Appendix H
Noise Impact Analysis

FONTANA FOOTHILLS COMMERCE CENTER
DRAFT EIR

Fontana Foothills Commerce Center

NOISE IMPACT ANALYSIS

CITY OF FONTANA

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LIST OF ABBREVIATED TERMS

(1)	Reference
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
I-10	Interstate 10
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Fontana Foothills Commerce Center
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures, if any, for the proposed Fontana Foothills Commerce Center development ("Project"). The Project site is located east of Juniper Avenue and north of Jurupa Avenue in the City of Fontana. The proposed Project is to consist of 754,408 square feet of warehouse/distribution center use across two buildings:

- Building 1: 432,569 square feet of high-cube transload and short-term warehouse use;
- Building 2:321,839 square feet of high-cube transload and short-term warehouse use.

This study has been prepared consistent with applicable City of Fontana noise standards, and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the potential noise sources within Fontana Foothills Commerce Center site, this analysis estimates the Project-related operational (stationary-source) noise levels at the nearby receiver locations. The Project-related operational noise sources are expected to include cold storage loading dock activity, entry gate & truck movements, roof-top air conditioning units, parking lot vehicle movements and trash enclosure activity. The analysis shows that the unmitigated Project-related operational noise levels will satisfy the City of Fontana 70 dBA L_{eq} daytime and 65 dBA L_{eq} nighttime exterior noise level standards at all the off-site noise-sensitive receiver locations. Project operational noise levels at all receiver locations, therefore, will result in *less than significant* noise impacts.

CONSTRUCTION NOISE ANALYSIS

Construction activities are expected to create short-term and intermittent high-level noise conditions at receivers surrounding the Project site. Using sample reference noise levels to represent the construction activities of the Fontana Foothills Commerce Center site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays.

If Project construction activity occurs outside of the hours specified in the Municipal Code, noise levels shall satisfy the City of Fontana construction noise level thresholds of 70 dBA L_{eq} during the daytime hours and 65 dBA L_{eq} during the nighttime hours.

CONSTRUCTION VIBRATION ANALYSIS

Based on the vibration standards used in this report, the unmitigated Project construction vibration levels will satisfy the 0.2 in/sec PPV threshold at all of the nearby sensitive receiver locations. Therefore, the vibration impacts due to Project construction are considered *less than significant*. Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter.

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

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

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*	-

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Fontana Foothills Commerce Center ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for transportation related CNEL traffic analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source hourly average L_{eq} operational noise and short-term construction noise impacts.

1.1 SITE LOCATION

The proposed Fontana Foothills Commerce Center Project is located is located east of Juniper Avenue and north of Jurupa Avenue in the City of Fontana, as shown on Exhibit 1-A. The Project site is currently occupied with residential homes. Existing residential uses are located east of the Project site at the northwest corner of Jurupa Avenue and Sierra Avenue are planned to be developed in the future as commercial retail land use. The vacant site to the west of Juniper Avenue is planned for development as part of the Goodman Industrial Park Fontana III.

The Project site is designated for Residential Planned Community (R-PC) and Walkable Mixed-Use Corridor and Downtown (WMXU-1) uses. The applicant requests the project site to be annexed into the Southwest Industrial Park (SWIP Specific Plan) and to be designated "Slover East Industrial District". The site's General Plan land use designation would be amended to General Industrial (I-G). The site would be zoned Specific Plan (SWIP Specific Plan).

1.2 PROJECT DESCRIPTION

Exhibit 1-B illustrates the site plan for the Project. As indicated on Exhibit 1-B, the proposed Project is to consist of 754,408 square feet of warehouse/distribution center use across two buildings:

- Building 1: 432,569 square feet of high-cube transload and short-term warehouse use;
- Building 2: 321,839 square feet of high-cube transload and short-term warehouse use.

To present the potential worst-case conditions, the Project is assumed to be operational 24 hours per day, seven days per week. It is expected that 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. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown. The on-site Project-related noise sources are expected to include: cold storage loading dock activity, entry gate & truck movements, roof-top air conditioning units, parking lot vehicle movements and trash enclosure activity. This noise analysis is intended to describe noise level impacts associated with the expected typical 24-hour, seven days per week operational activities at the Project site

Per the *Fontana Foothills Commerce Center Traffic Impact Analysis* (TIA) prepared by Urban Crossroads, Inc., the Project is expected to generate a total of approximately 1,058 two-way

vehicular trips per day (529 inbound and 529 outbound) which includes 342 two-way truck trips per day (171 inbound and 171 outbound) (2). This noise study relies on the actual Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of individual truck trips on the study area roadway network. Analyzing actual Project trips results in a conservative worst-case scenario to describe the off-site Project traffic noise level impacts.

EXHIBIT 1-A: LOCATION MAP

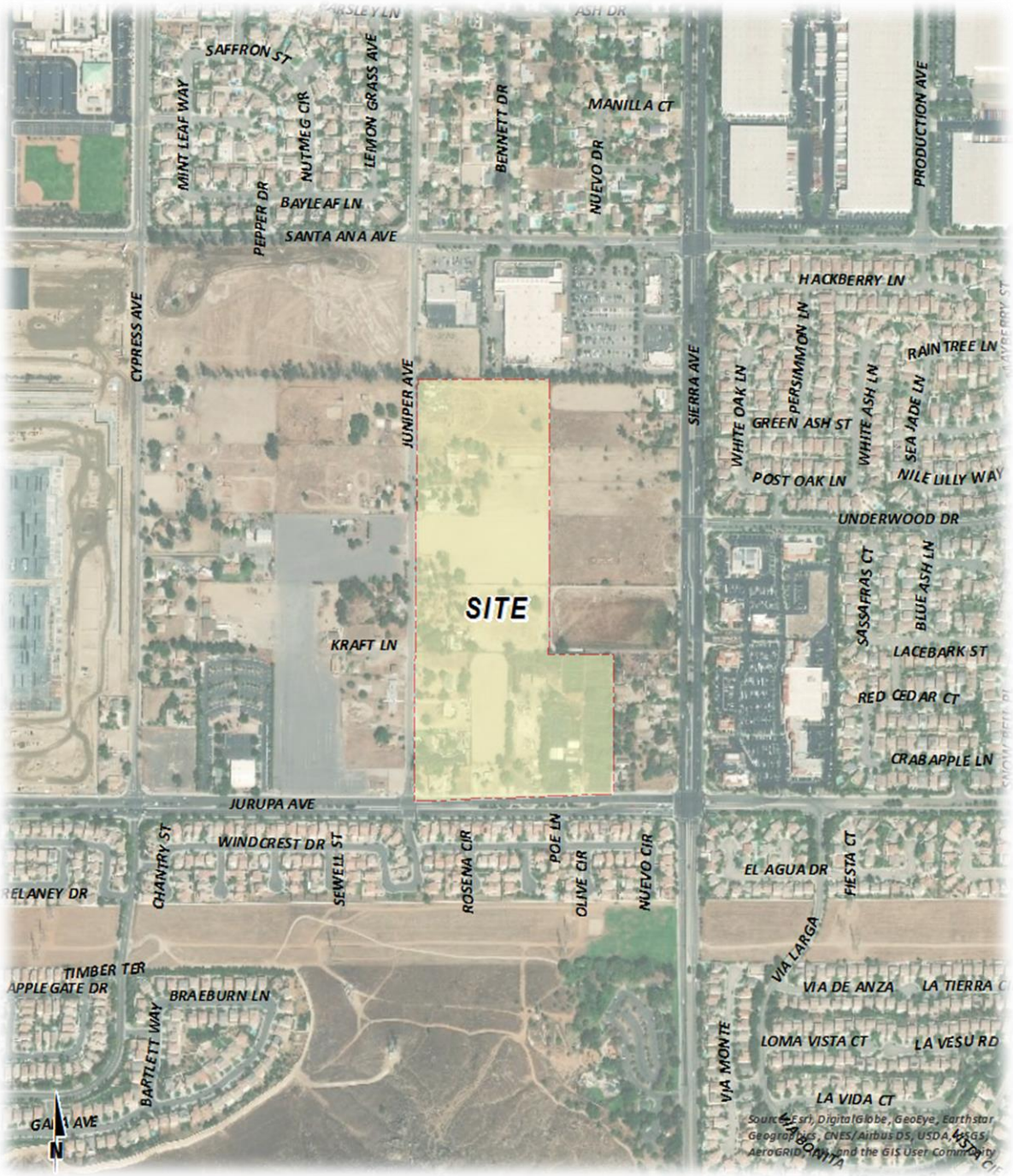
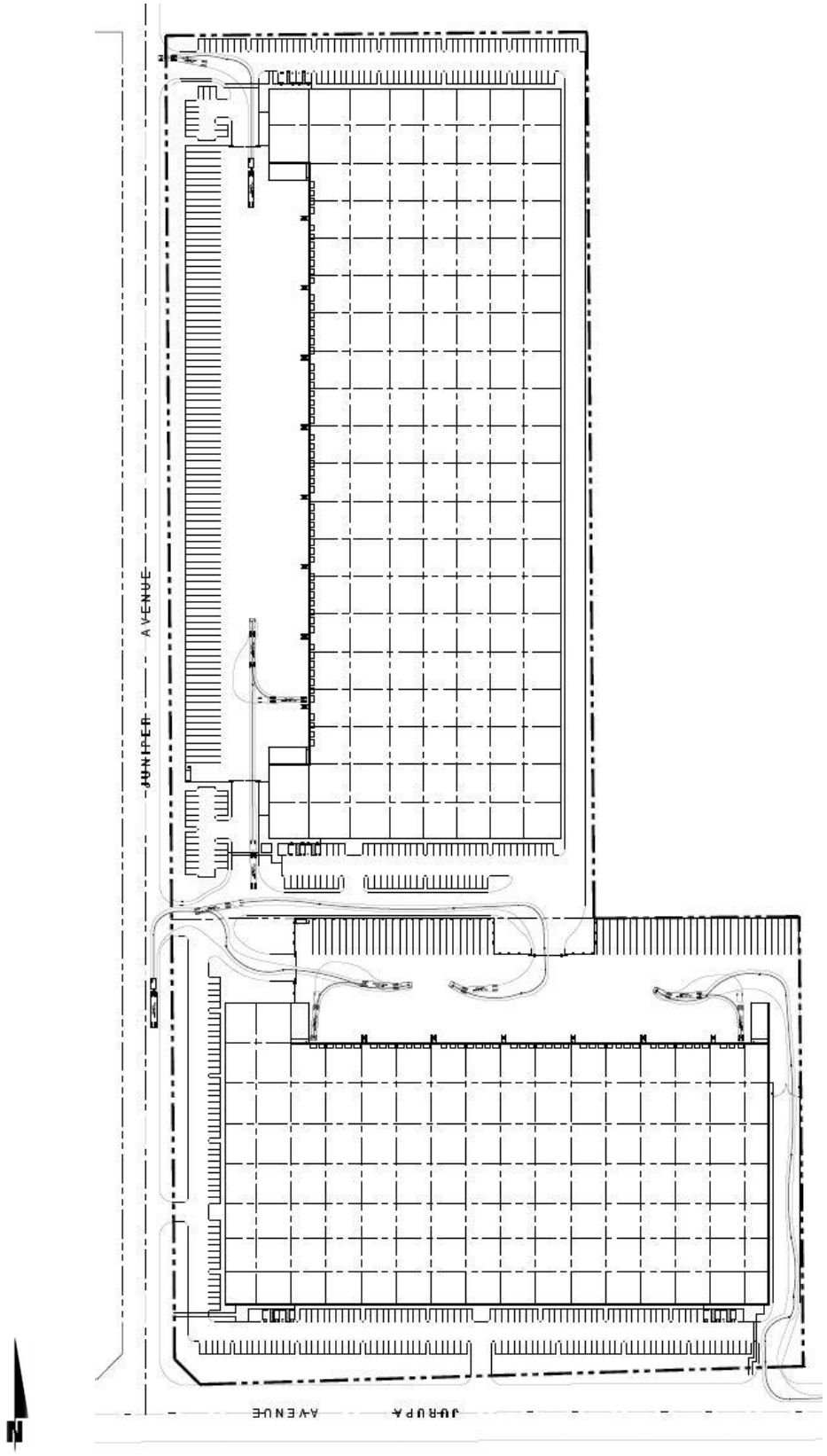


EXHIBIT 1-B: SITE PLAN



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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		

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. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort. (4) 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 commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period (typically one hour) and is commonly used to describe the "average" noise levels within the environment. The Project hourly average L_{eq} noise descriptor is used in this analysis to describe the stationary-source operational and construction noise levels.

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 sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Fontana 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. (3)

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. (5)

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. (3)

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 FHWA does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (5)

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)

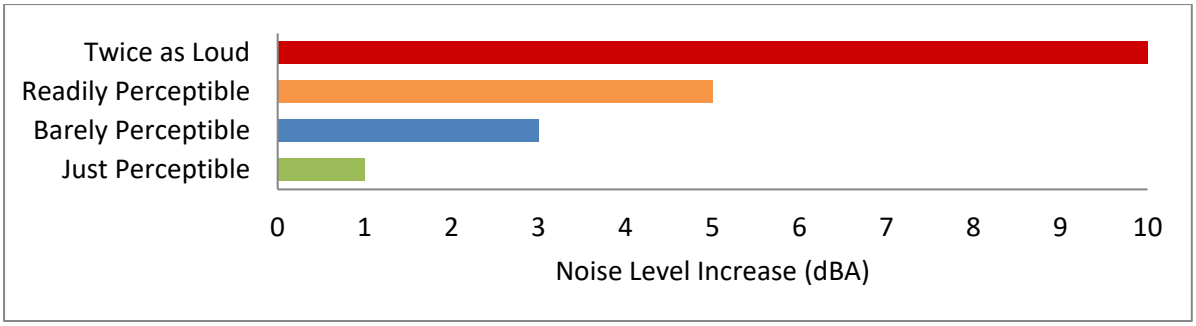
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (7) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (7) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (8)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area.

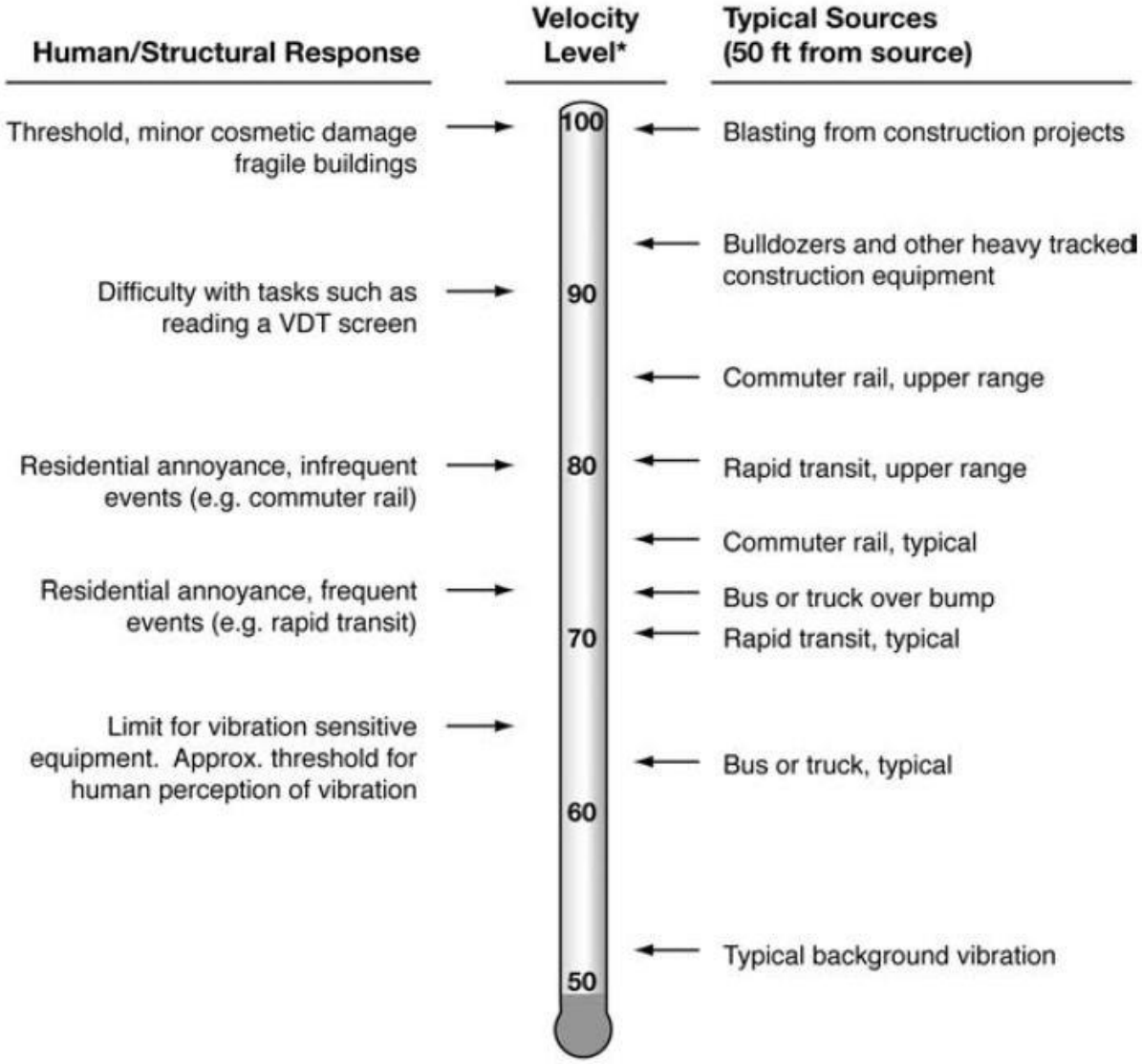
2.9 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (9), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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

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



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

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

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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (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 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (11) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 CITY OF FONTANA GENERAL PLAN NOISE ELEMENT

The City of Fontana General Plan was updated on November 13th, 2018. (12) To protect residents from the negative effect of "spillover" noise (Goal #10), the City of Fontana has identified the following policies in the General Plan Noise Element:

Policy

Residential land uses and areas identified as noise-sensitive shall be protected from excessive noise from non-transportation sources including industrial, commercial, and residential activities and equipment.

Actions

A. Projects located in commercial areas shall not exceed stationary- source noise standards at the property line of proximate residential or commercial uses.

B. Industrial uses shall not exceed commercial or residential stationary source noise standards at the most proximate land uses.

