise level itself may be reasonably determined by subtracting a one decibel correction to account for the contribution of the alleged intruding noise source.

('64 Code, § 52.32) (Am. Ord. 712, passed 6-11-87)

§ 155.424 PERMITTED NOISE LEVELS.

(A) The noise level caused by any device, instrument, vehicle, machinery, operation, use or activity shall not exceed the levels set forth in the table set out in division (E) of this section except as further provided in this chapter.

(B) In the event the ambient noise level exceeds a permitted noise level set forth in division (E) of this section, the permissible noise level for the corresponding duration and receiving area shall be the ambient level.

(C) Noise of impulsive character (hammering, and the like) or that contains a pure tone (such as a whine, screech, or hum), shall only be permitted at levels five dB(A) less than the permitted levels determined under this section.

(D) At a lot line separating properties with different permitted noise levels, the applicable permitted outdoor noise level shall be the arithmetic mean of the permitted outdoor noise levels set forth in division (E) of this section for the receiving areas on opposite sides of said lot line.

(E) Noise level table.

A-Weighted Sound Level in Decibels (dB(A))		
	Daytime ***(7:00 a.m. to 10:00 p.m.)***	***Nighttime*** ***(10:00 p.m. to 7:00 a.m.)***

	Maximum Cumulative Minutes Duration in Any 1-Hour Period				Absolute Maximum	Maximum Cumulative Minutes Duration in Any 1-Hour Period				Absolute Maximum
A-Weighted Sound Level in Decibels (dB(A))										
	Daytime (7:00 a.m. to 10:00 p.m.)					Nighttime (10:00 p.m. to 7:00 a.m.)				
	Maximum Cumulative Minutes Duration in Any 1-Hour Period				Absolute Maximum	Maximum Cumulative Minutes Duration in Any 1-Hour Period				Absolute Maximum
Receiving Area	30	15	5	1		30	15	5	1	
Outdoor Noise at Lot Line Of:										
Any school, church or hospital	45	50	55	60	65	45	50	55	60	65
Any other use										
In the A-1, R-1 or R-3 Zone	50	55	60	65	70	45	50	55	60	65
In the C-1 or C-4 Zone	60	65	70	75	80	55	60	65	70	75
1 In the ML, PF or BP Zone	60	65	70	75	80	60	65	70	75	80
In the M-1 or M-2 Zone	70	75	80	85	90	70	75	80	85	90
Residential Building Interior:										
In the A-1 or R-1 Zone	45	50	55	60	65	45	50	55	60	65
In the R-3 Zone	45	50	55	60	65	45	50	55	60	65
Sound levels at or above each decibel level given in the table shall not occur for a duration longer than that given in the corresponding column heading .										

('64 Code, § 52.34) (Am. Ord. 712, passed 6-11-87) Penalty, see §10.97

§ 155.425 SPECIAL NOISE SOURCES.

The following additional provisions shall apply to certain special noise sources:

(A) *Radios, television sets, and similar devices.* It shall be unlawful for any person within the city to use or operate any radio receiving set, musical instrument, phonograph, television set, or other similar device for the producing or reproducing of sound in any manner or to use bells, whistles, or any device conveying speech content or music as may be generated by sound amplifying equipment so as to create any noise which would cause the noise level to exceed the ambient noise level a maximum of five dB(A) at the boundary of any property within a residential zone or at the boundary of any private residential open space, or within the common outdoor area of any multiple residential development.

(B) *Construction of buildings and projects.* It shall be unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device between the hours of 7:00 p.m. of one day and 7:00 a.m. of the next day.

(C) *Maintenance.* It shall be unlawful for any person, including city and utility crews, to perform maintenance of real property, other than emergency work, between 7:00 p.m. on one day and 7:00 a.m. of the following day, if such maintenance activity produces noise above the ambient level at any lot line of property within a residential zone.

('64 Code, § 52.35) (Am. Ord. 712, passed 6-11-87) Penalty, see §10.97

§ 155.426 PROPOSED DEVELOPMENT PROJECT.

If at any time the Director of Planning and Development has reason to believe that a new development project, addition, modification, or any other changes thereto may not conform with the permitted noise level standards of this chapter, the Director of Planning and Development may require as a "condition of approval" an acoustical analysis (noise study) as part of the building permit process or other approval procedures.

('64 Code, § 52.37) (Am. Ord. 712, passed 6-11-87)

§ 155.427 WAIVERS FROM NOISE REQUIREMENTS.

(A) Waivers from the noise control requirements of this chapter may be authorized by a conditional use permit granted in

accordance with the provisions of §§ 155.710 through 155.724 for a period not to exceed two years subject to reasonable terms, conditions, and requirements. A waiver may be granted only if the Planning Commission makes the findings that:

(1) Additional time is necessary for the applicant to alter or modify his activity, operation or noise source to comply with this chapter; or

(2) The activity, operation or noise source cannot feasibly be carried on in a manner that would comply with the provisions of this chapter and no other reasonable alternative is available to the applicant.

(B) In granting a waiver, the Planning Commission may prescribe any conditions or requirements it deems necessary to minimize adverse effects upon the community or the surrounding neighborhood.

(C) In granting waivers, the Planning Commission shall consider the magnitude of adverse effect caused by the offensive noise, the uses of property within the area affected by the noise, operations carried on under existing regulations and codes, the time factors related to study, design, financing and construction of remedial work, the economic factors related to age and useful life of the equipment, the general public interest, health and welfare, the feasibility of plans submitted for corrections, and the effect on the community if the waiver is denied.

('64 Code, § 52.38) (Am. Ord. 712, passed 6-11-87)

§ 155.428 VIBRATIONS.

Every use shall be so operated that the ground vibration generated by said use is not harmful or injurious to the use or development of surrounding properties. No vibration shall be permitted which is perceptible without instruments at any use alone the property line on which said use is located. For the purpose of this determination, the boundary of any lease agreement or operating unit or properties operating as a unit shall be considered the same as the property line.

('64 Code, § 52.40) (Am. Ord. 712, passed 6-11-87) Penalty, see §10.97

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APPENDIX 5.1:

STUDY AREA PHOTOS

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15643_L1_B 1.North
33, 56' 30.310000", 118, 4' 3.400000"

15643_L1_B 2.South
33, 56' 30.280000", 118, 4' 3.370000"

15643_L1_B 3.East
33, 56' 30.230000", 118, 4' 3.320000"

15643_L1_B 4.West
33, 56' 30.220000", 118, 4' 3.350000"

JN:15643

15643_L2_C 1.North
33, 56' 30.330000", 118, 4' 1.230000"

15643_L2_C 2.South
33, 56' 30.280000", 118, 4' 1.150000"

15643_L2_C 3.East
33, 56' 30.240000", 118, 4' 1.070000"

15643_L2_C 4.West
33, 56' 30.220000", 118, 4' 1.070000"

JN:15643

15643_L3_D 1.North
33, 56' 30.340000", 118, 3' 56.870000"

15643_L3_D 2.South
33, 56' 30.340000", 118, 3' 56.870000"

15643_L3_D 3.East
33, 56' 30.340000", 118, 3' 56.890000"