C. Non-transportation noise shall be considered in land use planning decisions.

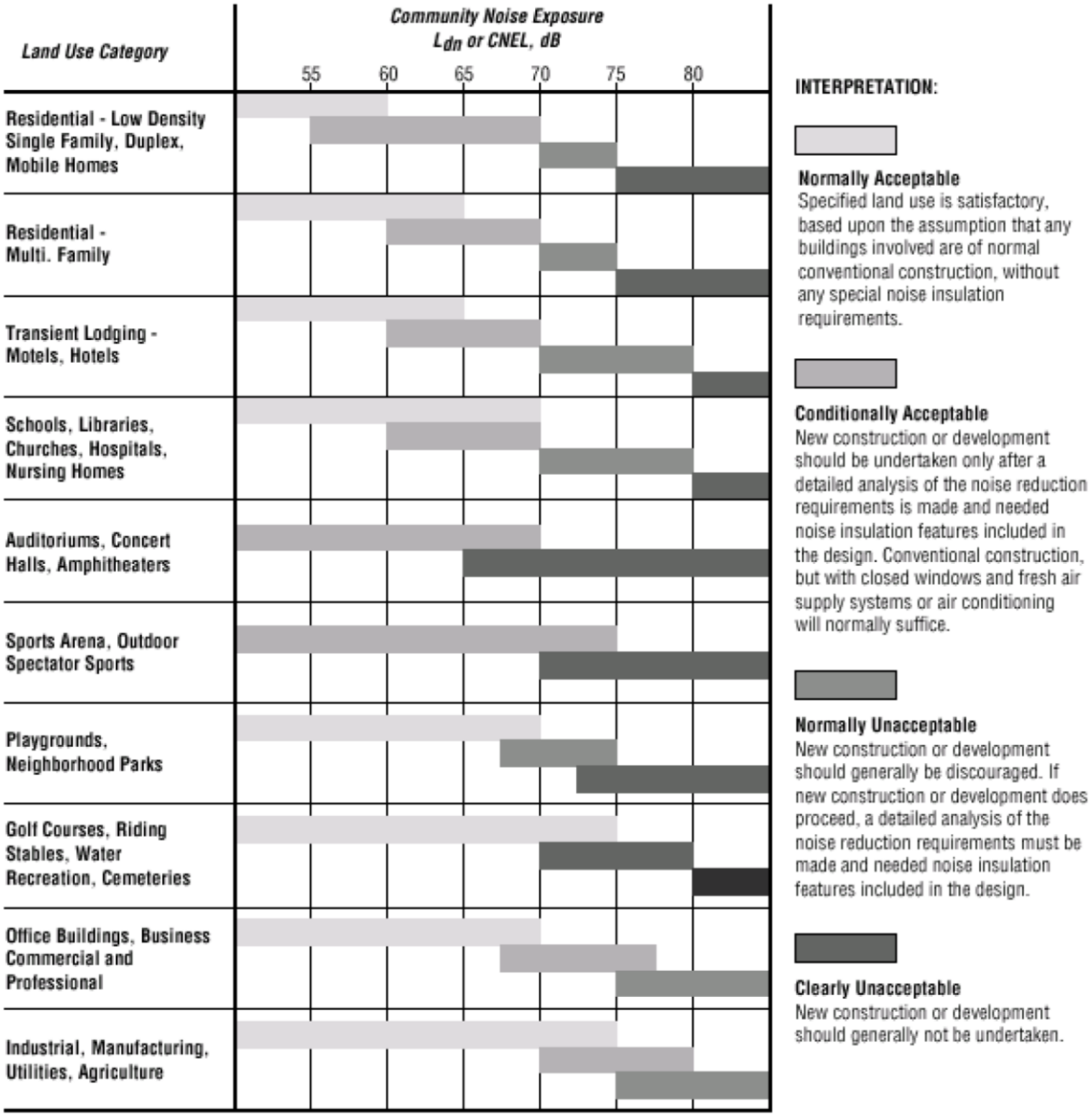
D. Construction shall be performed as quietly as feasible when performed in proximity to residential or other noise sensitive land uses.

3.3.1 LAND USE COMPATIBILITY

While the General Plan provides background and noise fundamentals, it does not identify criteria to assess the impacts associated with off-site transportation-related noise impacts. Therefore, for this analysis, the transportation noise criteria are derived from standards contained in the California Office of Planning and Research (OPR) *General Plan Guidelines*.

The OPR land use/noise compatibility standards are used by many California cities and counties and specify the maximum noise levels allowable for new developments impacted by transportation noise sources. The OPR land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix D: Noise Element Guidelines,* identify the criteria for industrial land uses such as the Project, as shown on Exhibit 3-A. When the unmitigated exterior noise levels approach 70 dBA CNEL Project land use is considered *normally acceptable*. With exterior noise levels range from 70 to 75 dBA CNEL, industrial land uses are considered *conditionally acceptable*, and with exterior noise levels greater than 75 dBA CNEL, they are considered *normally unacceptable*. For *normally unacceptable* land use, *new construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.* (10)

EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY CRITERIA



Source: OPR General Plan Guidelines, Appendix D: Noise Element Guidelines, Figure 2.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Fontana Foothills Commerce Center Project, stationary-source (operational) noise such as the expected cold storage loading dock activity, entry gate & truck movements, roof-top air conditioning units, parking lot vehicle movements and trash enclosure activity are typically evaluated against standards established under a jurisdiction's Municipal Code.

The City of Fontana noise control guidelines for determining and mitigating non-transportation or stationary noise source impacts from operations in neighboring residential areas are found in the Zoning and Development Code (Section 30-543), provided in Appendix 3.1. For industrial zoning districts, Section 30-543 indicates that *no person shall create or cause to be created any sound which exceeds the noise levels in this section as measured at the property line of any residentially zoned property*. The performance standards found in Section 30-543 limit the exterior noise level to 70 dBA L_{eq} during the daytime hours, and 65 dBA L_{eq} during the nighttime hours at sensitive receiver locations as shown on Table 3-1. (13)

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land Use	Time Period	Exterior Noise Levels (dBA L_{eq})[2]
City of Fontana[1]	Residential	Daytime	70
		Nighttime	65

[1] Source: Section 30-543 of the City of Fontana Development Code (Appendix 3.1).
[2] 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. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

3.5 CONSTRUCTION NOISE STANDARDS

The City of Fontana has set restrictions to control noise impacts associated with the construction of the proposed Project. According to Section 18-63(b)(7), *Construction or repairing of buildings or structures,* construction activity is limited: *between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays except in the case of urgent necessity*. (14) Project construction noise levels are, therefore, considered exempt if activities occur within the hours specified in the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays. However, if activity occurs outside of these hours, the City of Fontana stationary-source (operational) noise level standards of 70 dBA L_{eq} during the daytime hours, and 65 dBA L_{eq} during the nighttime hours shall apply, previously discussed in Section 3.4.

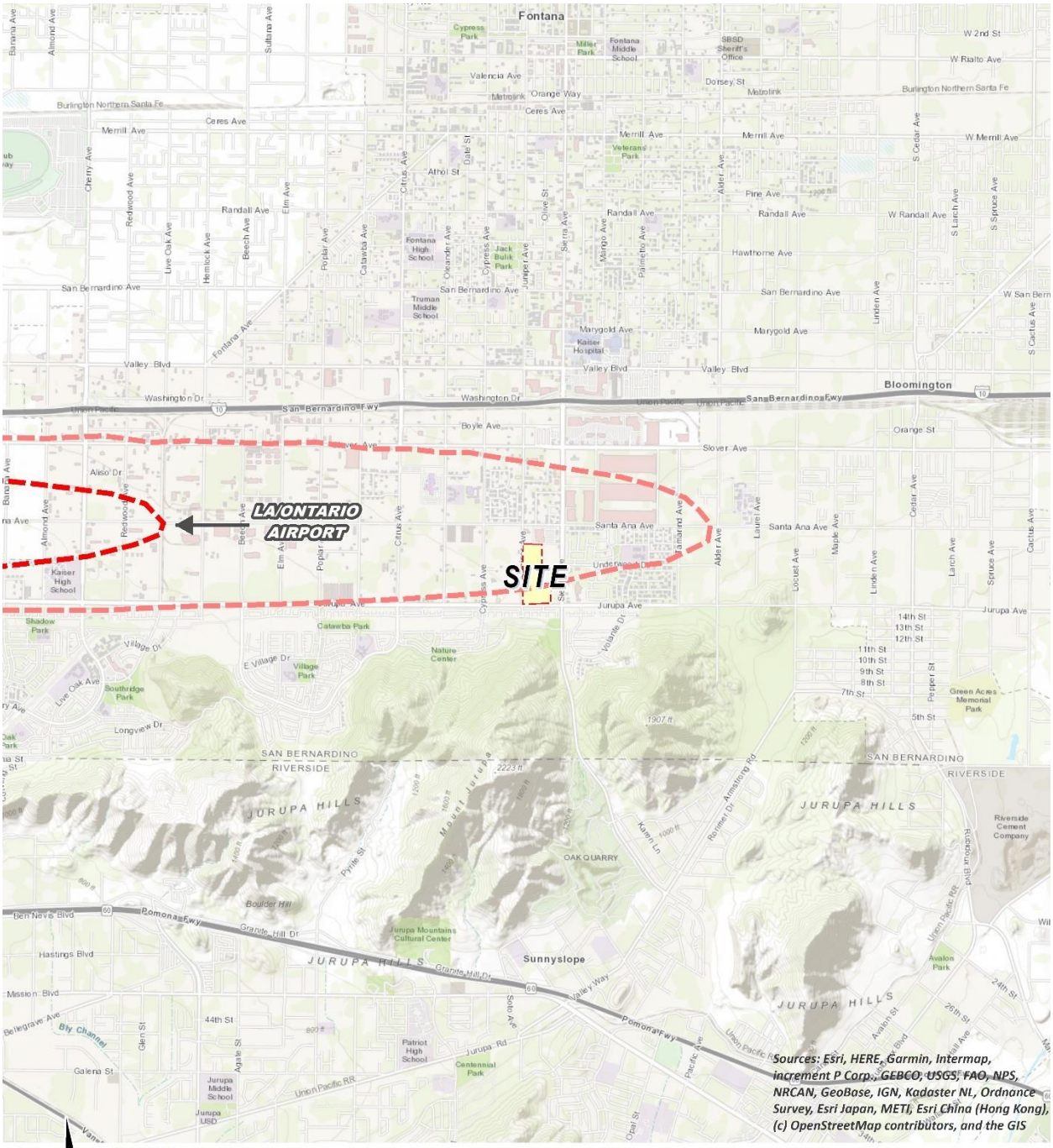
3.6 CONSTRUCTION VIBRATION STANDARDS

To analyze vibration impacts originating from the operation and construction of the Fontana Foothills Commerce Center, vibration-generating activities are typically evaluated against standards established under a City's Municipal Code. The City of Fontana Municipal Code, Section 30-543, indicates that operational vibration levels shall not *create or cause to be created any activity that causes a vibration that can be felt beyond the property line with or without the aid of an instrument*. (14) For analysis purposes, a peak-particle-velocity (PPV) vibration threshold of 0.2 in/sec PPV is used to determine perception consistent with the City of Fontana Municipal Code requirements based on guidance provided by the Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual. (9)

3.7 AIRPORT LAND USE COMPATIBILITY

According to the LA/Ontario International Airport Land Use Compatibility Plan (ONT ALUCP) the Project is located within the 60 to 65 dBA CNEL noise impact zone and within the Airport Influence Area (AIA), as shown on Exhibit 3-B. Based on the proposed industrial and office land use for Fontana Foothills Commerce Center, the ONT ALUCP identifies noise policies and criteria to minimize the interior noise exposure generated by aircraft activity. The noise criteria on Table 2-3 of the ONT ALUCP indicates that office uses located within the 60 to 65 dBA CNEL noise impact zone are considered *normally compatible* land use and must satisfy an interior noise level standard of 50 dBA CNEL. (15) Standard construction will provide a minimum of 25 dBA of noise reduction, and therefore, exterior noise levels between 60 to 65 dBA CNEL would be reduced to satisfy the interior noise level standard of 50 dBA CNEL, and as such, no further analysis is required or included in this noise study for the airport-related noise levels.

EXHIBIT 3-B: FUTURE AIRPORT NOISE LEVEL CONTOURS



4 SIGNIFICANCE CRITERIA

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

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

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

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

While the City of Fontana General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

As discussed in Section 3.7 the Project will be consistent with the requirements of the Los Angeles/Ontario International Airport. 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 Guideline C.

4.2 SIGNIFICANCE CRITERIA SUMMARY

Consistent with guidance provided by the City of Fontana, the following thresholds are used in this analysis to evaluate potential impacts. (16) Noise impacts, therefore, shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE

- When off-site traffic noise levels, without or with the Project, at existing and future noise-sensitive land uses (e.g. residential, schools, churches, etc.) exceed the City of Fontana General Plan Noise and Safety Element, Goal 8, Action A 65 dBA CNEL standard, and the Project creates a community noise level increase of greater than 3 dBA CNEL.
- When off-site traffic noise levels, without or with the Project, at existing and future non-noise-sensitive land uses (e.g. industrial, etc.) exceed the Governor's Office of Planning and Research (OPR) General Plan Guidelines, Appendix D: Noise Element Guidelines, normally acceptable 70 dBA CNEL noise level criteria and the Project creates a barely perceptible 3 dBA CNEL or greater Project-related noise level increase.

OPERATIONAL NOISE

- If operational (stationary-source) noise levels exceed the exterior 70 dBA Leq daytime or 65 dBA Leq nighttime noise level standards at adjacent land uses in the City of Fontana (City of Fontana Municipal Code, Chapter 30 Zoning and Development Code, Section 30-543), and the Project creates a community noise level increase of greater than 3 dBA L_{eq}.

OPERATIONAL VIBRATION

- If long-term Project generated operational vibration levels *create or cause to be created any activity that causes a vibration that can be felt beyond the property line with or without the aid of an instrument* (City of Fontana Municipal Code, Section 30-543). For analysis purposes, the peak-particle-velocity (PPV) vibration threshold of 0.2 in/sec PPV is used to determine perception consistent with the City of Fontana Municipal Code requirements (Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual).

CONSTRUCTION NOISE

- Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays.
- If Project construction activities occur outside of the hours specified above:
    - and Project construction noise levels would exceed the exterior 70 dBA L_{eq} daytime or 65 dBA L_{eq} nighttime noise level standards at adjacent land uses in the City of Fontana (City of Fontana Municipal Code, Chapter 30 Zoning and Development Code, Section 30-543);
    - and the Project creates a community noise level increase of greater than 3 dBA Leq.

CONSTRUCTION VIBRATION

- If short-term Project construction vibration levels exceed the Caltrans human annoyance vibration threshold of 0.2 in/sec PPV at adjacent uses (Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual). The FTA threshold is used to quantify potential impacts related to perception of short-term construction-related vibration levels.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic Noise[1]	Noise-Sensitive	If off-site traffic noise is > 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
	Non-Noise-Sensitive	If off-site traffic noise is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational Noise[2]	Adjacent Uses	If operational noise is > 70 dBA L_{eq} (daytime) and/or > 65 dBA L_{eq} (nighttime):	≥ 3 dBA L_{eq} Project increase	
Operational Vibration[3]		If operational vibration exceeds:	0.2 in/sec PPV	
Construction Noise[4]		If construction occurs outside of permitted hours, and construction noise is > 70 dBA L_{eq} (daytime) and/or > 65 dBA L_{eq} (nighttime):	≥ 3 dBA L_{eq} Project increase	
Construction Vibration[5]		If construction vibration exceeds:	0.2 in/sec PPV	

[1] Based on the City of Fontana General Plan Safety and Noise Element, Office of Planning and Research guidelines.
[2] Based on Section 30-543 of the City of Fontana Municipal Code.
[3] Based on Section 30-543 of the City of Fontana Municipal Code and the Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Based on Sections 18-63(7) and 30-543 of the City of Fontana Municipal Code.
[5] Based on the Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
"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 six locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, October 2nd 2019. 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 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. (17)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing 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*. (3) 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*. (9)

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. (9) 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.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels on Santa Ana Avenue, north of the Project site, near an existing residential home. The noise level measurements collected show an overall 24-hour exterior noise level of 68.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 65.2 dBA L_{eq} with an average nighttime noise level of 60.5 dBA L_{eq}.
- Location L2 represents the noise levels east of Sierra Avenue and north of Underwood Drive near an existing residential neighborhood. The noise level measurements collected show an overall 24-hour exterior noise level of 66.0 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 63.3 dBA L_{eq} with an average nighttime noise level of 57.1 dBA L_{eq}.
- Location L3 represents the noise levels west of Sierra Avenue and east of the site. The 24-hour CNEL indicates that the overall exterior noise level is 62.9 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 57.4 dBA L_{eq} with an average nighttime noise level of 55.7 dBA L_{eq}.
- Location L4 represents the noise levels south of Jurupa Avenue in the landscaped parkway near existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 78.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 73.9 dBA L_{eq} with an average nighttime noise level of 70.8 dBA L_{eq}.
- Location L5 represents the noise levels in the parking lot of St. Mary's Catholic Church. The exterior noise level measurements collected show an overall 24-hour noise level of 62.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 56.9 dBA L_{eq} with an average nighttime noise level of 55.5 dBA L_{eq}.
- Location L6 represents the noise levels on Juniper Avenue west of the Project Site. The noise level measurements collected show an overall 24-hour exterior noise level of 67.2 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 64.0 dBA Leq with an average nighttime noise level of 59.5 dBA Leq.

Table 5-1 provides the (energy average) 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.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network. The 24-hour existing noise level measurements shown on Table 5-1 present the existing ambient noise conditions.

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

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located on Santa Ana Avenue, north of the Project site, near an existing residential home.	65.2	60.5	68.4
L2	Located east of Sierra Avenue and north of Underwood Drive near an existing residential neighborhood.	63.3	57.1	66.0
L3	Located west of Sierra Avenue northeast of the Project Site on vacant property.	57.4	55.7	62.9
L4	Located south of Jurupa Avenue in the landscaped parkway near existing residential homes.	73.9	70.8	78.1
L5	Located in the parking lot of St. Mary's Catholic Church.	56.9	55.5	62.5
L6	Located on Juniper Avenue west of the Project Site.	64.0	59.5	67.2

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average hourly 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.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment. Consistent with the OPR land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix D: Noise Element Guidelines,* all transportation related noise levels are presented in terms of the 24-hour CNEL's

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (18) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (19) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

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 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Fontana General Plan Circulation Element, and the posted vehicle speeds. The ADT volumes used in this study are presented on Table 6-2 are based on the *Traffic Impact Analysis* for the following traffic scenarios: Existing, Opening Year 2022, and Horizon Year 2040 conditions. (2) For this analysis, soft site conditions are used to analyze the traffic noise impacts within the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (20)

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Distance from Centerline to Receiving Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	Citrus Av.	n/o Jurupa Av.	I-L/I-G	46'	40
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	34'	40
3	Juniper Av.	s/o Santa Ana Av.	R-PC	34'	40
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	66'	50
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	66'	50
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	66'	50
7	Sierra Av.	s/o Jurupa Av.	R-PC	66'	50
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	60'	45
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	60'	45
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	60'	45
11	Jurupa Av.	w/o Juniper Av.	R-PC	60'	45
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	60'	45

[1] Source: City of Fontana General Plan Land Use Map, Adopted September 10, 2019.
[2] Distance to receiving land use is based upon the right-of-way distances.
[3] Source: Fontana Foothill Commerce Center Traffic Impact Analysis.
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes (1,000's)[1]					
			Existing 2019		Opening Year Cumulative (2022)		Horizon Year (2040)	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Citrus Av.	n/o Jurupa Av.	10.7	10.9	14.3	14.5	15.7	15.9
2	Juniper Av.	n/o Santa Ana Av.	2.5	2.6	2.8	2.9	3.0	3.1
3	Juniper Av.	s/o Santa Ana Av.	3.0	3.4	3.7	4.1	4.0	4.4
4	Sierra Av.	n/o Santa Ana Av.	31.8	31.9	38.7	38.9	42.5	42.7
5	Sierra Av.	s/o Santa Ana Av.	31.7	31.8	38.9	39.0	42.7	42.8
6	Sierra Av.	n/o Jurupa Av.	25.7	25.8	30.8	30.9	36.2	36.3
7	Sierra Av.	s/o Jurupa Av.	25.2	25.3	30.0	30.1	38.1	38.2
8	Jurupa Av.	w/o Citrus av.	18.3	18.6	24.6	24.9	27.0	27.2
9	Jurupa Av.	w/o Oleander Av.	18.8	19.2	23.6	24.1	25.9	26.3
10	Jurupa Av.	w/o Cypress Av.	19.4	19.8	23.7	24.1	25.9	26.4
11	Jurupa Av.	w/o Juniper Av.	20.1	20.5	23.7	24.1	26.0	26.4
12	Jurupa Av.	w/o Sierra Av.	19.7	19.9	24.6	24.8	27.0	27.2

[1] Source: Fontana Foothill Commerce Center Traffic Impact Analysis.

Traffic noise analysis provided in this report is based on the actual vehicle volumes obtained from the *Traffic Impact Analysis* for the Project. Per the *Traffic Impact Analysis,* the Project is expected to generate a total of approximately 1,058 two-way vehicular trips per day (529 inbound and 529 outbound) which includes 342 two-way truck trips per day (171 inbound and 171 outbound) (2). This noise study relies on the actual Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of individual truck trips on the study area roadway network. Analyzing actual Project trips results in a conservative worst-case scenario to describe the off-site Project traffic noise level impacts.

To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Traffic Impact Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments.

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-5 to 6-7 show the vehicle mixes used for the with Project traffic scenarios. The with Project traffic vehicle mix is needed to account for the number of actual vehicles since the traffic volumes provided in the *Traffic Impact Analysis* are expressed as passenger car equivalents (PCE) and artificially overstate the actual number of vehicle and truck trips.

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

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

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

Typical Southern California vehicle mix. Vehicle mix percentage values rounded to the nearest one-hundredth.
"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: WITHOUT PROJECT CONDITIONS VEHICLE MIX

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	95.52%	2.33%	2.15%	100.00%

Based on an existing PM peak hour vehicle count taken at Citrus Avenue and Jurupa Avenue (Goodman Industrial Park Fontana III Traffic Impact Analysis.). Vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-5: EXISTING WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Citrus Av.	n/o Jurupa Av.	94.57%	2.46%	2.97%	100.00%
2	Juniper Av.	n/o Santa Ana Av.	95.71%	2.23%	2.06%	100.00%
3	Juniper Av.	s/o Santa Ana Av.	96.13%	2.01%	1.86%	100.00%
4	Sierra Av.	n/o Santa Ana Av.	95.36%	2.35%	2.30%	100.00%
5	Sierra Av.	s/o Santa Ana Av.	95.26%	2.37%	2.37%	100.00%
6	Sierra Av.	n/o Jurupa Av.	95.20%	2.38%	2.43%	100.00%
7	Sierra Av.	s/o Jurupa Av.	95.35%	2.35%	2.30%	100.00%
8	Jurupa Av.	w/o Citrus av.	95.08%	2.38%	2.53%	100.00%
9	Jurupa Av.	w/o Oleander Av.	94.56%	2.46%	2.98%	100.00%
10	Jurupa Av.	w/o Cypress Av.	94.59%	2.45%	2.96%	100.00%
11	Jurupa Av.	w/o Juniper Av.	94.62%	2.45%	2.93%	100.00%
12	Jurupa Av.	w/o Sierra Av.	94.88%	2.42%	2.70%	100.00%

[1] Source: Fontana Foothill Commerce Center Traffic Impact Analysis.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: OPENING YEAR 2022 WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Citrus Av.	n/o Jurupa Av.	94.81%	2.43%	2.77%	100.00%
2	Juniper Av.	n/o Santa Ana Av.	95.69%	2.24%	2.07%	100.00%
3	Juniper Av.	s/o Santa Ana Av.	96.02%	2.07%	1.91%	100.00%
4	Sierra Av.	n/o Santa Ana Av.	95.39%	2.34%	2.27%	100.00%
5	Sierra Av.	s/o Santa Ana Av.	95.31%	2.36%	2.33%	100.00%
6	Sierra Av.	n/o Jurupa Av.	95.25%	2.37%	2.38%	100.00%
7	Sierra Av.	s/o Jurupa Av.	95.37%	2.35%	2.28%	100.00%
8	Jurupa Av.	w/o Citrus av.	95.20%	2.37%	2.44%	100.00%
9	Jurupa Av.	w/o Oleander Av.	94.75%	2.43%	2.82%	100.00%
10	Jurupa Av.	w/o Cypress Av.	94.76%	2.43%	2.81%	100.00%
11	Jurupa Av.	w/o Juniper Av.	94.76%	2.43%	2.81%	100.00%
12	Jurupa Av.	w/o Sierra Av.	95.01%	2.40%	2.59%	100.00%

[1] Source: Fontana Foothill Commerce Center Traffic Impact Analysis.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-7: HORIZON YEAR 2040 WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Citrus Av.	n/o Jurupa Av.	94.87%	2.42%	2.71%	100.00%
2	Juniper Av.	n/o Santa Ana Av.	95.68%	2.25%	2.07%	100.00%
3	Juniper Av.	s/o Santa Ana Av.	95.99%	2.09%	1.93%	100.00%
4	Sierra Av.	n/o Santa Ana Av.	95.40%	2.34%	2.26%	100.00%
5	Sierra Av.	s/o Santa Ana Av.	95.33%	2.36%	2.32%	100.00%
6	Sierra Av.	n/o Jurupa Av.	95.29%	2.36%	2.35%	100.00%
7	Sierra Av.	s/o Jurupa Av.	95.41%	2.34%	2.25%	100.00%
8	Jurupa Av.	w/o Citrus av.	95.23%	2.36%	2.41%	100.00%
9	Jurupa Av.	w/o Oleander Av.	94.82%	2.42%	2.76%	100.00%
10	Jurupa Av.	w/o Cypress Av.	94.82%	2.42%	2.76%	100.00%
11	Jurupa Av.	w/o Juniper Av.	94.82%	2.42%	2.76%	100.00%
12	Jurupa Av.	w/o Sierra Av.	95.05%	2.40%	2.55%	100.00%

[1] Source: Fontana Foothill Commerce Center Traffic Impact Analysis.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

6.3 CONSTRUCTION VIBRATION ASSESSMENT METHODOLOGY

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-8. 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. The FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-8: 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

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.

7 OFF-SITE TRANSPORTATION NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on the *Traffic Impact Analysis*. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Conditions Without / With Project: This scenario refers to the existing present-day noise conditions without and with the proposed Project.
- Opening Year 2022 Without / With the Project: This scenario refers to Opening Year 2022 noise conditions without and with the proposed Project. This scenario includes all cumulative projects identified in the *Traffic Impact Analysis*.
- Horizon Year 2040 Without / With the Project: This scenario refers Year 2040 noise conditions without and with the proposed Project. This scenario includes all cumulative projects identified in the *Traffic Impact Analysis*.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 and 7-6 present a summary of the exterior traffic noise levels, without barrier attenuation, for the study area roadway segments analyzed from the without Project to the with Project conditions under Existing, Opening Year 2022, and Horizon Year 2040 traffic conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Citrus Av.	n/o Jurupa Av.	I-L/I-G	68.8	RW	82	177
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	63.3	RW	RW	56
3	Juniper Av.	s/o Santa Ana Av.	R-PC	64.0	RW	RW	63
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	74.1	124	267	575
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	74.1	124	266	574
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	73.2	108	232	499
7	Sierra Av.	s/o Jurupa Av.	R-PC	73.1	106	229	493
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	71.2	72	155	334
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	71.3	73	158	340
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	71.4	75	161	347
11	Jurupa Av.	w/o Juniper Av.	R-PC	71.6	76	165	355
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	71.5	75	162	350

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.
[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.
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

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	Citrus Av.	n/o Jurupa Av.	I-L/I-G	69.5	RW	92	199
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	63.3	RW	RW	57
3	Juniper Av.	s/o Santa Ana Av.	R-PC	64.3	RW	RW	66
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	74.2	126	272	587
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	74.3	127	274	590
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	73.4	111	240	516
7	Sierra Av.	s/o Jurupa Av.	R-PC	73.2	108	233	502
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	71.5	76	164	352
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	72.0	82	176	379
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	72.1	83	179	386
11	Jurupa Av.	w/o Juniper Av.	R-PC	72.3	85	183	394
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	71.9	81	174	376

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.
[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.
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

TABLE 7-3: OPENING YEAR 2022 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	Citrus Av.	n/o Jurupa Av.	I-L/I-G	70.0	46	100	215
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	63.8	RW	RW	61
3	Juniper Av.	s/o Santa Ana Av.	R-PC	65.0	RW	34	73
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	75.0	141	304	656
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	75.0	142	305	658
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	74.0	121	262	564
7	Sierra Av.	s/o Jurupa Av.	R-PC	73.9	119	257	554
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	72.5	88	189	406
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	72.3	85	184	395
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	72.3	85	184	396
11	Jurupa Av.	w/o Juniper Av.	R-PC	72.3	85	184	396
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	72.5	88	189	406

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.
[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.
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

TABLE 7-4: OPENING YEAR 2022 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	Citrus Av.	n/o Jurupa Av.	I-L/I-G	70.6	51	109	235
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	63.8	RW	RW	61
3	Juniper Av.	s/o Santa Ana Av.	R-PC	65.2	RW	35	76
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	75.1	144	309	667
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	75.1	145	312	673
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	74.2	125	269	580
7	Sierra Av.	s/o Jurupa Av.	R-PC	74.0	121	261	562
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	72.7	91	196	423
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	72.9	93	201	432
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	72.9	93	201	433
11	Jurupa Av.	w/o Juniper Av.	R-PC	72.9	93	201	433
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	72.8	93	200	430

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.
[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.
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

TABLE 7-5: HORIZON YEAR 2040 WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Citrus Av.	n/o Jurupa Av.	I-L/I-G	70.4	49	106	228
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	64.2	RW	RW	64
3	Juniper Av.	s/o Santa Ana Av.	R-PC	65.3	RW	36	77
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	75.4	150	324	698
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	75.4	151	325	701
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	74.7	135	291	627
7	Sierra Av.	s/o Jurupa Av.	R-PC	74.9	140	301	650
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	72.9	93	201	432
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	72.7	90	195	420
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	72.7	91	195	421
11	Jurupa Av.	w/o Juniper Av.	R-PC	72.7	91	196	421
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	72.9	93	201	432

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.
[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.
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

TABLE 7-6: HORIZON YEAR 2040 WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Citrus Av.	n/o Jurupa Av.	I-L/I-G	71.0	53	115	247
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	64.2	RW	RW	65
3	Juniper Av.	s/o Santa Ana Av.	R-PC	65.6	RW	37	80
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	75.5	153	329	709
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	75.5	154	332	715
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	74.8	138	298	642
7	Sierra Av.	s/o Jurupa Av.	R-PC	75.0	142	305	658
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	73.1	97	208	449
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	73.2	98	211	456
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	73.2	98	212	457
11	Jurupa Av.	w/o Juniper Av.	R-PC	73.2	98	212	457
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	73.2	98	211	455

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.
[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.
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

7.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-1 presents the Existing without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 63.3 to 74.1 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 63.3 to 74.3 dBA CNEL. As shown on Table 7-7 the Project will generate a noise level increase of up to 0.7 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Existing conditions at the land uses adjacent to roadways conveying Project traffic.

7.3 OPENING YEAR PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Opening Year 2022 without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 63.8 to 75.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Opening Year 2022 with Project conditions will range from 63.8 to 75.1 dBA CNEL. As shown on Table 7-8 the Project will generate a noise level increase of up to 0.6 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Opening Year 2022 conditions at the land uses adjacent to roadways conveying Project traffic.

7.4 HORIZON YEAR PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the Horizon Year 2040 without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 64.2 to 75.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the Horizon Year 2040 with Project conditions will range from 64.2 to 75.5 dBA CNEL. As shown on Table 7-9 the Project will generate a noise level increase of up to 0.5 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Horizon Year 2040 conditions at the land uses adjacent to roadways conveying Project traffic.

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TABLE 7-7: EXISTING CONDITION OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Citrus Av.	n/o Jurupa Av.	I-L/I-G	68.8	69.5	0.7	No	3	No
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	63.3	63.3	0.0	Yes	3	No
3	Juniper Av.	s/o Santa Ana Av.	R-PC	64.0	64.3	0.3	Yes	3	No
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	74.1	74.2	0.1	Yes	3	No
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	74.1	74.3	0.2	Yes	3	No
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	73.2	73.4	0.2	Yes	3	No
7	Sierra Av.	s/o Jurupa Av.	R-PC	73.1	73.2	0.1	Yes	3	No
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	71.2	71.5	0.3	Yes	3	No
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	71.3	72.0	0.7	Yes	3	No
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	71.4	72.1	0.7	Yes	3	No
11	Jurupa Av.	w/o Juniper Av.	R-PC	71.6	72.3	0.7	Yes	3	No
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	71.5	71.9	0.4	Yes	3	No

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.
[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)?
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

TABLE 7-8: OPENING YEAR OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Citrus Av.	n/o Jurupa Av.	I-L/I-G	70.0	70.6	0.6	No	3	No
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	63.8	63.8	0.0	Yes	3	No
3	Juniper Av.	s/o Santa Ana Av.	R-PC	65.0	65.2	0.2	Yes	3	No
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	75.0	75.1	0.1	Yes	3	No
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	75.0	75.1	0.1	Yes	3	No
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	74.0	74.2	0.2	Yes	3	No
7	Sierra Av.	s/o Jurupa Av.	R-PC	73.9	74.0	0.1	Yes	3	No
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	72.5	72.7	0.2	Yes	3	No
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	72.3	72.9	0.6	Yes	3	No
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	72.3	72.9	0.6	Yes	3	No
11	Jurupa Av.	w/o Juniper Av.	R-PC	72.3	72.9	0.6	Yes	3	No
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	72.5	72.8	0.3	Yes	3	No

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.
[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)?
"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

TABLE 7-9: HORIZON YEAR OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Exterior Noise Standard	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition			Limit	Exceeded?
1	Citrus Av.	n/o Jurupa Av.	I-L/I-G	70.4	71.0	0.6	No	70	3	No
2	Juniper Av.	n/o Santa Ana Av.	P-PF/R-PC	64.2	64.2	0.0	Yes	65	3	No
3	Juniper Av.	s/o Santa Ana Av.	R-PC	65.3	65.6	0.3	Yes	65	3	No
4	Sierra Av.	n/o Santa Ana Av.	I-L/R-PC	75.4	75.5	0.1	Yes	65	3	No
5	Sierra Av.	s/o Santa Ana Av.	WMXU-1/R-SF	75.4	75.5	0.1	Yes	65	3	No
6	Sierra Av.	n/o Jurupa Av.	WMXU-1/C-G	74.7	74.8	0.1	Yes	65	3	No
7	Sierra Av.	s/o Jurupa Av.	R-PC	74.9	75.0	0.1	Yes	65	3	No
8	Jurupa Av.	w/o Citrus av.	I-L/R-PC	72.9	73.1	0.2	Yes	65	3	No
9	Jurupa Av.	w/o Oleander Av.	I-L/R-PC	72.7	73.2	0.5	Yes	65	3	No
10	Jurupa Av.	w/o Cypress Av.	I-G/R-PC	72.7	73.2	0.5	Yes	65	3	No
11	Jurupa Av.	w/o Juniper Av.	R-PC	72.7	73.2	0.5	Yes	65	3	No
12	Jurupa Av.	w/o Sierra Av.	WMXU-1/R-PC	72.9	73.2	0.3	Yes	65	3	No

[1] Source: City of Fontana General Plan Land Use Map adopted September 10, 2019.

[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)?

"I-L" = Light Industrial; "I-G" = General Industrial; "P-PF" = Public Facilities; "R-PC" = Residential Planned Community; "WMXU-1" = Walkable Mixed Use Corridor & Downtown; "R-SF" = Single Family Residential; "C-G" = General Commercial.

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8 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following receiver locations, as shown on Exhibit 8-A, were identified as representative locations for focused 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, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Consistent with the Fontana Foothills Commerce Center Air Quality Impact Analysis (21), six sensitive 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., 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. Noise-sensitive receivers near the Project site include existing residential homes, Citrus High School, and St. Mary's Church. 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: Located approximately 734 feet north of the Project site boundaries, R1 represents the existing residential homes, north of Santa Ana Avenue. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing residential community east of Sierra Avenue roughly 842 feet east of the Project site. A 24-hour noise level measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents an existing residence at 11216 Avenue situated approximately 15 feet east of the Project site. A 24-hour noise level measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing residential community south of Jurupa Avenue roughly 134 feet south of the Project site. A 24-hour noise level measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the St. Mary's Catholic Church located 756 feet of the Project site. A 24-hour noise level measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents an existing residential home situated approximately 86 feet west of the Project site. A 24-hour noise level measurement was taken near this location, L6, to describe the existing ambient noise environment.

EXHIBIT 8-A: RECEIVER LOCATIONS

9 OPERATIONAL NOISE ANALYSIS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from the operation of the proposed Fontana Foothills Commerce Center Project. Exhibit 9-A identifies the noise source and receiver locations used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

At the time this noise analysis was prepared the future tenants of the proposed Project were unknown. Therefore, this operational noise analysis is intended to describe noise level impacts associated with the expected typical of high-cube cold storage warehouse use 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 high-cube cold storage warehouse uses, the Project business operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: cold storage loading dock activity, entry gate & truck movements, roof-top air conditioning units, parking lot vehicle movements and trash enclosure activity.