15643_L3_D 4.West
33, 56' 30.330000", 118, 3' 56.890000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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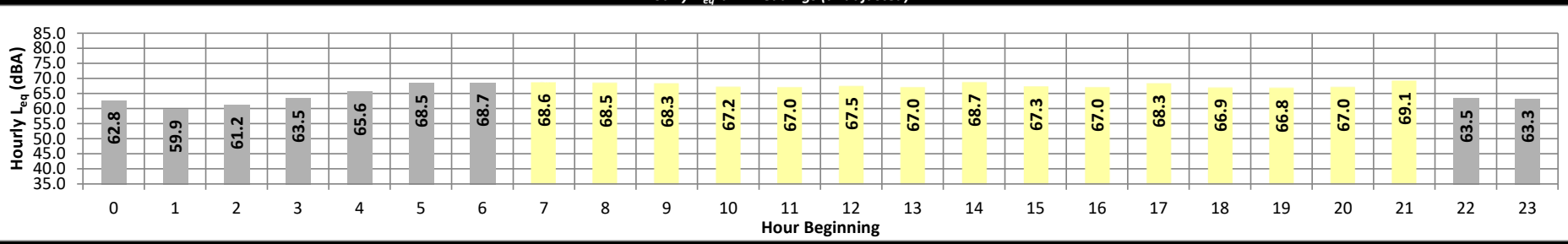
24-Hour Noise Level Measurement Summary

Date: Thursday, May 30, 2024 *Location:* L1 - Located south of the site near the residence at 10404 *Meter:* Piccolo II *JN:* 15643

Project: Telegraph and Santa Fe Springs *Source:* Sycamore Ln. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	62.8	74.3	48.3	73.9	73.1	70.0	67.8	61.5	55.6	49.1	48.6	48.4	62.8	10.0	72.8
	1	59.9	69.5	41.0	69.3	68.8	67.3	65.8	59.9	53.0	43.0	41.9	41.2	59.9	10.0	69.9
	2	61.2	71.2	41.0	70.9	70.5	68.6	66.6	61.1	54.4	42.8	41.8	41.2	61.2	10.0	71.2
	3	63.5	72.7	45.6	72.4	72.0	70.3	68.9	63.9	58.0	48.9	47.3	46.0	63.5	10.0	73.5
	4	65.6	74.0	48.5	73.7	73.3	71.8	70.6	66.8	61.8	51.2	49.7	48.7	65.6	10.0	75.6
	5	68.5	77.4	52.0	77.0	76.6	74.6	72.8	69.3	65.7	56.6	54.5	52.4	68.5	10.0	78.5
	6	68.7	75.8	56.1	75.5	75.1	73.5	72.4	70.2	67.2	59.1	57.4	56.3	68.7	10.0	78.7
Day	7	68.6	75.1	57.2	74.9	74.5	73.2	72.4	70.1	67.3	60.4	58.6	57.4	68.6	0.0	68.6
	8	68.5	75.4	56.8	75.1	74.6	73.2	72.3	69.9	67.2	60.0	58.5	57.1	68.5	0.0	68.5
	9	68.3	76.6	55.7	76.2	75.6	73.8	72.6	69.2	66.1	58.8	57.3	56.0	68.3	0.0	68.3
	10	67.2	74.8	55.2	74.4	73.8	72.2	71.2	68.4	65.5	58.0	56.5	55.4	67.2	0.0	67.2
	11	67.0	74.6	54.3	74.3	73.7	71.9	70.8	68.3	65.5	57.6	56.1	54.5	67.0	0.0	67.0
	12	67.5	75.6	55.2	75.1	74.4	72.2	71.0	68.5	66.0	59.4	57.5	55.6	67.5	0.0	67.5
	13	67.0	73.3	54.7	73.0	72.6	71.5	70.7	68.4	66.0	58.6	56.8	54.9	67.0	0.0	67.0
	14	68.7	79.7	55.1	79.2	78.2	74.5	71.7	68.5	65.7	58.6	56.6	55.3	68.7	0.0	68.7
	15	67.3	75.3	55.2	75.0	74.5	72.4	71.1	68.3	65.5	58.5	57.0	55.4	67.3	0.0	67.3
	16	67.0	73.7	56.0	73.4	72.8	71.5	70.6	68.2	65.9	59.3	57.5	56.2	67.0	0.0	67.0
	17	68.3	78.0	55.3	77.6	76.9	74.6	72.4	68.4	65.6	58.7	57.3	55.7	68.3	0.0	68.3
	18	66.9	74.6	54.5	74.2	73.6	71.9	70.9	68.2	65.2	57.7	56.2	54.7	66.9	0.0	66.9
	19	66.8	75.0	53.8	74.6	74.0	72.0	70.7	67.9	65.0	56.6	55.0	54.0	66.8	5.0	71.8
	20	67.0	78.2	54.1	77.5	76.5	72.9	70.5	67.1	63.7	56.8	55.6	54.3	67.0	5.0	72.0
	21	69.1	81.5	50.7	80.7	79.9	76.5	73.1	67.3	63.0	54.4	52.6	51.0	69.1	5.0	74.1
Night	22	63.5	71.4	48.4	71.0	70.5	69.1	68.3	65.0	60.2	51.0	49.6	48.6	63.5	10.0	73.5
	23	63.3	72.2	49.6	71.9	71.4	69.8	68.5	63.9	59.2	51.2	50.4	49.8	63.3	10.0	73.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	66.8	73.3	50.7	73.0	72.6	71.5	70.5	67.1	63.0	54.4	52.6	51.0
	Max	69.1	81.5	57.2	80.7	79.9	76.5	73.1	70.1	67.3	60.4	58.6	57.4
Energy Average		67.8	Average:		75.7	75.0	73.0	71.5	68.4	65.5	58.2	56.6	55.2
Night	Min	59.9	69.5	41.0	69.3	68.8	67.3	65.8	59.9	53.0	42.8	41.8	41.2
	Max	68.7	77.4	56.1	77.0	76.6	74.6	72.8	70.2	67.2	59.1	57.4	56.3
Energy Average		65.1	Average:		72.9	72.4	70.6	69.1	64.6	59.4	50.3	49.0	48.0

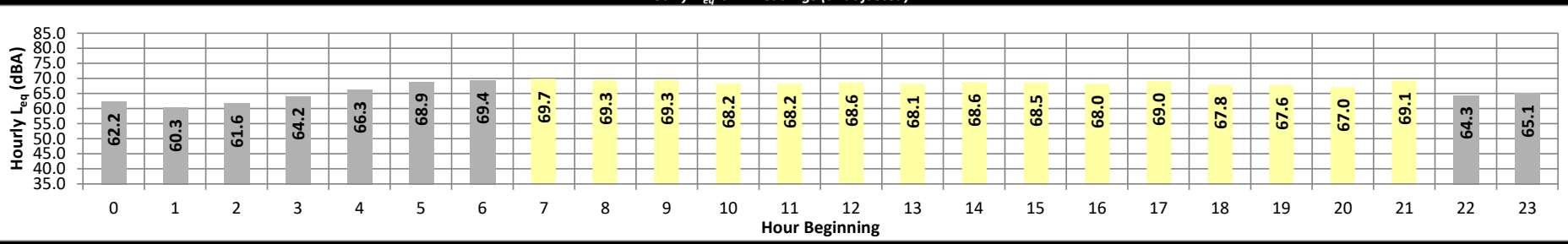
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
72.4	**67.8**	**65.1**

24-Hour Noise Level Measurement Summary

Date: Thursday, May 30, 2024 *Location:* L2 - Located south of the site near the residence at 1410 *Meter:* Piccolo II *JN:* 15643