9.2 REFERENCE NOISE LEVELS

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

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using Larson Davis Lxt Type 1 integrating sound level meters and dataloggers. All sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Ref. Distance (Feet)	Noise Source Height (Feet)	Min./Hour[5]		Reference Noise Level (dBA L_{eq})		Sound Power Level (dBA)[6]
				Day	Night	@ Ref. Dist.	@ 50 Feet	
Cold Storage Loading Dock Activity[1]	00:14:00	30'	8'	60	60	70.1	65.7	105.7
Entry Gate & Truck Movements[1]	00:15:00	20'	8'	-[7]	-[7]	64.0	58.0	89.7
Roof-Top Air Conditioning Units[2]	96:00:00	5'	5'	39	28	77.2	57.2	88.9
Parking Lot Vehicle Movements[3]	01:00:00	10'	5'	60	60	52.2	41.7	79.0
Trash Enclosure Activity[4]	00:00:32	5'	5'	20	20	77.3	57.3	94.0

[1] As measured by Urban Crossroads, Inc. at the Nature's Best Distribution Facility in the City of Chino.
[2] As measured by Urban Crossroads, Inc. at the Santee Walmart located at 170 Town Center Parkway.
[3] As measured by Urban Crossroads, Inc. at the Panasonic Avionics Corporation parking lot in the City of Lake Forest.
[4] As measured by Urban Crossroads, Inc. at trash enclosure in a parking lot in the City of Costa Mesa.
[5] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Day" = 7:00 a.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.
[6] 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.
[7] Entry Gate & Truck Movements are calculate based on the number of events by time of day (See Table 9-2).

9.2.2 COLD STORAGE LOADING DOCK ACTIVITIES

To describe the cold storage loading dock activities, a reference noise level measurement was collected to represent the truck idling/reefer activity at the Nature's Best distribution facility located at 16081 Fern Avenue in the City of Chino. During the fourteen-minute truck idling/reefer activity reference noise level measurement, approximately 20 delivery trucks were docked, idling, or parked in the northern loading dock area. The truck idling/reefer activity 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 truck idling/reefer activity 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 ENTRY GATE & TRUCK MOVEMENTS

An entry gate and truck movements reference noise level measurement were taken at the southern entry gate of the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino over a 15-minute period and represents multiple noise sources producing a reference noise level of 58.0 dBA Leq at 50 feet. The noise sources included at this measurement location account for the rattling and squeaking during normal opening and closing operations, the gate closure equipment, truck engines idling outside the entry gate, truck movements through the entry gate, and background truck court activities

and forklift backup alarm noise. Using the truck trip distributions from the on *Fontana Foothills Commerce Center Traffic Impact Analysis* (2) and the time of day vehicle splits shown on Table 6-3, the number of entry gate and truck movements were calculated. As shown on Table 9-2, this information is then used to calculate the entry gate and truck movements operational noise source activity based on the number of events by time of day.

TABLE 9-2: ENTRY GATE & TRUCK MOVEMENTS BY LOCATION

Entry Gate & Truck Movement Location[1]	Total Project Truck Trips[2]	Truck Trip Dist.[3]	Truck Trips by Driveway[4]	Time of Day Vehicle Splits[5]			Truck Movements[6]		
				Day	Evening	Night	Day	Evening	Night
Driveway 1	342	30%	103	86.50%	2.70%	10.80%	89	3	11
Driveway 2		55%	188	84.50%	2.95%	12.55%	159	6	24
Driveway 4		15%	51	84.50%	2.95%	12.55%	43	2	6

[1] Driveway locations as shown on the Site Plan Exhibit 9-A.
[2] Total Project truck trips according to Table 4-1 of the Fontana Foothills Commerce Center Traffic Impact Analysis.
[3] Project truck trip distribution according to Exhibit 4-2 of the Fontana Foothills Commerce Center Traffic Impact Analysis.
[4] Calculated trip trucks per location represents the product of the total project truck trips by the trip distribution percentage.
[5] Heavy truck time of day vehicle splits as shown on Table 6-3.
[6] Calculated time of day entry gate and truck movements by location.

9.2.4 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units within the planned commercial retail land uses within the Project site, reference noise levels measurements were taken at the Santee Walmart. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a single mechanical roof-top air conditioning unit on the roof of the existing Walmart store. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At 5 feet from the roof-top air conditioning unit, the exterior noise levels were measured at 77.2 dBA L_{eq}. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings. The noise attenuation provided by the existing parapet wall is not reflected in this reference noise level measurement.

9.2.5 PARKING LOT VEHICLE MOVEMENTS

To determine the noise levels associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements over a 24-hour period at the parking lot for the Panasonic Avionics Corporation in the City of Lake Forest. The peak hour of activity measured over the 24-hour noise level measurement period occurred between 12:00 p.m. to 1:00 p.m., or the typical lunch hour for employees working in the area. The measured reference noise level at

50 feet from parking lot vehicle movements was measured at 38.2 dBA L_{eq}. The parking lot noise levels are mainly due to cars pulling in and out of spaces during peak lunch hour activity and employees talking. Noise associated with parking lot vehicle movements is expected to operate for the entire hour (60 minutes).

9.2.6 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure, Urban Crossroads collected a reference noise level measurement at an existing commercial and office park trash enclosure within a parking lot on the northeast corner of Baker Street and Red Hill Avenue. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The trash enclosure activity noise levels include two metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster, and background parking lot vehicle movements. Noise associated with trash enclosure activities is conservatively expected to occur for 20 minutes per hour.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze the noise level of multiple types of noise sources and calculates the noise levels at any location using the spatially accurate Project site plan and includes the effects of topography, buildings, and multiple barriers in its calculations using the latest standards to predict outdoor noise impacts. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section. Using the spatially accurate Project site plan and flown aerial imagery from Nearmap, a CadnaA noise prediction model of the Project study area was developed. The noise model provides a three-dimensional representation of the Project study area using the following key data inputs:

- Ground absorption;
- Multiple reflections at buildings and barriers;
- Reference noise level sources by type (area, point, etc.) and noise source height;
- Multiple noise receiver locations and heights;
- Topography and earthen berms;
- Barrier and building heights.

Using the ISO 9613 protocol, the CadnaA noise prediction model 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 calculations at each receiver location and the partial noise level contributions by noise source. The reference sound power level (PWL) for the highest noise source expected at the Project site was input into the CadnaA noise prediction model. While sound pressure levels (e.g. L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish as a result of intervening obstacles and barriers, air

absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6.0 dBA for each doubling of distance from a point source, based on existing conditions in the Project study area.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include cold storage loading dock activity, entry gate & truck movements, roof-top air conditioning units, parking lot vehicle movements and trash enclosure activity, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Tables 9-3 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 37.9 to 63.6 dBA L_{eq}.

TABLE 9-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Cold Storage Loading Dock Activity	41.2	43.6	63.4	32.0	48.6	53.9
Entry Gate & Truck Movements	30.7	29.9	48.7	27.3	40.6	50.1
Roof-Top Air Conditioning Units	27.8	27.4	33.3	35.4	33.2	36.8
Parking Lot Vehicle Movements	23.9	12.7	28.9	26.7	28.2	35.7
Trash Enclosure Activity	24.1	17.3	36.2	17.2	36.9	44.5
Total (All Noise Sources)	**41.9**	**43.9**	**63.6**	**37.9**	**49.6**	**55.8**

[1] See Exhibit 8-A for the receiver locations

Tables 9-4 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 35.7 to 62.4 dBA L_{eq}. The differences between the daytime and nighttime noise levels is largely related to the duration of noise activity (Table 9-1). Appendix 9.1 includes the detailed noise model inputs including the existing perimeter walls used to estimate the Project operational noise levels presented in this section.

TABLE 9-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Cold Storage Loading Dock Activity	40.2	42.6	62.4	31.0	47.7	53.0
Entry Gate & Truck Movements	21.7	21.4	40.1	18.7	32.2	41.7
Roof-Top Air Conditioning Units	25.4	24.9	30.9	33.0	30.8	34.4
Parking Lot Vehicle Movements	22.9	11.7	27.9	25.7	27.3	34.8
Trash Enclosure Activity	23.1	16.4	35.2	16.2	35.9	43.5
Total (All Noise Sources)	**40.6**	**42.7**	**62.4**	**35.7**	**48.2**	**53.8**

[1] See Exhibit 8-A for the receiver locations

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 Fontana exterior noise level standards at nearby noise-sensitive receiver locations. Table 9-5 shows the operational noise levels associated with Fontana Foothills Commerce Center Project will satisfy the City of Fontana 70 dBA L_{eq} daytime and 65 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-5: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Threshold Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	41.9	40.6	70	65	No	No
R2	43.9	42.7	70	65	No	No
R3	63.6	62.4	70	65	No	No
R4	37.9	35.7	70	65	No	No
R5	49.6	48.2	70	65	No	No
R6	55.8	53.8	70	65	No	No

[1] See Exhibit 8-A for the noise receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-3 and 9-4.
[3] City of Fontana exterior noise level standards for residential land use, as shown on Table 3-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (3) Instead, they must be logarithmically added using the following base equation:

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions 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 9-6 and 9-7, respectively. As indicated on Tables 9-6 and 9-7, the Project will generate an unmitigated daytime and nighttime operational noise level increases ranging from 0.0 to 7.6 dBA L_{eq} at the nearby receiver locations. Project-related operational noise level contributions will satisfy the operational noise level increase significance criteria presented in Table 4-1, the increases at the sensitive receiver locations will be *less than significant.*

9.7 REFLECTION

Field studies conducted by the FHWA have shown that the reflection from barriers and buildings does not substantially increase noise levels. (5) If all the noise striking a structure was reflected back to a given receiving point, the increase would be theoretically limited to 3 dBA. Further, not all the acoustical energy is reflected back to same point. Some of the energy would go over the structure, some is reflected to points other than the given receiving point, some is scattered by ground coverings (e.g., grass and other plants), and some is blocked by intervening structures and/or obstacles (e.g., the noise source itself). Additionally, some of the reflected energy is lost due to the longer path that the noise must travel. FHWA measurements made to quantify reflective increases in traffic noise have not shown an increase of greater than 1-2 dBA; an increase that is not perceptible to the average human ear.

TABLE 9-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Noise Standard	Standard Exceeded	Incremental Threshold[7]	Incremental Threshold Exceeded?[7]
R1	41.9	L1	65.2	65.2	0.0	65	No	n/a	No
R2	43.9	L2	63.3	63.3	0.0	65	No	n/a	No
R3	63.6	L3	57.4	64.5	7.1	65	No	n/a	No
R4	37.9	L4	73.9	73.9	0.0	65	No	n/a	No
R5	49.6	L5	56.9	57.6	0.7	65	No	n/a	No
R6	55.8	L6	64.0	64.6	0.6	65	No	n/a	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-3.
[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 Criteria as defined in Section 4.

TABLE 9-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Noise Standard	Standard Exceeded	Incremental Threshold[7]	Incremental Threshold Exceeded?[7]
R1	40.6	L1	60.5	60.5	0.0	65	No	n/a	No
R2	42.7	L2	57.1	57.3	0.2	65	No	n/a	No
R3	62.4	L3	55.7	63.3	7.6	65	No	n/a	No
R4	35.7	L4	70.8	70.8	0.0	65	No	n/a	No
R5	48.2	L5	55.5	56.2	0.7	65	No	n/a	No
R6	53.8	L6	59.5	60.5	1.0	65	No	n/a	No

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

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 nearby sensitive receiver locations.

10.1 CONSTRUCTION NOISE LEVELS

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

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the data used to support the construction emissions in the *Fontana Foothills Commerce Center Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (21)

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS

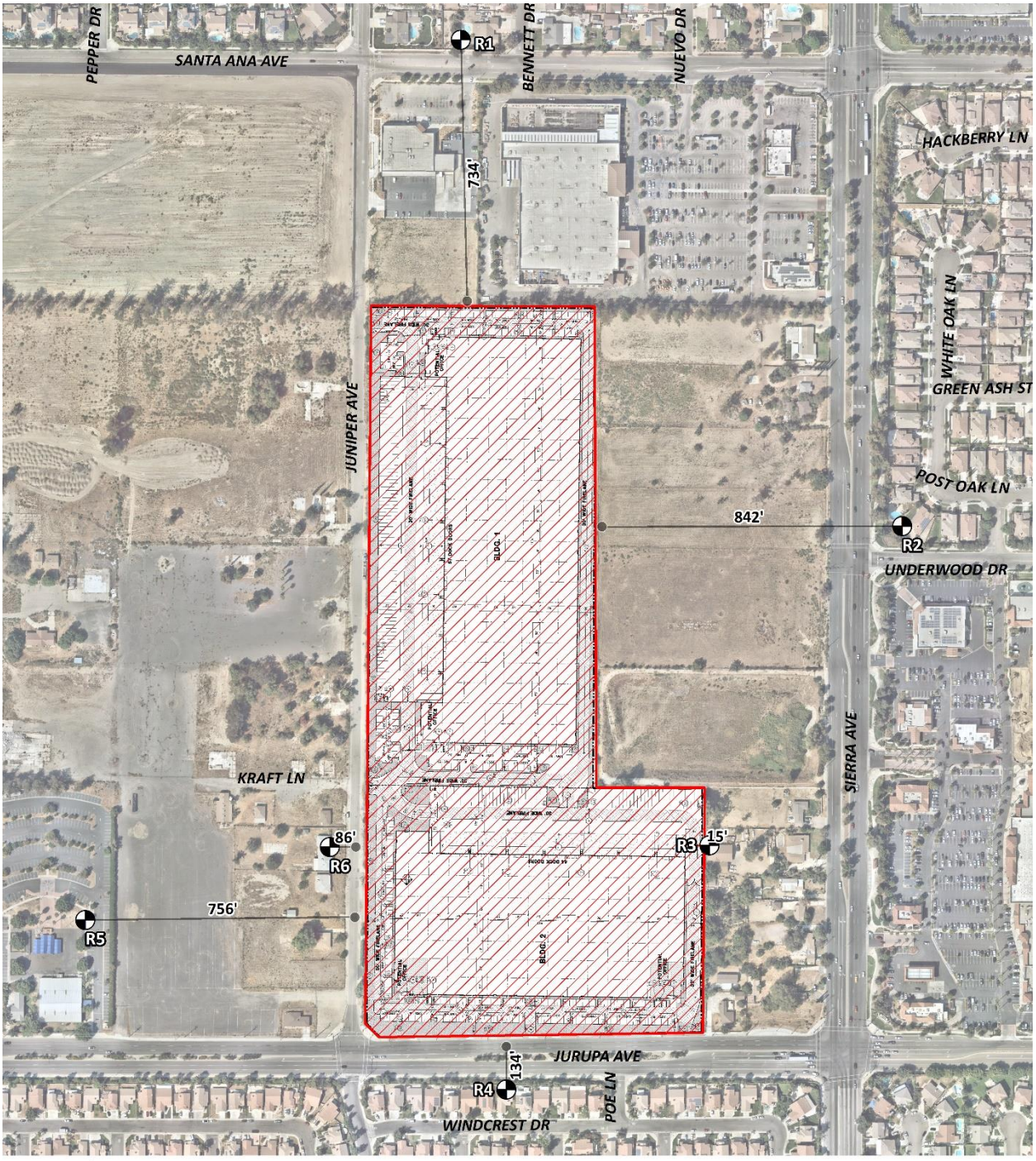

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

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

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

10.3 CONSTRUCTION NOISE ANALYSIS

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the edge of primary construction activity to each of the nearby receiver locations. As shown on Table 10-2, the unmitigated construction noise levels are expected to range from 51.7 to 77.3 dBA L_{eq} at the nearby receiver locations. Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays.

If Project construction activity occurs outside of the hours specified in the Municipal Code, noise levels shall satisfy the City of Fontana construction noise level thresholds of 70 dBA L_{eq} during the daytime hours and 65 dBA L_{eq} during the nighttime hours. At the time of this analysis, no nighttime Project construction activity was planned.

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	63.2	66.6	64.8	62.9	62.5	56.5	66.6
R2	64.8	68.2	66.4	64.5	64.1	58.1	68.2
R3	73.9	77.3	75.5	73.6	73.2	67.2	77.3
R4	69.7	73.1	71.3	69.4	69.0	63.0	73.1
R5	64.6	68.0	66.2	64.3	63.9	57.9	68.0
R6	71.2	74.6	72.8	70.9	70.5	64.5	74.6

[1] Noise receiver locations are shown on Exhibit 10-A.

[2] Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

10.4 CONSTRUCTION VIBRATION ANALYSIS

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

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

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-8 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-9 presents the expected Project related vibration levels at each of the sensitive receiver locations based on the 0.2 in/sec PPV threshold for vibration.

At distances ranging from 15 to 842 feet from Project construction activity, construction vibration velocity levels are expected to approach 0.19 in/sec PPV. Based on the vibration standards used in this report, the unmitigated Project construction vibration levels will satisfy the 0.2 in/sec PPV threshold at all of the nearby sensitive receiver locations. Therefore, the vibration impacts due to Project construction are considered *less than significant*. Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period

but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter.

TABLE 10-3: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					Threshold (in/sec PPV)	Threshold Exceeded?[3]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration		
R1	734'	0.000	0.000	0.000	0.001	0.001	0.2	No
R2	842'	0.000	0.000	0.000	0.000	0.000	0.2	No
R3	15'	0.006	0.075	0.164	0.191	0.191	0.2	No
R4	134'	0.000	0.003	0.006	0.007	0.007	0.2	No
R5	756'	0.000	0.000	0.000	0.001	0.001	0.2	No
R6	86'	0.000	0.005	0.012	0.014	0.014	0.2	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-8.
[3] Does the peak vibration exceed the vibration thresholds?

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11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Environmental Checklist Form Appendix G.* 2019.
2. **Urban Crossroads, Inc.** *Fontana Foothills Commerce Center Traffic Impact Analysis.* January 2020.
3. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
4. **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.
5. **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.
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. **Occupational Safety and Health Administration.** *Standard 29 CRF, Part 1910.*
9. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
10. **Office of Planning and Research.** *State of California General Plan Guidlines.* October 2017.
11. **State of California.** *California Green Building Standards Code.* 2016.
12. **City of Fontana.** *General Plan Noise Element.* November 2018.
13. —. *Zoning and Development Code, Section 30, Article V - Residential Zoning Districts, Division 6 - Performance Standards.*
14. —. *Municipal Code, Chapter 18, Article II - Noise.*
15. **City of Ontario.** *LA/Ontario International Airport Land Use Compatibility Plan.* April 2011.
16. **City of Fontana Community Development.** *Noise and Vibration Thresholds of Significance, Confirmation of Noise Impact Analysis Scope for an Industrial Warehouse Project.* May 2019.
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. **Urban Crossroads, Inc.** *Fontana Foothills Commerce Center Air Quality Impact Analysis.* February 2020.

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12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Fontana Foothills Commerce Center Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

Bill Lawson, P.E., INCE
Principal
URBAN CROSSROADS, INC.
260 E. Baker Street, Suite 200
Costa Mesa, CA 92626
(949) 336-5979
blawson@urbanxroads.com

EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

CITY OF FONTANA DEVELOPMENT CODE

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Section No. 30-542 - Trash and Recycling Collection Areas.

All trash receptacles and disposal areas shall be screened from view. All industrial facilities shall be provided with trash receptacles and recycling facilities as follows:

1. ***Number***. An adequate number and size of receptacles shall be provided to serve all uses on a property.