Project: Telegraph and Santa Fe Springs *Source:* Orchid Way. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	62.2	73.3	45.1	72.9	72.3	69.7	67.7	61.1	54.4	46.2	45.7	45.2	62.2	10.0	72.2
	1	60.3	70.7	42.7	70.4	69.9	68.1	66.2	59.4	52.0	44.3	43.5	42.9	60.3	10.0	70.3
	2	61.6	72.1	42.5	71.8	71.4	69.2	67.2	61.0	54.0	44.5	43.4	42.6	61.6	10.0	71.6
	3	64.2	74.5	45.8	74.1	73.5	71.3	69.7	63.9	57.3	47.7	46.7	45.9	64.2	10.0	74.2
	4	66.3	75.4	48.3	75.0	74.4	72.3	71.2	67.5	61.9	51.0	49.4	48.6	66.3	10.0	76.3
	5	68.9	78.3	52.5	77.9	77.1	74.6	73.0	69.9	66.3	56.1	54.0	52.7	68.9	10.0	78.9
	6	69.4	76.9	55.8	76.4	75.9	74.2	73.4	71.0	67.7	59.2	57.5	56.1	69.4	10.0	79.4
Day	7	69.7	77.7	57.6	77.2	76.6	74.5	73.4	70.9	68.0	60.2	58.9	57.8	69.7	0.0	69.7
	8	69.3	76.1	58.1	75.8	75.3	73.8	72.9	70.8	67.9	60.8	59.5	58.3	69.3	0.0	69.3
	9	69.3	78.8	55.9	78.3	77.2	75.4	73.3	69.9	66.8	59.3	57.4	56.2	69.3	0.0	69.3
	10	68.2	75.9	54.8	75.4	74.8	73.1	72.3	69.6	66.4	58.4	56.8	55.2	68.2	0.0	68.2
	11	68.2	76.0	55.2	75.6	74.9	73.1	72.2	69.5	66.4	58.2	56.7	55.5	68.2	0.0	68.2
	12	68.6	76.8	55.9	76.3	75.5	73.4	72.2	69.7	67.1	59.5	57.5	56.1	68.6	0.0	68.6
	13	68.1	75.0	55.1	74.6	74.0	72.7	72.0	69.4	66.8	59.2	57.3	55.4	68.1	0.0	68.1
	14	68.6	76.4	55.2	76.0	75.3	74.0	72.8	69.8	66.8	58.8	56.9	55.4	68.6	0.0	68.6
	15	68.5	77.0	55.6	76.6	76.0	73.5	72.2	69.7	66.6	59.2	57.2	55.9	68.5	0.0	68.5
	16	68.0	74.6	56.5	74.3	73.8	72.5	71.7	69.3	66.8	60.0	58.4	56.8	68.0	0.0	68.0
	17	69.0	79.2	54.8	78.7	77.9	74.9	72.9	69.1	66.3	58.1	56.4	55.1	69.0	0.0	69.0
	18	67.8	74.8	54.6	74.5	74.0	72.9	72.1	69.1	66.1	57.8	56.1	54.8	67.8	0.0	67.8
	19	67.6	75.3	54.0	74.9	74.4	72.7	71.7	69.1	65.8	57.0	55.8	54.3	67.6	5.0	72.6
	20	67.0	76.0	53.7	75.6	74.9	72.6	71.1	68.0	64.1	56.3	55.1	54.0	67.0	5.0	72.0
	21	69.1	80.8	50.7	80.2	79.5	75.8	73.5	68.2	63.4	53.4	52.0	50.9	69.1	5.0	74.1
Night	22	64.3	72.9	49.2	72.6	72.1	70.5	69.4	65.4	60.3	52.0	50.9	49.5	64.3	10.0	74.3
	23	65.1	74.2	55.2	73.9	73.5	71.8	70.4	65.1	60.9	55.9	55.6	55.3	65.1	10.0	75.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	67.0	74.6	50.7	74.3	73.8	72.5	71.1	68.0	63.4	53.4	52.0	50.9
	Max	69.7	80.8	58.1	80.2	79.5	75.8	73.5	70.9	68.0	60.8	59.5	58.3
Energy Average		68.5	Average:		76.3	75.6	73.7	72.4	69.5	66.4	58.4	56.8	55.4
Night	Min	60.3	70.7	42.5	70.4	69.9	68.1	66.2	59.4	52.0	44.3	43.4	42.6
	Max	69.4	78.3	55.8	77.9	77.1	74.6	73.4	71.0	67.7	59.2	57.5	56.1
Energy Average		65.7	Average:		73.9	73.3	71.3	69.8	64.9	59.4	50.8	49.6	48.7

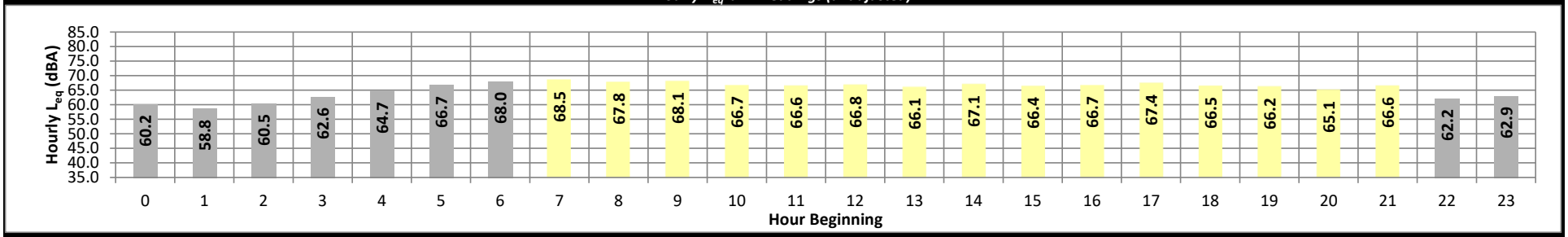
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
73.0	**68.5**	**65.7**

24-Hour Noise Level Measurement Summary

Date: Thursday, May 30, 2024 *Location:* L3 - Located south of the site near the residence at 10404 *Meter:* Piccolo II *JN:* 15643

Project: Telegraph and Santa Fe Springs *Source:* Satinwood Ct. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	60.2	71.6	42.0	71.3	70.6	67.8	65.4	58.7	51.9	43.2	42.6	42.1	60.2	10.0	70.2
	1	58.8	69.4	42.8	69.0	68.4	66.5	64.7	57.8	50.4	43.8	43.4	43.0	58.8	10.0	68.8
	2	60.5	71.5	41.7	71.0	70.3	67.9	65.9	59.7	53.0	43.8	42.5	41.8	60.5	10.0	70.5
	3	62.6	73.0	43.8	72.6	72.0	69.7	68.1	62.5	56.0	45.7	44.7	44.0	62.6	10.0	72.6
	4	64.7	74.8	47.0	74.3	73.4	71.0	69.6	65.3	59.9	49.4	48.2	47.2	64.7	10.0	74.7
	5	66.7	75.3	52.1	74.8	74.2	72.4	71.4	67.9	63.8	55.4	54.0	52.5	66.7	10.0	76.7
	6	68.0	77.7	54.1	77.0	75.8	73.3	71.9	69.0	65.6	57.7	55.9	54.2	68.0	10.0	78.0
Day	7	68.5	78.6	55.1	77.8	76.6	74.2	72.6	69.1	66.0	58.2	56.6	55.4	68.5	0.0	68.5
	8	67.8	76.7	56.2	76.3	75.6	73.1	71.5	68.6	65.7	59.0	57.6	56.4	67.8	0.0	67.8
	9	68.1	78.7	54.2	78.1	77.1	74.0	72.1	68.2	64.9	57.7	56.1	54.5	68.1	0.0	68.1
	10	66.7	75.6	52.5	75.0	74.2	71.9	70.9	67.8	64.4	55.5	53.9	52.7	66.7	0.0	66.7
	11	66.6	75.7	53.2	75.1	74.3	71.9	70.5	67.4	64.3	56.5	54.7	53.4	66.6	0.0	66.6
	12	66.8	75.6	53.8	75.1	74.4	72.1	70.8	67.6	64.8	57.3	55.3	54.1	66.8	0.0	66.8
	13	66.1	74.0	54.0	73.5	72.7	71.0	70.1	67.2	64.4	57.4	55.9	54.2	66.1	0.0	66.1
	14	67.1	77.2	53.9	76.4	75.5	72.6	70.5	67.7	64.8	57.0	55.4	54.2	67.1	0.0	67.1
	15	66.4	75.2	54.1	74.8	74.0	71.7	70.4	67.3	64.0	56.9	55.4	54.3	66.4	0.0	66.4
	16	66.7	76.0	55.8	74.5	72.8	71.0	70.2	67.4	64.6	58.6	57.4	56.0	66.7	0.0	66.7
	17	67.4	78.3	52.1	77.9	77.3	73.8	71.4	67.3	64.3	55.7	53.7	52.3	67.4	0.0	67.4
	18	66.5	75.9	53.2	75.4	74.6	72.1	70.4	67.2	63.9	56.5	54.8	53.5	66.5	0.0	66.5
	19	66.2	75.6	52.3	75.2	74.3	71.8	70.1	67.2	63.7	55.5	53.9	52.7	66.2	5.0	71.2
	20	65.1	74.9	50.9	74.4	73.7	71.0	69.6	65.8	61.7	54.2	52.7	51.2	65.1	5.0	70.1
	21	66.6	78.6	48.4	77.8	76.9	73.2	70.9	65.8	61.2	51.1	49.6	48.6	66.6	5.0	71.6
Night	22	62.2	71.7	47.1	71.3	70.6	68.3	67.2	63.0	57.9	49.9	48.6	47.3	62.2	10.0	72.2
	23	62.9	72.5	47.9	72.1	71.6	69.7	68.6	62.9	57.2	50.2	49.2	48.1	62.9	10.0	72.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	65.1	74.0	48.4	73.5	72.7	71.0	69.6	65.8	61.2	51.1	49.6	48.6
	Max	68.5	78.7	56.2	78.1	77.3	74.2	72.6	69.1	66.0	59.0	57.6	56.4
Energy Average		66.9	Average:		75.8	74.9	72.4	70.8	67.5	64.2	56.5	54.9	53.6
Night	Min	58.8	69.4	41.7	69.0	68.4	66.5	64.7	57.8	50.4	43.2	42.5	41.8
	Max	68.0	77.7	54.1	77.0	75.8	73.3	71.9	69.0	65.6	57.7	55.9	54.2
Energy Average		64.0	Average:		72.6	71.9	69.6	68.1	63.0	57.3	48.8	47.7	46.7