2. ***Screening***. All receptacles shall be screened and the trash enclosure that is designed pursuant to the City approved Conceptual Plan. The receptacle shall not be visible above the wall. The enclosure shall be architecturally compatible with the architecture of the proposed/existing structures.

DIVISION 6. - PERFORMANCE STANDARDS

Section No. 30-543 - Noise and Vibration.

A. ***Noise Levels***. No person shall create or cause to be created any sound which exceeds the noise levels in this Section as measured at the property line of any residentially zoned property:

   1. The noise level between 7:00 a.m. and 10:00 p.m. shall not exceed 70 db(A).

   2. The noise level between 10:00 p.m. and 7:00 a.m. shall not exceed 65 db(A).

B. ***Noise Measurements***. Noise shall be measured with a sound level meter that meets the standards of the American National Standards Institute (ANSI) Section SI4-1979, Type 1 or Type 2. Noise levels shall be measured using the "A" weighted sound pressure level scale in decibels (reference pressure = 20 micronewtons per meter squared).

C. ***Vibration***. No person shall create or cause to be created any activity which causes a vibration which can be felt beyond the property line with or without the aid of an instrument.

Section No. 30-544 - Light and Glare.

All lights shall be directed and/or shielded to prevent the light from adversely affecting adjacent properties. No structure or lighting feature shall be permitted which creates adverse glare. A photometric plan shall be provided that indicates the amount of light emanating from the proposed/existing light fixtures.

Section No. 30-545 - Odors.

All uses shall be operated in a manner such that no offensive odor is perceptible at or beyond the property line of that use.

Section No. 30-546 - Electromagnetic Interference.

No use, activity, or process shall be conducted which produces electromagnetic interference with normal radio and television receptions beyond the property line of that use.

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APPENDIX 5.1:

STUDY AREA PHOTOS

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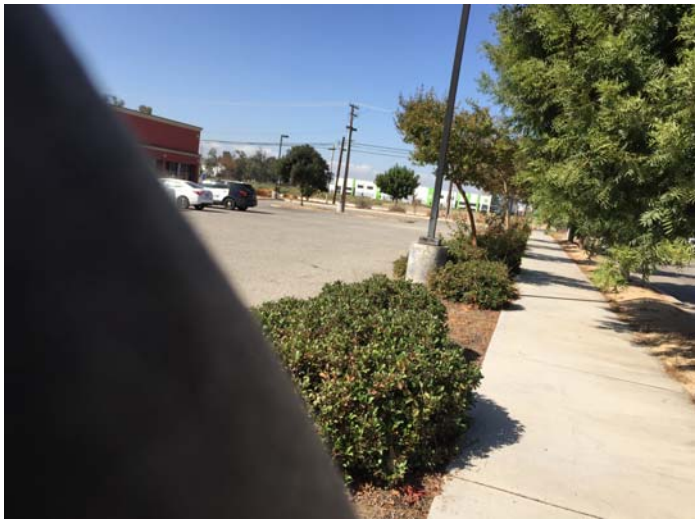
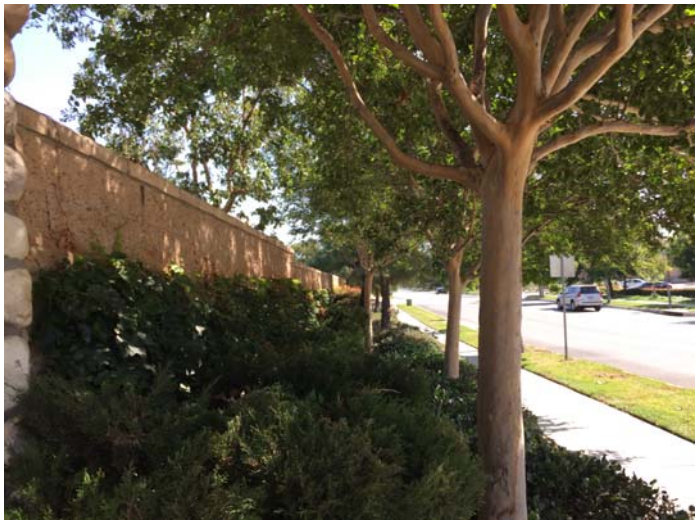
L1-EB
34, 3' 20.470000"117, 26' 20.930000"

L1-NB
34, 3' 20.470000"117, 26' 20.930000"

L1-SB
34, 3' 20.470000"117, 26' 20.930000"



L1-WB
34, 3' 20.470000"117, 26' 20.910000"



L2-EB
34, 3' 7.760000"117, 26' 6.020000"

L2-NB
34, 3' 7.140000"117, 26' 5.410000"

L2-SB
34, 3' 7.720000"117, 26' 5.940000"

L2-WB
34, 3' 7.770000"117, 26' 6.070000"

L3-EB
34, 3' 4.650000"117, 26' 9.950000"

L3-NB
34, 3' 10.300000"117, 26' 6.840000"

L3-SB
34, 3' 4.650000"117, 26' 9.950000"

L3-WB
34, 3' 4.670000"117, 26' 10.060000"

L4-EB
34, 2' 53.240000"117, 26' 17.610000"

L4-NB
34, 2' 53.140000"117, 26' 17.800000"

L4-SB
34, 2' 53.140000"117, 26' 17.800000"

L4-WB
34, 2' 53.210000"117, 26' 17.550000"

L5-EB
34, 2' 59.010000"117, 26' 33.430000"

L5-NB
34, 2' 58.830000"117, 26' 35.000000"

L5-SB
34, 2' 59.100000"117, 26' 33.620000"

L5-WB
34, 2' 58.990000"117, 26' 33.370000"

L6-EB
34, 2' 58.900000"117, 26' 24.200000"

L6-NB
34, 2' 59.640000"117, 26' 24.010000"

L6-SB
34, 2' 58.900000"117, 26' 24.170000"

L6-WB
34, 2' 58.820000"117, 26' 24.230000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

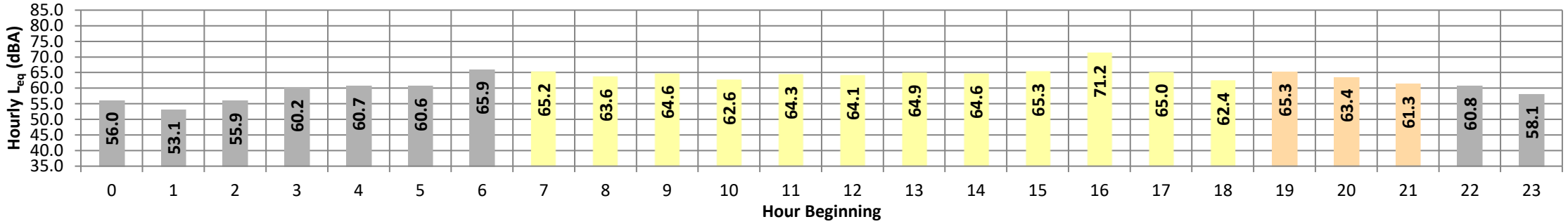
Date: Wednesday, October 2, 2019
Project: Fontana Foothills Commerce Center

Location: L1 - Located on Santa Ana Avenue, north of the Project site, near an existing residential home.

Meter: Piccolo I

JN: 12980
Analyst: B. Lawson

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	56.0	80.3	44.1	67.0	64.0	59.0	55.0	51.0	49.0	46.0	45.0	45.0	56.0	10.0	66.0
	1	53.1	76.1	43.6	65.0	61.0	56.0	52.0	48.0	46.0	45.0	44.0	44.0	53.1	10.0	63.1
	2	55.9	83.5	44.0	65.0	62.0	55.0	52.0	49.0	48.0	46.0	45.0	44.0	55.9	10.0	65.9
	3	60.2	82.7	47.5	72.0	69.0	65.0	62.0	55.0	52.0	49.0	49.0	48.0	60.2	10.0	70.2
	4	60.7	79.8	50.1	71.0	69.0	67.0	65.0	58.0	55.0	52.0	52.0	51.0	60.7	10.0	70.7
	5	60.6	86.6	50.0	70.0	68.0	65.0	63.0	58.0	54.0	52.0	51.0	50.0	60.6	10.0	70.6
	6	65.9	90.5	54.4	74.0	71.0	68.0	67.0	63.0	60.0	56.0	56.0	55.0	65.9	10.0	75.9
Day	7	65.2	83.7	51.4	74.0	72.0	70.0	69.0	65.0	61.0	55.0	54.0	53.0	65.2	0.0	65.2
	8	63.6	86.1	46.2	73.0	71.0	68.0	67.0	63.0	58.0	51.0	49.0	47.0	63.6	0.0	63.6
	9	64.6	89.5	46.3	74.0	71.0	68.0	67.0	62.0	58.0	51.0	50.0	48.0	64.6	0.0	64.6
	10	62.6	79.5	44.9	72.0	71.0	68.0	67.0	62.0	58.0	50.0	49.0	47.0	62.6	0.0	62.6
	11	64.3	84.4	44.8	75.0	72.0	69.0	67.0	63.0	59.0	52.0	50.0	46.0	64.3	0.0	64.3
	12	64.1	88.0	45.4	74.0	71.0	68.0	67.0	63.0	59.0	52.0	50.0	48.0	64.1	0.0	64.1
	13	64.9	83.4	46.2	76.0	73.0	69.0	68.0	63.0	59.0	52.0	50.0	47.0	64.9	0.0	64.9
	14	64.6	86.6	44.3	75.0	73.0	69.0	67.0	63.0	59.0	51.0	50.0	46.0	64.6	0.0	64.6
	15	65.3	87.3	47.2	75.0	73.0	69.0	68.0	64.0	61.0	53.0	52.0	49.0	65.3	0.0	65.3
	16	71.2	101.3	48.4	79.0	75.0	71.0	69.0	65.0	61.0	54.0	52.0	50.0	71.2	0.0	71.2
	17	65.0	85.1	48.6	75.0	72.0	69.0	68.0	64.0	60.0	54.0	53.0	51.0	65.0	0.0	65.0
	18	62.4	82.0	48.3	72.0	70.0	67.0	66.0	62.0	57.0	50.0	50.0	49.0	62.4	0.0	62.4
Evening	19	65.3	95.1	47.8	75.0	71.0	67.0	65.0	60.0	56.0	50.0	50.0	48.0	65.3	5.0	70.3
	20	63.4	86.5	46.6	73.0	70.0	67.0	66.0	59.0	54.0	48.0	48.0	47.0	63.4	5.0	68.4
	21	61.3	77.9	46.4	72.0	71.0	68.0	66.0	59.0	52.0	48.0	48.0	47.0	61.3	5.0	66.3
Night	22	60.8	86.0	45.8	71.0	69.0	66.0	64.0	56.0	51.0	48.0	47.0	46.0	60.8	10.0	70.8
	23	58.1	86.4	44.3	68.0	67.0	62.0	59.0	50.0	47.0	45.0	45.0	45.0	58.1	10.0	68.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	62.4	79.5	44.3	72.0	70.0	67.0	66.0	62.0	57.0	50.0	49.0	46.0
	Max	71.2	101.3	51.4	79.0	75.0	71.0	69.0	65.0	61.0	55.0	54.0	53.0
Energy Average		65.5	Average:		74.5	72.0	68.8	67.5	63.3	59.2	52.1	50.8	48.4
Evening	Min	61.3	77.9	46.4	72.0	70.0	67.0	65.0	59.0	52.0	48.0	48.0	47.0
	Max	65.3	95.1	47.8	75.0	71.0	68.0	66.0	60.0	56.0	50.0	50.0	48.0
Energy Average		63.6	Average:		73.3	70.7	67.3	65.7	59.3	54.0	48.7	48.7	47.3
Night	Min	53.1	76.1	43.6	65.0	61.0	55.0	52.0	48.0	46.0	45.0	44.0	44.0
	Max	65.9	90.5	54.4	74.0	71.0	68.0	67.0	63.0	60.0	56.0	56.0	55.0
Energy Average		60.5	Average:		69.2	66.7	62.6	59.9	54.2	51.3	48.8	48.2	47.6

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
64.0	**65.2**	**60.5**

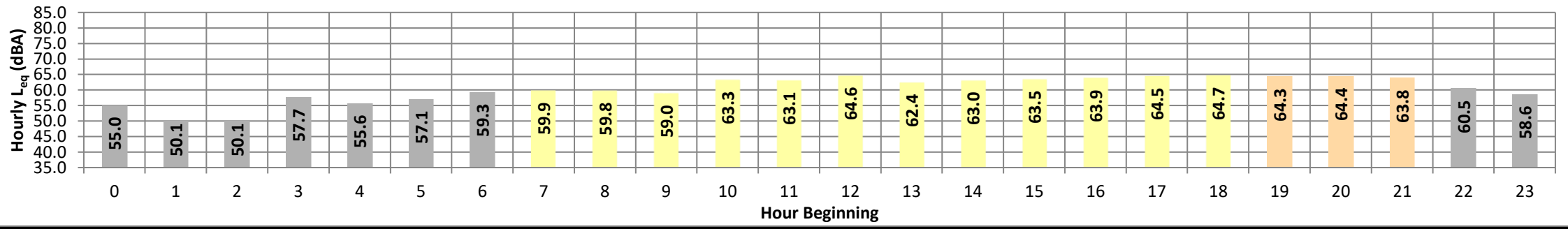
24-Hour CNEL (dBA)

68.4

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 2, 2019
Project: Fontana Foothills Commerce Center
Location: L2 -Located east of Sierra Avenue and north of Underwood
Source: Drive near an existing residential neighborhood.
Meter: Piccolo II
JN: 12980
Analyst: B. Lawson

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	55.0	63.8	45.1	63.5	63.1	61.8	60.2	55.4	50.7	46.4	45.7	45.2	55.0	10.0	65.0
	1	50.1	59.5	43.7	59.1	58.5	56.7	55.0	49.5	45.9	44.0	43.8	43.7	50.1	10.0	60.1
	2	50.1	59.8	43.5	59.4	58.8	56.4	54.6	49.3	46.3	43.9	43.7	43.5	50.1	10.0	60.1
	3	57.7	68.6	44.2	68.3	67.9	65.9	63.7	54.7	49.6	45.0	44.6	44.2	57.7	10.0	67.7
	4	55.6	65.1	45.7	64.6	63.9	62.3	60.8	55.6	51.6	46.9	46.2	45.8	55.6	10.0	65.6
	5	57.1	65.9	47.4	65.6	64.9	62.9	61.6	57.7	54.0	48.7	48.1	47.5	57.1	10.0	67.1
	6	59.3	68.4	50.4	68.0	67.3	65.2	63.8	59.4	56.7	52.1	51.2	50.5	59.3	10.0	69.3
Day	7	59.9	68.0	50.9	67.6	67.0	65.5	64.4	60.3	57.5	52.7	51.9	51.0	59.9	0.0	59.9
	8	59.8	69.0	50.3	68.6	68.1	66.0	64.2	59.6	57.0	52.3	51.3	50.5	59.8	0.0	59.8
	9	59.0	67.3	49.1	66.8	66.1	64.4	63.1	59.8	56.7	51.2	50.1	49.3	59.0	0.0	59.0
	10	63.3	73.4	51.5	72.7	72.1	70.5	69.0	62.2	58.2	53.5	52.7	51.7	63.3	0.0	63.3
	11	63.1	73.6	51.1	73.0	72.3	70.5	68.4	62.2	58.0	53.0	52.2	51.3	63.1	0.0	63.1
	12	64.6	76.7	51.9	76.0	75.0	72.2	69.2	62.5	58.8	54.2	53.4	52.2	64.6	0.0	64.6
	13	62.4	73.1	51.6	72.7	71.8	69.3	67.3	61.3	58.2	53.3	52.5	51.8	62.4	0.0	62.4
	14	63.0	72.9	51.7	72.3	71.6	69.8	68.1	62.8	59.0	54.1	52.9	51.9	63.0	0.0	63.0
	15	63.5	73.8	53.5	73.4	72.7	70.3	68.2	62.5	59.5	55.3	54.5	53.7	63.5	0.0	63.5
	16	63.9	73.2	53.6	72.8	72.3	70.2	68.7	64.0	60.4	55.8	54.7	53.8	63.9	0.0	63.9
	17	64.5	74.4	55.9	73.8	72.8	70.5	68.6	64.6	61.5	57.7	56.9	56.0	64.5	0.0	64.5
	18	64.7	74.4	55.3	74.0	73.3	71.1	69.5	63.9	61.3	57.1	56.3	55.5	64.7	0.0	64.7
Evening	19	64.3	74.1	55.2	73.5	72.8	70.6	68.9	64.0	60.8	56.7	56.1	55.4	64.3	5.0	69.3
	20	64.4	74.9	54.6	74.3	73.5	71.1	69.5	63.7	59.8	55.8	55.3	54.7	64.4	5.0	69.4
	21	63.8	75.2	52.2	74.7	74.0	70.7	68.4	62.4	58.4	53.7	53.1	52.4	63.8	5.0	68.8
Night	22	60.5	70.4	50.3	69.9	69.2	66.8	65.3	60.5	56.8	51.8	50.9	50.4	60.5	10.0	70.5
	23	58.6	69.2	47.7	68.8	68.1	65.9	63.8	57.2	53.5	48.8	48.3	47.8	58.6	10.0	68.6

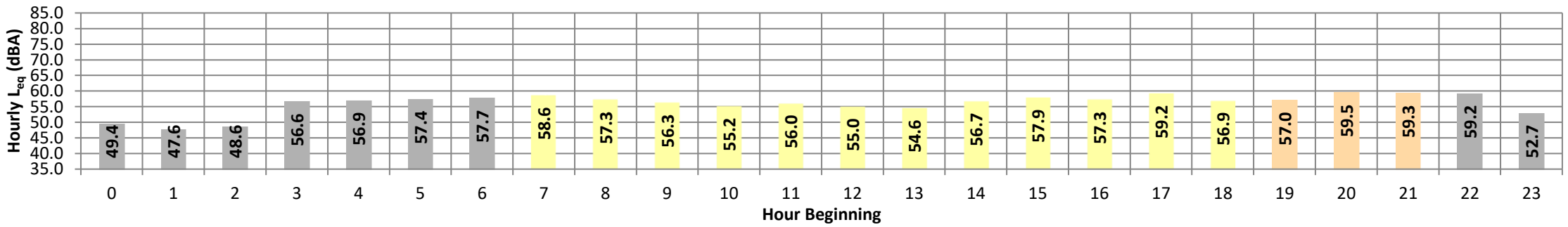
Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	59.0	67.3	49.1	66.8	66.1	64.4	63.1	59.6	56.7	51.2	50.1	49.3
	Max	64.7	76.7	55.9	76.0	75.0	72.2	69.5	64.6	61.5	57.7	56.9	56.0
Energy Average		63.0	Average:		72.0	71.3	69.2	67.4	62.1	58.8	54.2	53.3	52.4
Evening	Min	63.8	74.1	52.2	73.5	72.8	70.6	68.4	62.4	58.4	53.7	53.1	52.4
	Max	64.4	75.2	55.2	74.7	74.0	71.1	69.5	64.0	60.8	56.7	56.1	55.4
Energy Average		64.2	Average:		74.2	73.4	70.8	69.0	63.4	59.7	55.4	54.8	54.2
Night	Min	50.1	59.5	43.5	59.1	58.5	56.4	54.6	49.3	45.9	43.9	43.7	43.5
	Max	60.5	70.4	50.4	69.9	69.2	66.8	65.3	60.5	56.8	52.1	51.2	50.5
Energy Average		57.1	Average:		65.2	64.6	62.6	61.0	55.5	51.7	47.5	46.9	46.5

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
61.8	63.3	57.1
24-Hour CNEL (dBA)		
66.0		

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 2, 2019
Project: Fontana Foothills Commerce Center
Location: L3 - Located west of Sierra Avenue northeast of the Project Site on vacant property.
Meter: Piccolo I
JN: 12980
Analyst: B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	49.4	67.7	39.8	58.0	56.0	54.0	52.0	49.0	46.0	43.0	42.0	41.0	49.4	10.0	59.4
	1	47.6	67.8	38.4	57.0	55.0	52.0	50.0	46.0	44.0	41.0	41.0	40.0	47.6	10.0	57.6
	2	48.6	72.0	39.5	58.0	55.0	52.0	51.0	47.0	45.0	42.0	41.0	41.0	48.6	10.0	58.6
	3	56.6	75.7	42.7	70.0	66.0	61.0	58.0	52.0	49.0	45.0	45.0	44.0	56.6	10.0	66.6
	4	56.9	79.2	45.1	68.0	66.0	60.0	58.0	54.0	51.0	48.0	47.0	46.0	56.9	10.0	66.9
	5	57.4	74.6	45.5	67.0	66.0	62.0	60.0	56.0	53.0	50.0	49.0	48.0	57.4	10.0	67.4
	6	57.7	75.5	47.0	66.0	65.0	62.0	61.0	57.0	55.0	51.0	51.0	49.0	57.7	10.0	67.7
Day	7	58.6	75.2	46.5	69.0	67.0	64.0	62.0	57.0	54.0	50.0	50.0	49.0	58.6	0.0	58.6
	8	57.3	74.1	43.7	67.0	65.0	62.0	61.0	56.0	53.0	48.0	47.0	46.0	57.3	0.0	57.3
	9	56.3	73.7	43.6	68.0	65.0	61.0	59.0	54.0	51.0	47.0	46.0	45.0	56.3	0.0	56.3
	10	55.2	78.2	41.5	65.0	63.0	60.0	58.0	53.0	51.0	47.0	46.0	44.0	55.2	0.0	55.2
	11	56.0	78.4	41.5	66.0	64.0	61.0	59.0	55.0	51.0	46.0	45.0	44.0	56.0	0.0	56.0
	12	55.0	75.3	41.5	65.0	63.0	60.0	58.0	54.0	50.0	46.0	45.0	43.0	55.0	0.0	55.0
	13	54.6	72.9	40.3	64.0	63.0	60.0	58.0	53.0	50.0	46.0	45.0	43.0	54.6	0.0	54.6
	14	56.7	78.2	39.8	67.0	65.0	62.0	60.0	55.0	51.0	47.0	46.0	44.0	56.7	0.0	56.7
	15	57.9	75.6	42.5	68.0	66.0	64.0	62.0	57.0	53.0	48.0	47.0	45.0	57.9	0.0	57.9
	16	57.3	74.7	43.0	67.0	65.0	63.0	61.0	56.0	53.0	48.0	47.0	45.0	57.3	0.0	57.3
	17	59.2	78.6	46.0	69.0	66.0	64.0	62.0	58.0	55.0	51.0	50.0	48.0	59.2	0.0	59.2
	18	56.9	78.7	47.2	66.0	64.0	61.0	60.0	56.0	54.0	51.0	50.0	49.0	56.9	0.0	56.9
Evening	19	57.0	73.4	47.3	67.0	65.0	62.0	60.0	56.0	53.0	50.0	49.0	48.0	57.0	5.0	62.0
	20	59.5	81.3	44.3	70.0	68.0	65.0	63.0	56.0	52.0	49.0	48.0	46.0	59.5	5.0	64.5
	21	59.3	80.2	43.8	71.0	69.0	65.0	63.0	55.0	51.0	48.0	47.0	46.0	59.3	5.0	64.3
Night	22	59.2	83.8	42.1	69.0	68.0	64.0	63.0	56.0	52.0	46.0	45.0	44.0	59.2	10.0	69.2
	23	52.7	75.1	40.3	64.0	61.0	57.0	55.0	50.0	47.0	44.0	43.0	42.0	52.7	10.0	62.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.6	72.9	39.8	64.0	63.0	60.0	58.0	53.0	50.0	46.0	45.0	43.0
	Max	59.2	78.7	47.2	69.0	67.0	64.0	62.0	58.0	55.0	51.0	50.0	49.0
Energy Average		57.0	Average:		66.8	64.7	61.8	60.0	55.3	52.2	47.9	47.0	45.4
Evening	Min	57.0	73.4	43.8	67.0	65.0	62.0	60.0	55.0	51.0	48.0	47.0	46.0
	Max	59.5	81.3	47.3	71.0	69.0	65.0	63.0	56.0	53.0	50.0	49.0	48.0
Energy Average		58.7	Average:		69.3	67.3	64.0	62.0	55.7	52.0	49.0	48.0	46.7
Night	Min	47.6	67.7	38.4	57.0	55.0	52.0	50.0	46.0	44.0	41.0	41.0	40.0
	Max	59.2	83.8	47.0	70.0	68.0	64.0	63.0	57.0	55.0	51.0	51.0	49.0
Energy Average		55.7	Average:		64.1	62.0	58.2	56.4	51.9	49.1	45.6	44.9	43.9

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
56.8	57.4	55.7

24-Hour CNEL (dBA)
62.9

24-Hour Noise Level Measurement Summary

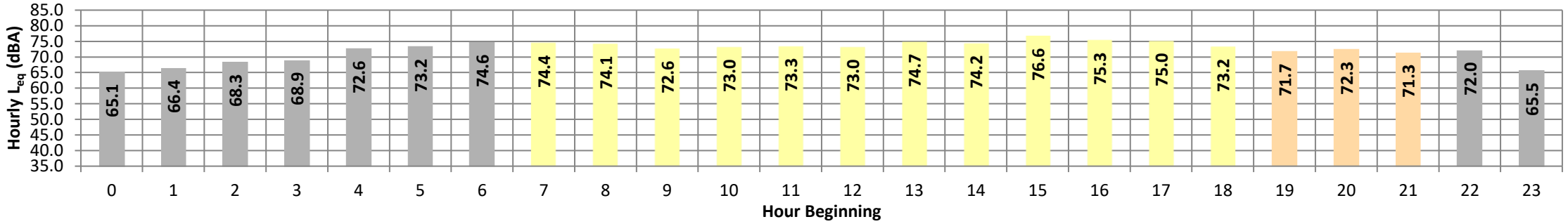
Date: Wednesday, October 2, 2019
Project: Fontana Foothills Commerce Center

Location: L4 - Located south of Jurupa Avenue in the landscaped parkway near existing residential homes.

Meter: Piccolo I

JN: 12980
Analyst: B. Lawson

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	65.1	86.5	48.3	77.0	75.0	72.0	68.0	58.0	53.0	50.0	50.0	49.0	65.1	10.0	75.1
	1	66.4	82.9	47.0	79.0	78.0	74.0	70.0	58.0	52.0	49.0	48.0	47.0	66.4	10.0	76.4
	2	68.3	86.7	47.6	79.0	79.0	77.0	73.0	59.0	53.0	50.0	49.0	48.0	68.3	10.0	78.3
	3	68.9	88.3	51.7	80.0	78.0	76.0	73.0	65.0	59.0	54.0	53.0	52.0	68.9	10.0	78.9
	4	72.6	92.5	52.1	82.0	81.0	79.0	77.0	71.0	65.0	57.0	56.0	54.0	72.6	10.0	82.6
	5	73.2	97.8	55.0	82.0	81.0	79.0	77.0	71.0	65.0	58.0	57.0	56.0	73.2	10.0	83.2
	6	74.6	93.1	57.4	83.0	82.0	80.0	79.0	75.0	69.0	61.0	60.0	58.0	74.6	10.0	84.6
Day	7	74.4	86.4	55.7	82.0	81.0	80.0	79.0	75.0	69.0	60.0	58.0	56.0	74.4	0.0	74.4
	8	74.1	92.5	52.2	83.0	81.0	79.0	78.0	74.0	68.0	57.0	56.0	54.0	74.1	0.0	74.1
	9	72.6	90.8	51.0	82.0	80.0	78.0	77.0	72.0	66.0	55.0	54.0	52.0	72.6	0.0	72.6
	10	73.0	94.2	49.3	83.0	81.0	78.0	77.0	71.0	65.0	54.0	52.0	51.0	73.0	0.0	73.0
	11	73.3	96.0	47.4	82.0	81.0	79.0	77.0	73.0	66.0	54.0	52.0	49.0	73.3	0.0	73.3
	12	73.0	94.7	44.6	82.0	81.0	79.0	77.0	73.0	66.0	53.0	50.0	47.0	73.0	0.0	73.0
	13	74.7	97.9	45.4	84.0	82.0	80.0	78.0	74.0	67.0	53.0	51.0	48.0	74.7	0.0	74.7
	14	74.2	94.3	45.8	84.0	82.0	80.0	78.0	74.0	67.0	54.0	51.0	49.0	74.2	0.0	74.2
	15	76.6	103.4	47.3	86.0	83.0	80.0	79.0	75.0	70.0	57.0	54.0	50.0	76.6	0.0	76.6
	16	75.3	94.4	48.4	84.0	82.0	80.0	79.0	76.0	70.0	58.0	55.0	51.0	75.3	0.0	75.3
	17	75.0	94.2	49.6	84.0	82.0	80.0	79.0	75.0	69.0	60.0	57.0	52.0	75.0	0.0	75.0
	18	73.2	90.7	51.8	82.0	80.0	79.0	78.0	74.0	68.0	57.0	55.0	53.0	73.2	0.0	73.2
Evening	19	71.7	88.8	52.1	81.0	80.0	77.0	76.0	71.0	65.0	56.0	54.0	53.0	71.7	5.0	76.7
	20	72.3	94.9	48.5	83.0	80.0	77.0	76.0	70.0	64.0	54.0	52.0	50.0	72.3	5.0	77.3
	21	71.3	97.1	51.8	81.0	79.0	76.0	75.0	68.0	62.0	54.0	53.0	53.0	71.3	5.0	76.3
Night	22	72.0	99.4	49.0	80.0	78.0	76.0	74.0	68.0	61.0	52.0	51.0	50.0	72.0	10.0	82.0
	23	65.5	82.7	48.4	77.0	75.0	72.0	70.0	62.0	55.0	51.0	50.0	49.0	65.5	10.0	75.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	72.6	86.4	44.6	82.0	80.0	78.0	77.0	71.0	65.0	53.0	50.0	47.0
	Max	76.6	103.4	55.7	86.0	83.0	80.0	79.0	76.0	70.0	60.0	58.0	56.0
Energy Average		74.3	Average:		83.2	81.3	79.3	78.0	73.8	67.6	56.0	53.8	51.0
Evening	Min	71.3	88.8	48.5	81.0	79.0	76.0	75.0	68.0	62.0	54.0	52.0	50.0
	Max	72.3	97.1	52.1	83.0	80.0	77.0	76.0	71.0	65.0	56.0	54.0	53.0
Energy Average		71.8	Average:		81.7	79.7	76.7	75.7	69.7	63.7	54.7	53.0	52.0
Night	Min	65.1	82.7	47.0	77.0	75.0	72.0	68.0	58.0	52.0	49.0	48.0	47.0
	Max	74.6	99.4	57.4	83.0	82.0	80.0	79.0	75.0	69.0	61.0	60.0	58.0
Energy Average		70.8	Average:		79.9	78.6	76.1	73.4	65.2	59.1	53.6	52.7	51.4

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
73.0	**73.9**	**70.8**

24-Hour CNEL (dBA)

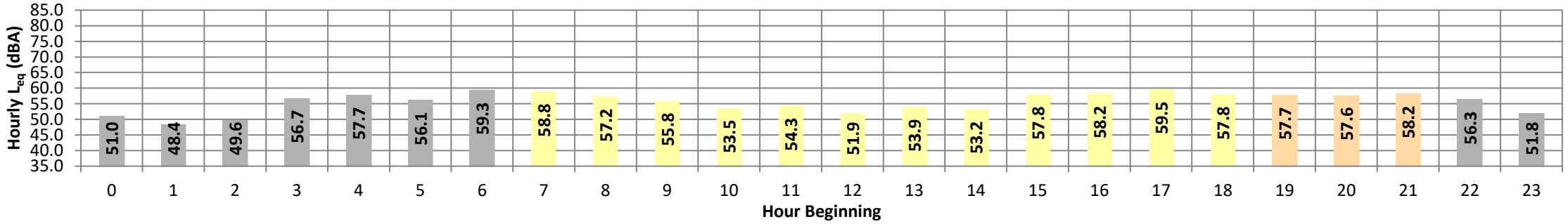
78.1

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 2, 2019 *Location:* L5 - Located in the parking lot of St. Mary's Catholic Church. *Meter:* Piccolo I *JN:* 12980

Project: Fontana Foothills Commerce Center *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.0	66.7	43.4	59.0	57.0	55.0	53.0	50.0	48.0	46.0	45.0	44.0	51.0	10.0	61.0
	1	48.4	61.2	43.0	55.0	53.0	52.0	51.0	48.0	47.0	44.0	44.0	43.0	48.4	10.0	58.4
	2	49.6	63.7	43.5	57.0	55.0	53.0	52.0	49.0	48.0	45.0	45.0	44.0	49.6	10.0	59.6
	3	56.7	73.6	45.4	69.0	66.0	61.0	58.0	54.0	52.0	48.0	48.0	47.0	56.7	10.0	66.7
	4	57.7	75.1	48.8	68.0	66.0	62.0	59.0	56.0	54.0	51.0	50.0	49.0	57.7	10.0	67.7
	5	56.1	67.8	49.3	64.0	62.0	59.0	58.0	56.0	54.0	52.0	51.0	50.0	56.1	10.0	66.1
	6	59.3	73.2	52.1	67.0	65.0	63.0	62.0	59.0	57.0	54.0	54.0	53.0	59.3	10.0	69.3
Day	7	58.8	72.4	51.4	68.0	66.0	63.0	61.0	58.0	56.0	53.0	53.0	52.0	58.8	0.0	58.8
	8	57.2	74.4	47.3	69.0	67.0	62.0	59.0	54.0	52.0	49.0	49.0	48.0	57.2	0.0	57.2
	9	55.8	75.3	45.8	67.0	64.0	60.0	59.0	54.0	51.0	48.0	47.0	46.0	55.8	0.0	55.8
	10	53.5	70.8	44.9	63.0	62.0	58.0	56.0	52.0	50.0	47.0	46.0	45.0	53.5	0.0	53.5
	11	54.3	69.6	43.8	64.0	62.0	60.0	58.0	53.0	50.0	46.0	45.0	44.0	54.3	0.0	54.3
	12	51.9	67.3	42.3	61.0	60.0	57.0	55.0	51.0	48.0	45.0	44.0	43.0	51.9	0.0	51.9
	13	53.9	68.9	44.1	64.0	63.0	59.0	57.0	52.0	50.0	47.0	46.0	45.0	53.9	0.0	53.9
	14	53.2	70.0	43.1	62.0	61.0	58.0	56.0	52.0	50.0	46.0	45.0	44.0	53.2	0.0	53.2
	15	57.8	74.2	44.3	68.0	66.0	63.0	61.0	57.0	53.0	48.0	47.0	46.0	57.8	0.0	57.8
	16	58.2	79.4	46.2	67.0	66.0	63.0	62.0	57.0	54.0	50.0	49.0	48.0	58.2	0.0	58.2
	17	59.5	78.0	47.7	69.0	67.0	64.0	63.0	58.0	56.0	52.0	51.0	50.0	59.5	0.0	59.5
	18	57.8	75.2	49.7	67.0	65.0	62.0	60.0	57.0	55.0	52.0	51.0	50.0	57.8	0.0	57.8
Evening	19	57.7	75.7	49.5	67.0	65.0	62.0	61.0	56.0	54.0	51.0	51.0	50.0	57.7	5.0	62.7
	20	57.6	77.4	46.4	68.0	67.0	63.0	61.0	55.0	52.0	49.0	49.0	48.0	57.6	5.0	62.6
	21	58.2	74.8	46.6	69.0	68.0	65.0	62.0	55.0	51.0	49.0	48.0	47.0	58.2	5.0	63.2
Night	22	56.3	71.7	45.7	67.0	65.0	62.0	61.0	54.0	50.0	47.0	47.0	46.0	56.3	10.0	66.3
	23	51.8	68.4	44.0	62.0	61.0	55.0	53.0	50.0	48.0	45.0	45.0	44.0	51.8	10.0	61.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.9	67.3	42.3	61.0	60.0	57.0	55.0	51.0	48.0	45.0	44.0	43.0
	Max	59.5	79.4	51.4	69.0	67.0	64.0	63.0	58.0	56.0	53.0	53.0	52.0
Energy Average		56.6	Average:		65.8	64.1	60.8	58.9	54.6	52.1	48.6	47.8	46.8
Evening	Min	57.6	74.8	46.4	67.0	65.0	62.0	61.0	55.0	51.0	49.0	48.0	47.0
	Max	58.2	77.4	49.5	69.0	68.0	65.0	62.0	56.0	54.0	51.0	51.0	50.0
Energy Average		57.8	Average:		68.0	66.7	63.3	61.3	55.3	52.3	49.7	49.3	48.3
Night	Min	48.4	61.2	43.0	55.0	53.0	52.0	51.0	48.0	47.0	44.0	44.0	43.0
	Max	59.3	75.1	52.1	69.0	66.0	63.0	62.0	59.0	57.0	54.0	54.0	53.0
Energy Average		55.5	Average:		63.1	61.1	58.0	56.3	52.9	50.9	48.0	47.7	46.7