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
71.3	**66.9**	**64.0**

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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
Road Name: Norwalk Blvd.
Road Segment: n/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,780 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,178 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-0.73	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-17.97	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-21.92	2.07	-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:	66.6	64.7	62.9	56.9	65.5	66.1
Medium Trucks:	60.6	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.9	60.5	51.5	52.7	61.1	61.2
Vehicle Noise:	68.6	66.9	63.6	59.1	67.6	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	75	161	346
CNEL:	37	80	172	371

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

Scenario: EP
Road Name: Norwalk Blvd.
Road Segment: n/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,687 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,269 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	94.30%
Medium Trucks:	84.8%	4.9%	10.3%	2.82%
Heavy Trucks:	86.5%	2.7%	10.8%	2.88%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-0.55	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-15.79	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-15.70	2.07	-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:	66.8	64.9	63.1	57.1	65.7	66.3
Medium Trucks:	62.8	61.3	54.9	53.4	61.8	62.1
Heavy Trucks:	68.2	66.7	57.7	59.0	67.3	67.4
Vehicle Noise:	71.2	69.6	64.7	61.8	70.3	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	112	242	520
CNEL:	55	118	253	546

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

Scenario: OYC
Road Name: Norwalk Blvd.
Road Segment: n/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,590 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,559 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.49	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-16.75	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-20.71	2.07	-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:	67.8	65.9	64.2	58.1	66.7	67.3
Medium Trucks:	61.8	60.3	54.0	52.4	60.9	61.1
Heavy Trucks:	63.2	61.7	52.7	53.9	62.3	62.4
Vehicle Noise:	69.8	68.1	64.8	60.3	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	194	418
CNEL:	45	96	208	447

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

Scenario: OYCP
Road Name: Norwalk Blvd.
Road Segment: n/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,497 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,650 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	95.02%
Medium Trucks:	84.8%	4.9%	10.3%	2.59%
Heavy Trucks:	86.5%	2.7%	10.8%	2.38%

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:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.63	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-15.01	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-15.38	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.1	64.3	58.2	66.9	67.5
Medium Trucks:	63.6	62.1	55.7	54.2	62.6	62.9
Heavy Trucks:	68.5	67.1	58.0	59.3	67.6	67.8
Vehicle Noise:	71.9	70.3	65.7	62.5	71.0	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	269	580
CNEL:	61	131	283	610

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

Scenario: E
Road Name: Norwalk Blvd.
Road Segment: s/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,570 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,557 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.48	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-16.75	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-20.71	2.07	-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:	67.8	65.9	64.2	58.1	66.7	67.3
Medium Trucks:	61.8	60.3	54.0	52.4	60.9	61.1
Heavy Trucks:	63.2	61.7	52.7	53.9	62.3	62.4
Vehicle Noise:	69.8	68.1	64.8	60.3	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	194	417
CNEL:	45	96	207	447

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

Scenario: EP
Road Name: Norwalk Blvd.
Road Segment: s/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,668 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,567 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.44%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.51	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-16.75	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-20.71	2.07	-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:	67.8	66.0	64.2	58.1	66.8	67.4
Medium Trucks:	61.8	60.3	54.0	52.4	60.9	61.1
Heavy Trucks:	63.2	61.7	52.7	53.9	62.3	62.4
Vehicle Noise:	69.9	68.1	64.9	60.3	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	194	418
CNEL:	45	97	208	448

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

Scenario: OYC
Road Name: Norwalk Blvd.
Road Segment: s/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,330 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,633 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.69	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-16.55	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-20.50	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.1	64.4	58.3	66.9	67.5
Medium Trucks:	62.0	60.5	54.2	52.6	61.1	61.3
Heavy Trucks:	63.4	61.9	52.9	54.1	62.5	62.6
Vehicle Noise:	70.1	68.3	65.0	60.5	69.0	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	200	431
CNEL:	46	99	214	461

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

Scenario: OYCP
Road Name: Norwalk Blvd.
Road Segment: s/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,428 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,643 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.44%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.72	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-16.55	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-20.50	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	66.2	64.4	58.3	67.0	67.6
Medium Trucks:	62.0	60.5	54.2	52.6	61.1	61.3
Heavy Trucks:	63.4	61.9	52.9	54.1	62.5	62.6
Vehicle Noise:	70.1	68.3	65.1	60.5	69.0	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	200	432
CNEL:	46	100	215	462

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

Scenario: E
Road Name: Santa Fe Springs Rd.
Road Segment: s/o Los Nietos Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,780 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,278 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.14	2.03	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-15.10	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.06	2.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	63.5	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	64.8	63.4	54.3	55.6	63.9	64.1
Vehicle Noise:	71.5	69.8	66.5	61.9	70.5	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	250	538
CNEL:	58	124	267	576

Tuesday, July 30, 2024

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

Scenario: EP
Road Name: Santa Fe Springs Rd.
Road Segment: s/o Los Nietos Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,926 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,293 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.44%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.16	2.03	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-15.10	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.06	2.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	63.5	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	64.8	63.4	54.3	55.6	63.9	64.1
Vehicle Noise:	71.5	69.8	66.5	62.0	70.5	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	250	539
CNEL:	58	124	268	577

Tuesday, July 30, 2024

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

Scenario: OYC
Road Name: Santa Fe Springs Rd.
Road Segment: s/o Los Nietos Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,830 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,383 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.33	2.03	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-14.91	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.86	2.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.8	66.0	60.0	68.6	69.2
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	65.0	63.6	54.5	55.8	64.1	64.3
Vehicle Noise:	71.7	70.0	66.7	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	554
CNEL:	59	128	275	593