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
56.4	56.9	55.5

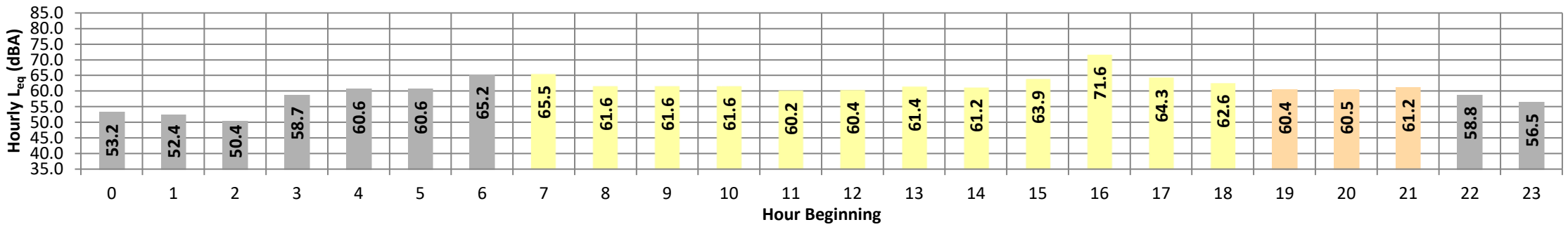
24-Hour CNEL (dBA)
62.5

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 2, 2019 *Location:* L6 - Located on Juniper Avenue west of the Project Site. *Meter:* Piccolo I *JN:* 12980

Project: Fontana Foothills Commerce Center *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.2	77.4	42.1	64.0	60.0	55.0	53.0	50.0	49.0	46.0	45.0	44.0	53.2	10.0	63.2
	1	52.4	76.8	41.9	62.0	56.0	52.0	51.0	49.0	47.0	45.0	44.0	43.0	52.4	10.0	62.4
	2	50.4	71.4	43.2	57.0	56.0	53.0	52.0	50.0	48.0	46.0	45.0	44.0	50.4	10.0	60.4
	3	58.7	77.0	45.7	71.0	69.0	64.0	60.0	55.0	53.0	49.0	48.0	46.0	58.7	10.0	68.7
	4	60.6	79.8	49.9	73.0	70.0	65.0	62.0	57.0	55.0	52.0	52.0	51.0	60.6	10.0	70.6
	5	60.6	82.3	48.9	72.0	70.0	65.0	63.0	57.0	54.0	51.0	51.0	50.0	60.6	10.0	70.6
	6	65.2	89.5	52.2	75.0	73.0	70.0	68.0	61.0	58.0	55.0	54.0	53.0	65.2	10.0	75.2
Day	7	65.5	92.8	50.8	75.0	73.0	70.0	68.0	60.0	56.0	53.0	52.0	51.0	65.5	0.0	65.5
	8	61.6	82.0	45.1	73.0	71.0	68.0	66.0	57.0	52.0	48.0	47.0	46.0	61.6	0.0	61.6
	9	61.6	82.8	44.7	73.0	71.0	68.0	66.0	56.0	51.0	47.0	46.0	45.0	61.6	0.0	61.6
	10	61.6	90.2	43.4	72.0	70.0	67.0	64.0	53.0	49.0	46.0	45.0	44.0	61.6	0.0	61.6
	11	60.2	78.1	43.1	72.0	70.0	67.0	65.0	55.0	49.0	46.0	45.0	44.0	60.2	0.0	60.2
	12	60.4	84.0	40.1	72.0	70.0	67.0	64.0	53.0	48.0	44.0	43.0	41.0	60.4	0.0	60.4
	13	61.4	84.7	39.1	73.0	71.0	68.0	65.0	54.0	49.0	43.0	43.0	41.0	61.4	0.0	61.4
	14	61.2	78.1	41.5	73.0	71.0	68.0	66.0	55.0	49.0	44.0	43.0	42.0	61.2	0.0	61.2
	15	63.9	86.7	42.0	75.0	73.0	70.0	68.0	61.0	53.0	46.0	45.0	43.0	63.9	0.0	63.9
	16	71.6	102.1	41.8	75.0	73.0	70.0	69.0	60.0	52.0	46.0	45.0	42.0	71.6	0.0	71.6
	17	64.3	88.5	43.8	75.0	73.0	70.0	68.0	61.0	55.0	49.0	47.0	45.0	64.3	0.0	64.3
	18	62.6	84.5	45.6	74.0	72.0	69.0	66.0	58.0	54.0	49.0	48.0	46.0	62.6	0.0	62.6
Evening	19	60.4	76.7	45.0	72.0	70.0	67.0	65.0	57.0	52.0	48.0	47.0	46.0	60.4	5.0	65.4
	20	60.5	79.6	43.0	72.0	70.0	67.0	65.0	56.0	50.0	45.0	45.0	43.0	60.5	5.0	65.5
	21	61.2	84.4	42.3	72.0	70.0	67.0	65.0	55.0	49.0	45.0	44.0	43.0	61.2	5.0	66.2
Night	22	58.8	84.3	42.1	70.0	68.0	64.0	62.0	54.0	48.0	44.0	44.0	43.0	58.8	10.0	68.8
	23	56.5	83.4	42.4	68.0	65.0	59.0	55.0	50.0	47.0	44.0	43.0	43.0	56.5	10.0	66.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	60.2	78.1	39.1	72.0	70.0	67.0	64.0	53.0	48.0	43.0	43.0	41.0
	Max	71.6	102.1	50.8	75.0	73.0	70.0	69.0	61.0	56.0	53.0	52.0	51.0
Energy Average		64.5	Average:		73.5	71.5	68.5	66.3	56.9	51.4	46.8	45.8	44.2
Evening	Min	60.4	76.7	42.3	72.0	70.0	67.0	65.0	55.0	49.0	45.0	44.0	43.0
	Max	61.2	84.4	45.0	72.0	70.0	67.0	65.0	57.0	52.0	48.0	47.0	46.0
Energy Average		60.7	Average:		72.0	70.0	67.0	65.0	56.0	50.3	46.0	45.3	44.0
Night	Min	50.4	71.4	41.9	57.0	56.0	52.0	51.0	49.0	47.0	44.0	43.0	43.0
	Max	65.2	89.5	52.2	75.0	73.0	70.0	68.0	61.0	58.0	55.0	54.0	53.0
Energy Average		59.5	Average:		68.0	65.2	60.8	58.4	53.7	51.0	48.0	47.3	46.3

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
62.8	**64.0**	**59.5**

24-Hour CNEL (dBA)

67.2

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Citrus Av. | Job Number: 12980
Road Segment: n/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,745 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	965 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.68	1.64	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.81	1.68	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.16	1.67	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.8	62.1	56.0	64.6	65.2
Medium Trucks:	60.4	59.3	53.0	51.4	59.9	60.1
Heavy Trucks:	65.3	64.4	55.3	56.6	64.9	65.0
Vehicle Noise:	68.9	67.8	63.3	60.0	68.4	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	36	78	168	362
CNEL:	38	82	177	382

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Juniper Av. | Job Number: 12980
Road Segment: n/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,473 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	222 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.06	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-24.19	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-24.54	2.52	-1.20	-5.67	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:	59.7	58.3	56.5	50.5	59.1	59.7
Medium Trucks:	54.8	53.8	47.4	45.9	54.4	54.6
Heavy Trucks:	59.8	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	63.4	62.2	57.8	54.4	62.9	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	25	53	115
CNEL:	12	26	56	121

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Juniper Av. | Job Number: 12980
Road Segment: s/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,958 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	266 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.28	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-23.42	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-23.76	2.52	-1.20	-5.67	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:	60.5	59.1	57.3	51.3	59.9	60.5
Medium Trucks:	55.6	54.6	48.2	46.7	55.1	55.4
Heavy Trucks:	60.6	59.6	50.6	51.8	60.2	60.3
Vehicle Noise:	64.2	63.0	58.6	55.2	63.7	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	60	129
CNEL:	14	29	63	136

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: n/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,761 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,852 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.06	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.08	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.42	0.11	-1.20	-5.30	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	69.7	68.0	61.9	70.5	71.1
Medium Trucks:	65.8	64.8	58.4	56.9	65.4	65.6
Heavy Trucks:	69.9	68.9	59.9	61.1	69.5	69.6
Vehicle Noise:	74.2	73.0	69.0	65.2	73.7	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	252	543	1,169
CNEL:	124	267	575	1,239

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: s/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,656 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,843 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.04	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.09	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.44	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.7	67.9	61.9	70.5	71.1
Medium Trucks:	65.8	64.8	58.4	56.9	65.3	65.6
Heavy Trucks:	69.9	68.9	59.9	61.1	69.5	69.6
Vehicle Noise:	74.2	73.0	69.0	65.2	73.7	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	251	541	1,167
CNEL:	124	266	574	1,236

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: n/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,701 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,308 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.14	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-15.00	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.34	0.11	-1.20	-5.30	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:	70.2	68.8	67.0	61.0	69.6	70.2
Medium Trucks:	64.9	63.9	57.5	56.0	64.4	64.7
Heavy Trucks:	68.9	68.0	59.0	60.2	68.6	68.7
Vehicle Noise:	73.3	72.1	68.1	64.3	72.8	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	102	219	471	1,015
CNEL:	108	232	499	1,076

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: s/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,216 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,264 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.06	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-15.08	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.43	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.7	67.0	60.9	69.5	70.1
Medium Trucks:	64.8	63.8	57.4	55.9	64.3	64.6
Heavy Trucks:	68.9	67.9	58.9	60.1	68.5	68.6
Vehicle Noise:	73.2	72.0	68.0	64.2	72.7	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	216	465	1,002
CNEL:	106	229	493	1,062

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Citrus av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,332 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,646 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.13	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-16.01	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.35	0.61	-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:	68.0	66.5	64.8	58.7	67.3	67.9
Medium Trucks:	62.9	61.8	55.5	53.9	62.4	62.6
Heavy Trucks:	67.3	66.4	57.3	58.6	66.9	67.0
Vehicle Noise:	71.3	70.1	65.9	62.3	70.8	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	316	680
CNEL:	72	155	334	719

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Oleander Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,811 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,689 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.24	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.89	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.24	0.61	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.7	64.9	58.8	67.5	68.1
Medium Trucks:	63.0	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	67.4	66.5	57.4	58.7	67.0	67.2
Vehicle Noise:	71.4	70.3	66.0	62.4	70.9	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	692
CNEL:	73	158	340	732

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Cypress Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,390 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,741 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.37	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.76	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.11	0.61	-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:	68.2	66.8	65.0	59.0	67.6	68.2
Medium Trucks:	63.1	62.1	55.7	54.2	62.6	62.8
Heavy Trucks:	67.6	66.6	57.6	58.8	67.2	67.3
Vehicle Noise:	71.6	70.4	66.1	62.6	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	152	328	706
CNEL:	75	161	347	747

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Juniper Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,092 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,804 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.53	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.61	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.96	0.61	-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:	68.4	66.9	65.2	59.1	67.7	68.3
Medium Trucks:	63.3	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	67.7	66.8	57.7	59.0	67.3	67.4
Vehicle Noise:	71.7	70.5	66.3	62.7	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	156	336	723
CNEL:	76	165	355	764

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Sierra Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,680 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,767 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.44	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.70	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.05	0.61	-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:	68.3	66.8	65.1	59.0	67.6	68.3
Medium Trucks:	63.2	62.1	55.8	54.2	62.7	62.9
Heavy Trucks:	67.6	66.7	57.6	58.9	67.2	67.4
Vehicle Noise:	71.6	70.5	66.2	62.6	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	154	331	713
CNEL:	75	162	350	754

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Foothill Commerce Ctr.
Road Name: Citrus Av. | Job Number: 12980
Road Segment: n/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,930 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	981 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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%	94.57%
Medium Trucks:	84.8%	4.9%	10.3%	2.46%
Heavy Trucks:	86.5%	2.7%	10.8%	2.97%

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:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.65	1.64	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.50	1.68	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-16.68	1.67	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.9	62.1	56.0	64.7	65.3
Medium Trucks:	60.7	59.7	53.3	51.7	60.2	60.4
Heavy Trucks:	66.8	65.8	56.8	58.0	66.4	66.5
Vehicle Noise:	69.7	68.6	63.6	60.8	69.2	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	88	189	408
CNEL:	43	92	199	428

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Foothill Commerce Ctr.
Road Name: Juniper Av. | Job Number: 12980
Road Segment: n/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,581 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	232 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.71%
Medium Trucks:	84.8%	4.9%	10.3%	2.23%
Heavy Trucks:	86.5%	2.7%	10.8%	2.06%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.87	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-24.19	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-24.54	2.52	-1.20	-5.67	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:	59.9	58.5	56.7	50.7	59.3	59.9
Medium Trucks:	54.8	53.8	47.4	45.9	54.4	54.6
Heavy Trucks:	59.8	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	63.5	62.3	57.9	54.5	63.0	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	25	54	116
CNEL:	12	26	57	122

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Foothill Commerce Ctr.
Road Name: Juniper Av. | Job Number: 12980
Road Segment: s/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,416 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	307 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	96.13%
Medium Trucks:	84.8%	4.9%	10.3%	2.01%
Heavy Trucks:	86.5%	2.7%	10.8%	1.86%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.63	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-23.42	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-23.76	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.2	59.7	58.0	51.9	60.5	61.1
Medium Trucks:	55.6	54.6	48.2	46.7	55.1	55.4
Heavy Trucks:	60.6	59.6	50.6	51.8	60.2	60.3
Vehicle Noise:	64.5	63.3	59.1	55.5	64.0	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	29	63	135
CNEL:	14	31	66	142

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: n/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,930 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,867 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.36%
Medium Trucks:	84.8%	4.9%	10.3%	2.35%
Heavy Trucks:	86.5%	2.7%	10.8%	2.30%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.07	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.02	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.11	0.11	-1.20	-5.30	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	69.7	68.0	61.9	70.5	71.1
Medium Trucks:	65.9	64.9	58.5	56.9	65.4	65.6
Heavy Trucks:	70.2	69.2	60.2	61.4	69.8	69.9
Vehicle Noise:	74.4	73.2	69.0	65.4	73.9	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	257	554	1,194
CNEL:	126	272	587	1,264

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: s/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,752 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,851 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.26%
Medium Trucks:	84.8%	4.9%	10.3%	2.37%
Heavy Trucks:	86.5%	2.7%	10.8%	2.37%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.04	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.00	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.99	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.7	67.9	61.9	70.5	71.1
Medium Trucks:	65.9	64.9	58.5	57.0	65.4	65.7
Heavy Trucks:	70.3	69.3	60.3	61.6	69.9	70.0
Vehicle Noise:	74.4	73.2	69.0	65.4	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	557	1,201
CNEL:	127	274	590	1,270

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: n/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,797 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,317 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.20%
Medium Trucks:	84.8%	4.9%	10.3%	2.38%
Heavy Trucks:	86.5%	2.7%	10.8%	2.43%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.14	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.89	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.80	0.11	-1.20	-5.30	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:	70.2	68.8	67.0	61.0	69.6	70.2
Medium Trucks:	65.0	64.0	57.6	56.1	64.5	64.8
Heavy Trucks:	69.5	68.5	59.5	60.8	69.1	69.2
Vehicle Noise:	73.5	72.4	68.1	64.5	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	227	488	1,052
CNEL:	111	240	516	1,112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: s/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,272 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,269 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.35%
Medium Trucks:	84.8%	4.9%	10.3%	2.35%
Heavy Trucks:	86.5%	2.7%	10.8%	2.30%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.06	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-15.02	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.12	0.11	-1.20	-5.30	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:	70.2	68.7	67.0	60.9	69.5	70.1
Medium Trucks:	64.9	63.9	57.5	55.9	64.4	64.6
Heavy Trucks:	69.2	68.2	59.2	60.4	68.8	68.9
Vehicle Noise:	73.4	72.2	68.0	64.4	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	102	220	475	1,022
CNEL:	108	233	502	1,082

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Citrus av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,575 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,668 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.08%
Medium Trucks:	84.8%	4.9%	10.3%	2.38%
Heavy Trucks:	86.5%	2.7%	10.8%	2.53%

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:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.17	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.85	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.58	0.61	-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:	68.0	66.6	64.8	58.8	67.4	68.0
Medium Trucks:	63.0	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	68.1	67.1	58.1	59.3	67.7	67.8
Vehicle Noise:	71.7	70.5	66.1	62.7	71.2	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	155	334	720
CNEL:	76	164	352	759

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Jurupa Av.
Road Segment: w/o Oleander Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,238 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,728 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	94.56%
Medium Trucks:	84.8%	4.9%	10.3%	2.46%
Heavy Trucks:	86.5%	2.7%	10.8%	2.98%

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:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.29	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.56	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.72	0.61	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.7	64.9	58.9	67.5	68.1
Medium Trucks:	63.3	62.3	55.9	54.4	62.8	63.0
Heavy Trucks:	68.9	68.0	59.0	60.2	68.6	68.7
Vehicle Noise:	72.2	71.0	66.3	63.2	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	167	360	776
CNEL:	82	176	379	817

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Jurupa Av.
Road Segment: w/o Cypress Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,817 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,780 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	94.59%
Medium Trucks:	84.8%	4.9%	10.3%	2.45%
Heavy Trucks:	86.5%	2.7%	10.8%	2.96%

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:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.42	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.44	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.62	0.61	-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:	68.3	66.8	65.1	59.0	67.6	68.2
Medium Trucks:	63.4	62.4	56.0	54.5	62.9	63.2
Heavy Trucks:	69.0	68.1	59.0	60.3	68.7	68.8
Vehicle Noise:	72.3	71.1	66.5	63.3	71.8	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	367	790
CNEL:	83	179	386	831

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Jurupa Av.
Road Segment: w/o Juniper Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,519 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,843 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	94.62%
Medium Trucks:	84.8%	4.9%	10.3%	2.45%
Heavy Trucks:	86.5%	2.7%	10.8%	2.93%

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:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.58	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.29	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.51	0.61	-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:	68.4	67.0	65.2	59.2	67.8	68.4
Medium Trucks:	63.6	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	69.1	68.2	59.2	60.4	68.8	68.9
Vehicle Noise:	72.4	71.3	66.6	63.5	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	374	806
CNEL:	85	183	394	848

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Jurupa Av.
Road Segment: w/o Sierra Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,852 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,783 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	94.88%
Medium Trucks:	84.8%	4.9%	10.3%	2.42%
Heavy Trucks:	86.5%	2.7%	10.8%	2.70%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.44	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-15.49	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.01	0.61	-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:	68.3	66.9	65.1	59.0	67.7	68.3
Medium Trucks:	63.4	62.3	56.0	54.4	62.9	63.1
Heavy Trucks:	68.7	67.7	58.7	59.9	68.3	68.4
Vehicle Noise:	72.1	71.0	66.4	63.1	71.6	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	166	357	768
CNEL:	81	174	376	809

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Citrus Av. | Job Number: 12980
Road Segment: n/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,346 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,288 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.42	1.64	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-16.56	1.68	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-16.91	1.67	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	65.1	63.3	57.3	65.9	66.5
Medium Trucks:	61.6	60.6	54.2	52.7	61.1	61.4
Heavy Trucks:	66.6	65.6	56.6	57.8	66.2	66.3
Vehicle Noise:	70.2	69.0	64.6	61.2	69.7	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	95	204	439
CNEL:	46	100	215	463