Tuesday, July 30, 2024

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

Scenario: OYCP
Road Name: Santa Fe Springs Rd.
Road Segment: s/o Los Nietos Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,976 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,398 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.44%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.36	2.03	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-14.91	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.86	2.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.8	66.0	60.0	68.6	69.2
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	65.0	63.6	54.5	55.8	64.1	64.3
Vehicle Noise:	71.7	70.0	66.7	62.2	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	258	556
CNEL:	59	128	276	595

Tuesday, July 30, 2024

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

Scenario: E
Road Name: Santa Fe Springs Rd.
Road Segment: n/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,040 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,204 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.99	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-15.25	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-19.20	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	67.4	65.7	59.6	68.2	68.8
Medium Trucks:	63.3	61.8	55.5	53.9	62.4	62.6
Heavy Trucks:	64.7	63.2	54.2	55.5	63.8	63.9
Vehicle Noise:	71.4	69.6	66.3	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	113	244	526
CNEL:	56	121	261	563

Tuesday, July 30, 2024

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

Scenario: EP
Road Name: Santa Fe Springs Rd.
Road Segment: n/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,284 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,228 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.45%
Medium Trucks:	84.8%	4.9%	10.3%	1.82%
Heavy Trucks:	86.5%	2.7%	10.8%	0.73%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	2.04	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-15.25	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-19.20	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	67.5	65.7	59.7	68.3	68.9
Medium Trucks:	63.3	61.8	55.5	53.9	62.4	62.6
Heavy Trucks:	64.7	63.2	54.2	55.5	63.8	63.9
Vehicle Noise:	71.4	69.7	66.4	61.8	70.4	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	114	245	529
CNEL:	57	122	263	566

Tuesday, July 30, 2024

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

Scenario: OYC
Road Name: Santa Fe Springs Rd.
Road Segment: n/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,940 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,394 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	2.35	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-14.89	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-18.84	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	67.8	66.0	60.0	68.6	69.2
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	65.0	63.6	54.6	55.8	64.2	64.3
Vehicle Noise:	71.7	70.0	66.7	62.2	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	120	258	556
CNEL:	60	128	276	595

Tuesday, July 30, 2024

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

Scenario: OYCP
Road Name: Santa Fe Springs Rd.
Road Segment: n/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,184 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,418 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.45%
Medium Trucks:	84.8%	4.9%	10.3%	1.82%
Heavy Trucks:	86.5%	2.7%	10.8%	0.73%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	2.40	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-14.89	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-18.84	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	67.8	66.1	60.0	68.6	69.2
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	65.0	63.6	54.6	55.8	64.2	64.3
Vehicle Noise:	71.7	70.0	66.7	62.2	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	120	259	558
CNEL:	60	129	277	598

Tuesday, July 30, 2024

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

Scenario: E
Road Name: Santa Fe Springs Rd.
Road Segment: s/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,190 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,919 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.39	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-15.85	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-19.80	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	66.8	65.1	59.0	67.6	68.2
Medium Trucks:	62.7	61.2	54.9	53.3	61.8	62.0
Heavy Trucks:	64.1	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	70.8	69.0	65.7	61.2	69.7	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	48	103	223	480
CNEL:	51	111	238	514

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

Scenario: EP
Road Name: Santa Fe Springs Rd.
Road Segment: s/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,239 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,924 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.43%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.40	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-15.85	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-19.80	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	66.8	65.1	59.0	67.6	68.2
Medium Trucks:	62.7	61.2	54.9	53.3	61.8	62.0
Heavy Trucks:	64.1	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	70.8	69.0	65.7	61.2	69.7	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	48	103	223	480
CNEL:	51	111	239	514

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

Scenario: OYC
Road Name: Santa Fe Springs Rd.
Road Segment: s/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,780 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,178 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.94	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-15.30	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-19.25	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	67.4	65.6	59.6	68.2	68.8
Medium Trucks:	63.3	61.8	55.4	53.9	62.3	62.6
Heavy Trucks:	64.6	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	71.3	69.6	66.3	61.7	70.3	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	112	242	522
CNEL:	56	120	259	559

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

Scenario: OYCP
Road Name: Santa Fe Springs Rd.
Road Segment: s/o Telegraph Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,829 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,183 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	70 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.43%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.056
Medium Trucks:	35.809
Heavy Trucks:	35.833

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.95	2.03	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	77.72	-15.30	2.07	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-19.25	2.07	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	67.4	65.6	59.6	68.2	68.8
Medium Trucks:	63.3	61.8	55.4	53.9	62.3	62.6
Heavy Trucks:	64.6	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	71.3	69.6	66.3	61.8	70.3	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	113	242	522
CNEL:	56	121	260	559

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

Scenario: E
Road Name: Telegraph Rd.
Road Segment: w/o Heritage Park Dr.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,760 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,676 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.32	1.35	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.91	1.39	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.87	1.38	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.9	69.0	67.3	61.2	69.8	70.4
Medium Trucks:	64.7	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.1	55.1	56.4	64.7	64.8
Vehicle Noise:	72.8	71.0	67.9	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	79	169	364	785
CNEL:	84	181	391	842

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

Scenario: EP
Road Name: Telegraph Rd.
Road Segment: w/o Heritage Park Dr.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,667 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,767 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	95.99%
Medium Trucks:	84.8%	4.9%	10.3%	2.29%
Heavy Trucks:	86.5%	2.7%	10.8%	1.72%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.40	1.35	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-13.82	1.39	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-15.06	1.38	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	65.8	64.3	57.9	56.4	64.9	65.1
Heavy Trucks:	69.4	68.0	58.9	60.2	68.5	68.6
Vehicle Noise:	74.0	72.3	68.3	64.5	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	95	205	442	952
CNEL:	101	218	469	1,010

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

Scenario: OYC
Road Name: Telegraph Rd.
Road Segment: w/o Heritage Park Dr.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,120 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,812 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.54	1.35	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.70	1.39	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.66	1.38	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.2	69.3	67.5	61.4	70.1	70.7
Medium Trucks:	64.9	63.4	57.1	55.5	64.0	64.2
Heavy Trucks:	65.8	64.4	55.3	56.6	64.9	65.1
Vehicle Noise:	73.0	71.3	68.1	63.4	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	81	175	377	812
CNEL:	87	188	404	871

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

Scenario: OYCP
Road Name: Telegraph Rd.
Road Segment: w/o Heritage Park Dr.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,027 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,903 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	96.06%
Medium Trucks:	84.8%	4.9%	10.3%	2.27%
Heavy Trucks:	86.5%	2.7%	10.8%	1.67%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.62	1.35	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-13.65	1.39	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-14.97	1.38	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.2	69.3	67.6	61.5	70.1	70.7
Medium Trucks:	66.0	64.5	58.1	56.6	65.0	65.3
Heavy Trucks:	69.5	68.0	59.0	60.3	68.6	68.7
Vehicle Noise:	74.2	72.5	68.5	64.7	73.2	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	98	210	453	976
CNEL:	104	223	481	1,036

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

Scenario: E
Road Name: Telegraph Rd.
Road Segment: w/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,600 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,560 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.13	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.11	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.06	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.8	67.1	61.0	69.6	70.3
Medium Trucks:	64.5	63.0	56.7	55.1	63.6	63.8
Heavy Trucks:	65.4	64.0	54.9	56.2	64.5	64.6
Vehicle Noise:	72.6	70.8	67.7	63.0	71.6	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	354	762
CNEL:	82	176	380	818

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

Scenario: EP
Road Name: Telegraph Rd.
Road Segment: w/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,507 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,651 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	95.93%
Medium Trucks:	84.8%	4.9%	10.3%	2.31%
Heavy Trucks:	86.5%	2.7%	10.8%	1.76%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.22	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-13.97	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.14	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.9	67.2	61.1	69.7	70.3
Medium Trucks:	65.7	64.2	57.8	56.3	64.7	64.9
Heavy Trucks:	69.3	67.9	58.8	60.1	68.4	68.6
Vehicle Noise:	73.9	72.2	68.2	64.4	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	432	931
CNEL:	99	213	458	988

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

Scenario: OYC
Road Name: Telegraph Rd.
Road Segment: w/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,900 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,690 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.35	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.89	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.85	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.3	61.2	69.9	70.5
Medium Trucks:	64.7	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.2	55.1	56.4	64.7	64.9
Vehicle Noise:	72.8	71.1	67.9	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	366	788
CNEL:	85	182	392	845

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

Scenario: OYCP
Road Name: Telegraph Rd.
Road Segment: w/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,807 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,781 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	96.00%
Medium Trucks:	84.8%	4.9%	10.3%	2.29%
Heavy Trucks:	86.5%	2.7%	10.8%	1.72%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.43	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-13.80	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.05	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.4	61.3	69.9	70.5
Medium Trucks:	65.8	64.3	58.0	56.4	64.9	65.1
Heavy Trucks:	69.4	68.0	58.9	60.2	68.5	68.7
Vehicle Noise:	74.0	72.3	68.4	64.5	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	206	443	955
CNEL:	101	218	470	1,013

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

Scenario: E
Road Name: Telegraph Rd.
Road Segment: e/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,250 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,325 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.71	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.53	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.48	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.7	60.6	69.2	69.8
Medium Trucks:	64.1	62.6	56.2	54.7	63.2	63.4
Heavy Trucks:	65.0	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	72.2	70.4	67.3	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	154	332	715
CNEL:	77	165	356	767

Tuesday, July 30, 2024

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

Scenario: EP
Road Name: Telegraph Rd.
Road Segment: e/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,348 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,335 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.43%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.73	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.53	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.48	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.7	60.6	69.2	69.9
Medium Trucks:	64.1	62.6	56.2	54.7	63.2	63.4
Heavy Trucks:	65.0	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	72.2	70.4	67.3	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	154	332	716
CNEL:	77	166	357	768

Tuesday, July 30, 2024

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

Scenario: OYC
Road Name: Telegraph Rd.
Road Segment: e/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,720 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,472 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.98	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.26	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.21	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	66.9	60.9	69.5	70.1
Medium Trucks:	64.4	62.9	56.5	55.0	63.4	63.7
Heavy Trucks:	65.2	63.8	54.8	56.0	64.4	64.5
Vehicle Noise:	72.4	70.7	67.5	62.9	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	346	745
CNEL:	80	172	371	799

Tuesday, July 30, 2024

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

Scenario: OYCP
Road Name: Telegraph Rd.
Road Segment: e/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,818 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,482 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.43%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.00	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.26	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.21	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	66.9	60.9	69.5	70.1
Medium Trucks:	64.4	62.9	56.5	55.0	63.4	63.7
Heavy Trucks:	65.2	63.8	54.8	56.0	64.4	64.5
Vehicle Noise:	72.4	70.7	67.6	62.9	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	161	346	746
CNEL:	80	172	371	800

Tuesday, July 30, 2024

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

Scenario: E
Road Name: Telegraph Rd.
Road Segment: w/o Santa Fe Springs Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,990 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,299 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.66	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.57	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.53	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	64.1	62.6	56.2	54.6	63.1	63.3
Heavy Trucks:	64.9	63.5	54.4	55.7	64.1	64.2
Vehicle Noise:	72.1	70.4	67.2	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	153	329	710
CNEL:	76	164	353	761

Tuesday, July 30, 2024

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

Scenario: EP
Road Name: Telegraph Rd.
Road Segment: w/o Santa Fe Springs Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,088 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,309 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.43%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.68	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.57	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.53	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	64.1	62.6	56.2	54.6	63.1	63.3
Heavy Trucks:	64.9	63.5	54.4	55.7	64.1	64.2
Vehicle Noise:	72.1	70.4	67.2	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	153	330	711
CNEL:	76	164	354	763

Tuesday, July 30, 2024

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

Scenario: OYC
Road Name: Telegraph Rd.
Road Segment: w/o Santa Fe Springs Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,930 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,693 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.35	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.89	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.84	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.3	61.2	69.9	70.5
Medium Trucks:	64.7	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.2	55.1	56.4	64.7	64.9
Vehicle Noise:	72.8	71.1	67.9	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	366	789
CNEL:	85	182	393	846

Tuesday, July 30, 2024

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

Scenario: OYCP
Road Name: Telegraph Rd.
Road Segment: w/o Santa Fe Springs Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,028 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,703 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.43%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.37	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.89	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.84	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	64.7	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.2	55.1	56.4	64.7	64.9
Vehicle Noise:	72.8	71.1	67.9	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	367	790
CNEL:	85	183	393	847

Tuesday, July 30, 2024

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

Scenario: E
Road Name: Telegraph Rd.
Road Segment: e/o Santa Fe Springs Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,620 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,962 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.98	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-16.26	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.22	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.9	59.9	68.5	69.1
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	71.4	69.7	66.5	61.9	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	138	296	638
CNEL:	68	148	318	685

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

Scenario: EP
Road Name: Telegraph Rd.
Road Segment: e/o Santa Fe Springs Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,815 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,982 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.45%
Medium Trucks:	84.8%	4.9%	10.3%	1.82%
Heavy Trucks:	86.5%	2.7%	10.8%	0.73%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.02	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-16.26	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.22	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	66.0	59.9	68.5	69.1
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	71.5	69.7	66.6	61.9	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	138	298	641
CNEL:	69	148	319	688

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

Scenario: OYC
Road Name: Telegraph Rd.
Road Segment: e/o Santa Fe Springs Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,890 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,489 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.01	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.23	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.18	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	67.0	60.9	69.5	70.1
Medium Trucks:	64.4	62.9	56.5	55.0	63.5	63.7
Heavy Trucks:	65.3	63.8	54.8	56.0	64.4	64.5
Vehicle Noise:	72.5	70.7	67.6	62.9	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	161	347	748
CNEL:	80	173	373	803

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

Scenario: OYCP
Road Name: Telegraph Rd.
Road Segment: e/o Santa Fe Springs Rd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,085 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,509 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.44%
Medium Trucks:	84.8%	4.9%	10.3%	1.83%
Heavy Trucks:	86.5%	2.7%	10.8%	0.73%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.04	1.35	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.23	1.39	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.18	1.38	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.8	67.0	60.9	69.6	70.2
Medium Trucks:	64.4	62.9	56.5	55.0	63.5	63.7
Heavy Trucks:	65.3	63.8	54.8	56.0	64.4	64.5
Vehicle Noise:	72.5	70.7	67.6	62.9	71.5	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	162	349	751
CNEL:	81	174	374	805

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

Scenario: E
Road Name: Telegraph Rd.
Road Segment: e/o Greeenleaf Av.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,360 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,636 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.19	1.35	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-17.05	1.39	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.01	1.38	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	66.9	65.1	59.1	67.7	68.3
Medium Trucks:	62.6	61.1	54.7	53.2	61.6	61.9
Heavy Trucks:	63.4	62.0	53.0	54.2	62.6	62.7
Vehicle Noise:	70.6	68.9	65.7	61.1	69.6	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	122	263	566
CNEL:	61	131	282	607

Tuesday, July 30, 2024

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

Scenario: EP
Road Name: Telegraph Rd.
Road Segment: e/o Greeenleaf Av.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,555 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,656 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.45%
Medium Trucks:	84.8%	4.9%	10.3%	1.82%
Heavy Trucks:	86.5%	2.7%	10.8%	0.73%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.24	1.35	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-17.05	1.39	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.01	1.38	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.0	65.2	59.1	67.8	68.4
Medium Trucks:	62.6	61.1	54.7	53.2	61.6	61.9
Heavy Trucks:	63.4	62.0	53.0	54.2	62.6	62.7
Vehicle Noise:	70.7	68.9	65.8	61.1	69.7	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	123	264	569
CNEL:	61	131	283	610

Tuesday, July 30, 2024

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

Scenario: OYC
Road Name: Telegraph Rd.
Road Segment: e/o Greeenleaf Av.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,140 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,714 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.39	1.35	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-16.85	1.39	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.81	1.38	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.0	67.1	65.3	59.3	67.9	68.5
Medium Trucks:	62.8	61.3	54.9	53.4	61.8	62.1
Heavy Trucks:	63.6	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	70.8	69.1	65.9	61.3	69.8	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	126	271	583
CNEL:	63	135	290	626

Tuesday, July 30, 2024

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

Scenario: OYCP
Road Name: Telegraph Rd.
Road Segment: e/o Greeenleaf Av.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,335 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,734 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	90 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.45%
Medium Trucks:	84.8%	4.9%	10.3%	1.82%
Heavy Trucks:	86.5%	2.7%	10.8%	0.73%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.000
Medium Trucks:	39.778
Heavy Trucks:	39.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.44	1.35	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-16.85	1.39	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.81	1.38	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	67.2	65.4	59.3	68.0	68.6
Medium Trucks:	62.8	61.3	54.9	53.4	61.8	62.1
Heavy Trucks:	63.6	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	70.9	69.1	66.0	61.3	69.9	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	126	272	586
CNEL:	63	136	292	629

Tuesday, July 30, 2024

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

Scenario: E
Road Name: Hawkins St.
Road Segment: e/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	150 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	15 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	16 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.343
Medium Trucks:	29.040
Heavy Trucks:	29.069

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-19.68	3.37	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	77.72	-36.92	3.44	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-40.87	3.43	-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:	49.0	47.1	45.3	39.3	47.9	48.5
Medium Trucks:	43.0	41.5	35.2	33.6	42.1	42.3
Heavy Trucks:	44.4	42.9	33.9	35.1	43.5	43.6
Vehicle Noise:	51.0	49.3	46.0	41.5	50.0	50.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	1	3	6	14
CNEL:	1	3	7	15

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

Scenario: EP
Road Name: Hawkins St.
Road Segment: e/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,057 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	106 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	16 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	59.97%
Medium Trucks:	84.8%	4.9%	10.3%	13.61%
Heavy Trucks:	86.5%	2.7%	10.8%	26.42%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.343
Medium Trucks:	29.040
Heavy Trucks:	29.069

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-13.31	3.37	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	77.72	-19.75	3.44	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-16.87	3.43	-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:	55.4	53.5	51.7	45.7	54.3	54.9
Medium Trucks:	60.2	58.7	52.3	50.8	59.2	59.5
Heavy Trucks:	68.4	66.9	57.9	59.1	67.5	67.6
Vehicle Noise:	69.2	67.7	59.7	59.9	68.3	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	50	107	231
CNEL:	24	51	110	236

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

Scenario: OYC
Road Name: Hawkins St.
Road Segment: e/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,010 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	101 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	16 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	29.343
Medium Trucks:	29.040
Heavy Trucks:	29.069

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-11.40	3.37	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	77.72	-28.63	3.44	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-32.59	3.43	-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:	57.3	55.4	53.6	47.6	56.2	56.8
Medium Trucks:	51.3	49.8	43.4	41.9	50.4	50.6
Heavy Trucks:	52.6	51.2	42.2	43.4	51.8	51.9
Vehicle Noise:	59.3	57.6	54.3	49.8	58.3	58.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	11	23	50
CNEL:	5	11	25	53

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

Scenario: OYCP
Road Name: Hawkins St.
Road Segment: e/o Norwalk Blvd.
Project Name: NWC Telegraph and SFS
Job Number: 15643

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,917 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	192 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	16 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	76.78%
Medium Trucks:	84.8%	4.9%	10.3%	8.33%
Heavy Trucks:	86.5%	2.7%	10.8%	14.90%

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:	29.343
Medium Trucks:	29.040
Heavy Trucks:	29.069

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-9.65	3.37	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	77.72	-19.30	3.44	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-16.77	3.43	-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:	59.0	57.1	55.4	49.3	57.9	58.5
Medium Trucks:	60.7	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	68.5	67.0	58.0	59.2	67.6	67.7
Vehicle Noise:	69.5	68.1	60.7	60.2	68.6	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	52	113	243
CNEL:	25	54	116	250

APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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15643 - NWC Telegraph and SFS Industrial

CadnaA Noise Prediction Model: 15643-02.cna
Date: 30.07.24
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	38.2	37.3	44.0	50.0	45.0	0.0				5.00	a	6541157.05	1801152.98	5.00
RECEIVERS		R2	38.6	37.6	44.2	50.0	45.0	0.0				5.00	a	6541438.30	1801152.11	5.00
RECEIVERS		R3	42.6	41.9	48.5	50.0	45.0	0.0				5.00	a	6541794.21	1801151.24	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	6541043.49	1802089.46	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541095.45	1802088.66	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541153.80	1802091.05	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541049.09	1802405.99	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541101.04	1802403.59	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541153.80	1802403.59	50.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541658.17	1801760.14	50.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541710.93	1801760.94	50.00
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541710.13	1801712.98	50.00
POINTSOURCE		AC10	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541657.37	1801713.78	50.00
POINTSOURCE		AC11	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541830.82	1802525.09	50.00
POINTSOURCE		AC12	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541877.18	1802524.29	50.00
POINTSOURCE		AC13	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541877.18	1802462.74	50.00
POINTSOURCE		AC14	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6541828.43	1802458.74	50.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6541793.26	1802132.62	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6541793.26	1802155.00	5.00
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6541793.26	1802256.51	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6541792.46	1802282.89	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	69.7	69.7	69.7	Lw	93.2									8	a
LINESOURCE		TRUCK02	93.2	93.2	93.2	69.9	69.9	69.9	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			6541791.66	1802353.23	8.00	0.00
						6541295.28	1802356.43	8.00	0.00
						6541266.81	1802354.69	8.00	0.00
						6541238.56	1802350.76	8.00	0.00
						6541210.69	1802344.67	8.00	0.00
						6541183.37	1802336.45	8.00	0.00
						6541145.91	1802324.33	8.00	0.00
						6541108.87	1802311.00	8.00	0.00
						6541072.27	1802296.48	8.00	0.00
LINESOURCE	TRUCK02	8.00	a			6541745.30	1802159.80	8.00	0.00
						6541142.61	1802166.19	8.00	0.00
						6541130.67	1802167.42	8.00	0.00
						6541119.03	1802170.35	8.00	0.00
						6541107.93	1802174.92	8.00	0.00
						6541097.60	1802181.04	8.00	0.00
						6541088.26	1802188.57	8.00	0.00
						6541057.08	1802215.75	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	65.8	65.8	65.8	Lw	103.4					8	a
AREASOURCE		COLD01	111.5	111.5	111.5	76.4	76.4	76.4	Lw	111.5					8	a
AREASOURCE		COLD02	111.5	111.5	111.5	76.8	76.8	76.8	Lw	111.5					8	a
AREASOURCE		CAR01	81.1	81.1	81.1	56.4	56.4	56.4	Lw	81.1					5	a
AREASOURCE		CAR02	81.1	81.1	81.1	56.5	56.5	56.5	Lw	81.1					5	a
AREASOURCE		CAR03	81.1	81.1	81.1	50.5	50.5	50.5	Lw	81.1					5	a
AREASOURCE		CAR04	81.1	81.1	81.1	56.6	56.6	56.6	Lw	81.1					5	a
AREASOURCE		CAR05	81.1	81.1	81.1	58.7	58.7	58.7	Lw	81.1					5	a
AREASOURCE		CAR06	81.1	81.1	81.1	55.3	55.3	55.3	Lw	81.1					5	a
AREASOURCE		CAR07	81.1	81.1	81.1	55.6	55.6	55.6	Lw	81.1					5	a
AREASOURCE		CAR08	81.1	81.1	81.1	52.9	52.9	52.9	Lw	81.1					5	a
AREASOURCE		CAR09	81.1	81.1	81.1	49.9	49.9	49.9	Lw	81.1					5	a
AREASOURCE		CAR10	81.1	81.1	81.1	51.8	51.8	51.8	Lw	81.1					5	a
AREASOURCE		CAR11	81.1	81.1	81.1	53.6	53.6	53.6	Lw	81.1					5	a
AREASOURCE		CAR12	81.1	81.1	81.1	49.4	49.4	49.4	Lw	81.1					5	a
AREASOURCE		CAR13	81.1	81.1	81.1	48.9	48.9	48.9	Lw	81.1					5	a
AREASOURCE		CAR14	81.1	81.1	81.1	53.6	53.6	53.6	Lw	81.1					5	a
AREASOURCE		CAR15	81.1	81.1	81.1	53.8	53.8	53.8	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			6541187.37	1802298.08	8.00	0.00
						6541776.47	1802298.88	8.00	0.00
						6541775.67	1802244.52	8.00	0.00
						6541795.65	1802242.93	8.00	0.00
						6541798.05	1802192.57	8.00	0.00
						6541185.77	1802195.77	8.00	0.00
AREASOURCE	COLD01	8.00	a			6541182.27	1802432.03	8.00	0.00
						6541795.66	1802430.92	8.00	0.00
						6541794.05	1802374.01	8.00	0.00
						6541183.56	1802373.91	8.00	0.00
AREASOURCE	COLD02	8.00	a			6541179.69	1802119.49	8.00	0.00
						6541741.30	1802117.43	8.00	0.00
						6541740.18	1802060.09	8.00	0.00
						6541180.98	1802062.67	8.00	0.00
AREASOURCE	CAR01	5.00	a			6541825.82	1801828.87	5.00	0.00
						6541844.42	1801828.66	5.00	0.00
						6541844.63	1801645.14	5.00	0.00
						6541828.71	1801645.14	5.00	0.00
AREASOURCE	CAR02	5.00	a			6541782.00	1801805.10	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6541802.46	1801804.28	5.00	0.00
						6541801.84	1801652.78	5.00	0.00
						6541781.38	1801654.02	5.00	0.00
AREASOURCE	CAR03	5.00	a			6541724.95	1801676.76	5.00	0.00
						6541724.95	1801659.94	5.00	0.00
						6541013.48	1801662.74	5.00	0.00
						6541013.48	1801680.68	5.00	0.00
AREASOURCE	CAR04	5.00	a			6541189.53	1801622.94	5.00	0.00
						6541334.17	1801623.50	5.00	0.00
						6541333.61	1801602.75	5.00	0.00
						6541188.41	1801602.19	5.00	0.00
AREASOURCE	CAR05	5.00	a			6541134.02	1801627.98	5.00	0.00
						6541134.58	1801525.95	5.00	0.00
						6541115.52	1801528.19	5.00	0.00
						6541116.08	1801627.98	5.00	0.00
AREASOURCE	CAR06	5.00	a			6541051.61	1801629.10	5.00	0.00
						6541091.97	1801630.23	5.00	0.00
						6541091.41	1801527.63	5.00	0.00
						6541050.49	1801529.31	5.00	0.00
AREASOURCE	CAR07	5.00	a			6540988.25	1801628.54	5.00	0.00
						6541026.38	1801627.98	5.00	0.00
						6541026.38	1801527.63	5.00	0.00
						6540987.69	1801528.19	5.00	0.00
AREASOURCE	CAR08	5.00	a			6540988.25	1802070.90	5.00	0.00
						6541007.88	1802072.02	5.00	0.00
						6541007.88	1801691.90	5.00	0.00
						6540989.94	1801690.78	5.00	0.00
AREASOURCE	CAR09	5.00	a			6540943.30	1802153.39	5.00	0.00
						6540963.61	1802153.91	5.00	0.00
						6540966.74	1801519.02	5.00	0.00
						6540942.78	1801518.50	5.00	0.00
AREASOURCE	CAR10	5.00	a			6540943.30	1802346.62	5.00	0.00
						6540941.74	1802802.87	5.00	0.00
						6540962.57	1802802.87	5.00	0.00
						6540962.57	1802346.10	5.00	0.00
AREASOURCE	CAR11	5.00	a			6540988.09	1802743.50	5.00	0.00
						6541008.40	1802742.46	5.00	0.00
						6541005.28	1802422.66	5.00	0.00
						6540987.57	1802424.23	5.00	0.00
AREASOURCE	CAR12	5.00	a			6541013.78	1802773.36	5.00	0.00
						6541900.94	1802769.89	5.00	0.00
						6541900.94	1802752.52	5.00	0.00
						6541012.92	1802755.13	5.00	0.00
AREASOURCE	CAR13	5.00	a			6540967.78	1802821.10	5.00	0.00
						6541959.10	1802817.63	5.00	0.00
						6541960.83	1802798.53	5.00	0.00
						6540966.04	1802804.61	5.00	0.00
AREASOURCE	CAR14	5.00	a			6541961.70	1802795.93	5.00	0.00
						6541978.19	1802799.40	5.00	0.00
						6541976.46	1802429.61	5.00	0.00
						6541959.96	1802430.48	5.00	0.00
AREASOURCE	CAR15	5.00	a			6541915.69	1802749.92	5.00	0.00
						6541932.19	1802747.32	5.00	0.00
						6541934.79	1802431.34	5.00	0.00
						6541914.83	1802431.34	5.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		45.00	a	6541019.55	1802744.56	45.00	0.00
									6541904.20	1802743.27	45.00	0.00
									6541897.74	1802430.74	45.00	0.00
									6541182.27	1802432.03	45.00	0.00
									6541183.56	1802373.91	45.00	0.00
									6541022.13	1802377.79	45.00	0.00
BUILDING			BUILDING00002	x	0		45.00	a	6541018.26	1802116.91	45.00	0.00
									6541179.69	1802119.49	45.00	0.00
									6541180.98	1802062.67	45.00	0.00
									6541740.18	1802060.09	45.00	0.00
									6541735.02	1801694.60	45.00	0.00
									6541016.96	1801693.31	45.00	0.00

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APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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15643 - NWC Telegraph and SFS Industrial

CadnaA Noise Prediction Model: 15643-02_Construction.cna
Date: 30.07.24
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance 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	64.2	-42.8	61.2	50.0	45.0	0.0				5.00	a	6541157.05	1801152.98	5.00
RECEIVERS		R2	64.2	-42.8	61.2	50.0	45.0	0.0				5.00	a	6541438.30	1801152.11	5.00
RECEIVERS		R3	63.4	-43.6	60.4	50.0	45.0	0.0				5.00	a	6541794.21	1801151.24	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	125.4	18.4	18.4	75.1	-31.9	-31.9	PWL-Pt	118.4					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	8.00	a			6540935.79	1802825.90	8.00	0.00
						6541981.50	1802824.87	8.00	0.00
						6541981.50	1802378.90	8.00	0.00
						6541804.63	1802377.82	8.00	0.00
						6541804.63	1802123.91	8.00	0.00
						6541779.68	1802122.83	8.00	0.00
						6541782.93	1801836.37	8.00	0.00
						6541858.89	1801835.28	8.00	0.00
						6541857.80	1801650.13	8.00	0.00
						6541832.80	1801625.13	8.00	0.00
						6541434.88	1801627.21	8.00	0.00
						6541435.58	1801589.02	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6541168.22	1801590.40	8.00	0.00
						6541167.52	1801511.24	8.00	0.00
						6540938.36	1801512.63	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)