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Juniper Av. | Job Number: 12980
Road Segment: n/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,783 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	250 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.55	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-23.68	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-24.03	2.52	-1.20	-5.67	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:	60.2	58.8	57.0	51.0	59.6	60.2
Medium Trucks:	55.4	54.3	48.0	46.4	54.9	55.1
Heavy Trucks:	60.3	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	63.9	62.8	58.3	54.9	63.4	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	27	58	124
CNEL:	13	28	61	131

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Juniper Av. | Job Number: 12980
Road Segment: s/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,674 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	330 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.34	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-22.48	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-22.82	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.4	60.0	58.3	52.2	60.8	61.4
Medium Trucks:	56.6	55.5	49.2	47.6	56.1	56.3
Heavy Trucks:	61.5	60.5	51.5	52.8	61.1	61.2
Vehicle Noise:	65.1	64.0	59.5	56.2	64.6	65.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	69	149
CNEL:	16	34	73	157

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: n/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,693 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,475 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.92	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.22	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.57	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.0	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	66.7	65.7	59.3	57.7	66.2	66.4
Heavy Trucks:	70.7	69.8	60.7	62.0	70.3	70.5
Vehicle Noise:	75.1	73.9	69.8	66.1	74.6	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	133	287	619	1,334
CNEL:	141	304	656	1,413

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: s/o Santa Ana Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,896 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,493 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.94	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.20	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.54	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.0	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	66.7	65.7	59.3	57.8	66.2	66.5
Heavy Trucks:	70.7	69.8	60.8	62.0	70.4	70.5
Vehicle Noise:	75.1	73.9	69.9	66.1	74.6	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	288	621	1,338
CNEL:	142	305	658	1,418

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: n/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,835 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,769 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.93	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.21	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.55	0.11	-1.20	-5.30	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	69.6	67.8	61.8	70.4	71.0
Medium Trucks:	65.7	64.7	58.3	56.8	65.2	65.5
Heavy Trucks:	69.7	68.8	59.7	61.0	69.4	69.5
Vehicle Noise:	74.1	72.9	68.9	65.1	73.6	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	115	247	532	1,146
CNEL:	121	262	564	1,215

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Sierra Av. | Job Number: 12980
Road Segment: s/o Jurupa Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,008 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,695 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.81	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.32	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.67	0.11	-1.20	-5.30	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	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	65.6	64.6	58.2	56.6	65.1	65.3
Heavy Trucks:	69.6	68.7	59.6	60.9	69.2	69.4
Vehicle Noise:	74.0	72.8	68.7	65.0	73.5	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	243	523	1,126
CNEL:	119	257	554	1,193

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Citrus av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,619 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,211 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.41	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.73	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.07	0.61	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.8	66.1	60.0	68.6	69.2
Medium Trucks:	64.1	63.1	56.7	55.2	63.6	63.9
Heavy Trucks:	68.6	67.6	58.6	59.8	68.2	68.3
Vehicle Noise:	72.6	71.4	67.2	63.6	72.1	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	83	178	384	828
CNEL:	88	189	406	875

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Oleander Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,641 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,123 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.23	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.90	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.25	0.61	-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	67.6	65.9	59.8	68.4	69.1
Medium Trucks:	64.0	62.9	56.6	55.0	63.5	63.7
Heavy Trucks:	68.4	67.5	58.4	59.7	68.0	68.2
Vehicle Noise:	72.4	71.3	67.0	63.4	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	374	806
CNEL:	85	184	395	852

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Cypress Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,718 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,130 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.25	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.89	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.23	0.61	-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	67.7	65.9	59.8	68.5	69.1
Medium Trucks:	64.0	62.9	56.6	55.0	63.5	63.7
Heavy Trucks:	68.4	67.5	58.4	59.7	68.0	68.2
Vehicle Noise:	72.4	71.3	67.0	63.4	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	375	808
CNEL:	85	184	396	854

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Juniper Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,687 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,127 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.24	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.89	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.24	0.61	-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	67.7	65.9	59.8	68.5	69.1
Medium Trucks:	64.0	62.9	56.6	55.0	63.5	63.7
Heavy Trucks:	68.4	67.5	58.4	59.7	68.0	68.2
Vehicle Noise:	72.4	71.3	67.0	63.4	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	375	807
CNEL:	85	184	396	853

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) | Project Name: Foothill Commerce Ctr.
Road Name: Jurupa Av. | Job Number: 12980
Road Segment: w/o Sierra Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,629 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,212 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.41	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.72	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-15.07	0.61	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.8	66.1	60.0	68.6	69.2
Medium Trucks:	64.1	63.1	56.7	55.2	63.7	63.9
Heavy Trucks:	68.6	67.6	58.6	59.8	68.2	68.3
Vehicle Noise:	72.6	71.4	67.2	63.6	72.1	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	83	178	384	828
CNEL:	88	189	406	876

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Citrus Av.
Road Segment: n/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,531 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,305 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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%	94.81%
Medium Trucks:	84.8%	4.9%	10.3%	2.43%
Heavy Trucks:	86.5%	2.7%	10.8%	2.77%

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:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.40	1.64	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-16.32	1.68	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-15.75	1.67	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	65.1	63.3	57.3	65.9	66.5
Medium Trucks:	61.9	60.8	54.5	52.9	61.4	61.6
Heavy Trucks:	67.7	66.8	57.7	59.0	67.3	67.5
Vehicle Noise:	70.8	69.6	64.8	61.8	70.3	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	223	481
CNEL:	51	109	235	505

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Juniper Av.
Road Segment: n/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,890 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	260 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.69%
Medium Trucks:	84.8%	4.9%	10.3%	2.24%
Heavy Trucks:	86.5%	2.7%	10.8%	2.07%

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:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.37	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-23.68	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-24.03	2.52	-1.20	-5.67	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:	60.4	59.0	57.2	51.2	59.8	60.4
Medium Trucks:	55.4	54.3	48.0	46.4	54.9	55.1
Heavy Trucks:	60.3	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	64.0	62.8	58.4	55.0	63.5	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	27	58	125
CNEL:	13	28	61	132

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Juniper Av.
Road Segment: s/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,132 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	371 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	96.02%
Medium Trucks:	84.8%	4.9%	10.3%	2.07%
Heavy Trucks:	86.5%	2.7%	10.8%	1.91%

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:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.81	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-22.48	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-22.82	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	60.5	58.8	52.7	61.4	62.0
Medium Trucks:	56.6	55.5	49.2	47.6	56.1	56.3
Heavy Trucks:	61.5	60.5	51.5	52.8	61.1	61.2
Vehicle Noise:	65.4	64.2	59.9	56.4	64.9	65.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	33	72	154
CNEL:	16	35	76	163

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Sierra Av.
Road Segment: n/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,861 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,490 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.39%
Medium Trucks:	84.8%	4.9%	10.3%	2.34%
Heavy Trucks:	86.5%	2.7%	10.8%	2.27%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.93	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.17	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.31	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.0	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	66.7	65.7	59.3	57.8	66.3	66.5
Heavy Trucks:	71.0	70.0	61.0	62.2	70.6	70.7
Vehicle Noise:	75.2	74.0	69.9	66.2	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	136	292	630	1,357
CNEL:	144	309	667	1,436

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Sierra Av.
Road Segment: s/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,993 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,502 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.31%
Medium Trucks:	84.8%	4.9%	10.3%	2.36%
Heavy Trucks:	86.5%	2.7%	10.8%	2.33%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.94	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.13	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.18	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.0	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	66.8	65.7	59.4	57.8	66.3	66.5
Heavy Trucks:	71.1	70.2	61.1	62.4	70.7	70.9
Vehicle Noise:	75.3	74.1	69.9	66.3	74.8	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	137	295	636	1,370
CNEL:	145	312	673	1,450

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Sierra Av.
Road Segment: n/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,931 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,778 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.25%
Medium Trucks:	84.8%	4.9%	10.3%	2.37%
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:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.93	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.12	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.09	0.11	-1.20	-5.30	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	69.6	67.8	61.8	70.4	71.0
Medium Trucks:	65.8	64.8	58.4	56.9	65.3	65.5
Heavy Trucks:	70.2	69.2	60.2	61.5	69.8	69.9
Vehicle Noise:	74.3	73.1	68.9	65.3	73.8	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	254	548	1,181
CNEL:	125	269	580	1,249

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Sierra Av.
Road Segment: s/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,063 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,700 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.37%
Medium Trucks:	84.8%	4.9%	10.3%	2.35%
Heavy Trucks:	86.5%	2.7%	10.8%	2.28%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.81	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-14.27	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.41	0.11	-1.20	-5.30	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	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	65.6	64.6	58.2	56.7	65.2	65.4
Heavy Trucks:	69.9	68.9	59.9	61.1	69.5	69.6
Vehicle Noise:	74.1	72.9	68.8	65.1	73.6	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	114	247	531	1,144
CNEL:	121	261	562	1,212

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Jurupa Av.
Road Segment: w/o Citrus av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,863 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,233 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.20%
Medium Trucks:	84.8%	4.9%	10.3%	2.37%
Heavy Trucks:	86.5%	2.7%	10.8%	2.44%

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:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.44	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.61	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.48	0.61	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.8	66.1	60.0	68.7	69.3
Medium Trucks:	64.3	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	69.2	68.2	59.2	60.4	68.8	68.9
Vehicle Noise:	72.9	71.7	67.3	63.9	72.4	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	186	401	864
CNEL:	91	196	423	912

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Jurupa Av.
Road Segment: w/o Oleander Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	24,068 vehicles	*Autos:*	15
Peak Hour Percentage:	8.98%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,161 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	80 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	94.75%
Medium Trucks:	84.8%	4.9%	10.3%	2.43%
Heavy Trucks:	86.5%	2.7%	10.8%	2.82%

Site Data		***Noise Source Elevations (in feet)***			
Barrier Height:	**0.0 feet**	*Autos:*	0.000		
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297		
Centerline Dist. to Barrier:	60.0 feet	*Heavy Trucks:*	8.004	*Grade Adjustment:*	0.0
Centerline Dist. to Observer:	60.0 feet				
Barrier Distance to Observer:	0.0 feet	***Lane Equivalent Distance (in feet)***			
Observer Height (Above Pad):	5.0 feet	*Autos:*	45.000		
Pad Elevation:	0.0 feet	*Medium Trucks:*	44.803		
Road Elevation:	0.0 feet	*Heavy Trucks:*	44.822		
Road Grade:	0.0%				
Left View:	-90.0 degrees				
Right View:	90.0 degrees				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.28	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.63	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-13.99	0.61	-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	67.7	65.9	59.9	68.5	69.1
Medium Trucks:	64.2	63.2	56.8	55.3	63.7	64.0
Heavy Trucks:	69.7	68.7	59.7	60.9	69.3	69.4
Vehicle Noise:	73.0	71.9	67.3	64.1	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	191	411	885
CNEL:	93	201	432	931

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Jurupa Av.
Road Segment: w/o Cypress Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	24,145 vehicles	*Autos:*	15
Peak Hour Percentage:	8.98%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,168 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	80 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	94.76%
Medium Trucks:	84.8%	4.9%	10.3%	2.43%
Heavy Trucks:	86.5%	2.7%	10.8%	2.81%

Site Data		***Noise Source Elevations (in feet)***			
Barrier Height:	**0.0 feet**	*Autos:*	0.000		
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297		
Centerline Dist. to Barrier:	60.0 feet	*Heavy Trucks:*	8.004	*Grade Adjustment:*	0.0
Centerline Dist. to Observer:	60.0 feet				
Barrier Distance to Observer:	0.0 feet	***Lane Equivalent Distance (in feet)***			
Observer Height (Above Pad):	5.0 feet	*Autos:*	45.000		
Pad Elevation:	0.0 feet	*Medium Trucks:*	44.803		
Road Elevation:	0.0 feet	*Heavy Trucks:*	44.822		
Road Grade:	0.0%				
Left View:	-90.0 degrees				
Right View:	90.0 degrees				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.29	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.62	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-13.98	0.61	-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	67.7	65.9	59.9	68.5	69.1
Medium Trucks:	64.2	63.2	56.8	55.3	63.8	64.0
Heavy Trucks:	69.7	68.7	59.7	60.9	69.3	69.4
Vehicle Noise:	73.0	71.9	67.3	64.1	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	191	411	886
CNEL:	93	201	433	933

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Jurupa Av.
Road Segment: w/o Juniper Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	24,114 vehicles	*Autos:*	15
Peak Hour Percentage:	8.98%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,165 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	80 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	94.76%
Medium Trucks:	84.8%	4.9%	10.3%	2.43%
Heavy Trucks:	86.5%	2.7%	10.8%	2.81%

Site Data		***Noise Source Elevations (in feet)***			
Barrier Height:	**0.0 feet**	*Autos:*	0.000		
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297		
Centerline Dist. to Barrier:	60.0 feet	*Heavy Trucks:*	8.004	*Grade Adjustment:*	0.0
Centerline Dist. to Observer:	60.0 feet				
Barrier Distance to Observer:	0.0 feet	***Lane Equivalent Distance (in feet)***			
Observer Height (Above Pad):	5.0 feet	*Autos:*	45.000		
Pad Elevation:	0.0 feet	*Medium Trucks:*	44.803		
Road Elevation:	0.0 feet	*Heavy Trucks:*	44.822		
Road Grade:	0.0%				
Left View:	-90.0 degrees				
Right View:	90.0 degrees				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.28	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.63	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-13.99	0.61	-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	67.7	65.9	59.9	68.5	69.1
Medium Trucks:	64.2	63.2	56.8	55.3	63.7	64.0
Heavy Trucks:	69.7	68.7	59.7	60.9	69.3	69.4
Vehicle Noise:	73.0	71.9	67.3	64.1	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	191	411	886
CNEL:	93	201	433	932

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2022) + Project
Road Name: Jurupa Av.
Road Segment: w/o Sierra Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	24,801 vehicles	*Autos:*	15
Peak Hour Percentage:	8.98%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,227 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	80 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	95.01%
Medium Trucks:	84.8%	4.9%	10.3%	2.40%
Heavy Trucks:	86.5%	2.7%	10.8%	2.59%

Site Data		***Noise Source Elevations (in feet)***			
Barrier Height:	**0.0 feet**	*Autos:*	0.000		
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297		
Centerline Dist. to Barrier:	60.0 feet	*Heavy Trucks:*	8.004	*Grade Adjustment:*	0.0
Centerline Dist. to Observer:	60.0 feet				
Barrier Distance to Observer:	0.0 feet	***Lane Equivalent Distance (in feet)***			
Observer Height (Above Pad):	5.0 feet	*Autos:*	45.000		
Pad Elevation:	0.0 feet	*Medium Trucks:*	44.803		
Road Elevation:	0.0 feet	*Heavy Trucks:*	44.822		
Road Grade:	0.0%				
Left View:	-90.0 degrees				
Right View:	90.0 degrees				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.42	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.55	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-14.22	0.61	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.8	66.1	60.0	68.6	69.2
Medium Trucks:	64.3	63.3	56.9	55.4	63.8	64.1
Heavy Trucks:	69.4	68.5	59.4	60.7	69.1	69.2
Vehicle Noise:	73.0	71.8	67.3	64.0	72.5	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	189	408	879
CNEL:	93	200	430	927

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Citrus Av.
Road Segment: n/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,709 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,411 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.03	1.64	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-16.17	1.68	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-16.51	1.67	-1.20	-5.47	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:	66.9	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	62.0	61.0	54.6	53.1	61.5	61.8
Heavy Trucks:	67.0	66.0	57.0	58.2	66.6	66.7
Vehicle Noise:	70.6	69.4	65.0	61.6	70.1	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	101	217	467
CNEL:	49	106	228	492

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Juniper Av.
Road Segment: n/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,042 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	273 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.16	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-23.30	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-23.64	2.52	-1.20	-5.67	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:	60.6	59.2	57.4	51.4	60.0	60.6
Medium Trucks:	55.7	54.7	48.3	46.8	55.3	55.5
Heavy Trucks:	60.7	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	64.3	63.1	58.7	55.3	63.8	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	61	131
CNEL:	14	30	64	139

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Juniper Av.
Road Segment: s/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,982 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	358 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.99	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-22.13	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-22.47	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	60.4	58.6	52.5	61.2	61.8
Medium Trucks:	56.9	55.9	49.5	48.0	56.4	56.7
Heavy Trucks:	61.8	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	65.5	64.3	59.9	56.5	65.0	65.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	73	157
CNEL:	17	36	77	166

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Sierra Av.
Road Segment: n/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,508 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,817 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.32	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-12.81	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.16	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	71.0	69.2	63.2	71.8	72.4
Medium Trucks:	67.1	66.1	59.7	58.2	66.6	66.9
Heavy Trucks:	71.1	70.2	61.1	62.4	70.7	70.9
Vehicle Noise:	75.5	74.3	70.2	66.5	75.0	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	142	306	659	1,420
CNEL:	150	324	698	1,504

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Sierra Av.
Road Segment: s/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,740 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,838 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.35	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-12.79	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.13	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	71.0	69.2	63.2	71.8	72.4
Medium Trucks:	67.1	66.1	59.7	58.2	66.6	66.9
Heavy Trucks:	71.2	70.2	61.2	62.4	70.8	70.9
Vehicle Noise:	75.5	74.3	70.3	66.5	75.0	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	307	661	1,425
CNEL:	151	325	701	1,510

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Sierra Av.
Road Segment: n/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,170 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,248 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.62	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.51	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.86	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	70.3	68.5	62.5	71.1	71.7
Medium Trucks:	66.4	65.4	59.0	57.5	65.9	66.1
Heavy Trucks:	70.4	69.5	60.4	61.7	70.0	70.2
Vehicle Noise:	74.8	73.6	69.5	65.8	74.3	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	127	275	592	1,275
CNEL:	135	291	627	1,351

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Sierra Av.
Road Segment: s/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,135 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,425 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.85	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.28	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.63	0.11	-1.20	-5.30	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:	71.9	70.5	68.7	62.7	71.3	71.9
Medium Trucks:	66.6	65.6	59.2	57.7	66.1	66.4
Heavy Trucks:	70.7	69.7	60.7	61.9	70.3	70.4
Vehicle Noise:	75.0	73.8	69.8	66.0	74.5	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	132	285	613	1,321
CNEL:	140	301	650	1,399

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Jurupa Av.
Road Segment: w/o Citrus av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,005 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,425 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.81	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.32	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.67	0.61	-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:	69.7	68.2	66.5	60.4	69.0	69.6
Medium Trucks:	64.5	63.5	57.1	55.6	64.1	64.3
Heavy Trucks:	69.0	68.0	59.0	60.2	68.6	68.7
Vehicle Noise:	73.0	71.8	67.6	64.0	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	190	409	881
CNEL:	93	201	432	931

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Jurupa Av.
Road Segment: w/o Oleander Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,859 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,322 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.62	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.51	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.86	0.61	-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:	69.5	68.0	66.3	60.2	68.8	69.4
Medium Trucks:	64.3	63.3	56.9	55.4	63.9	64.1
Heavy Trucks:	68.8	67.8	58.8	60.1	68.4	68.5
Vehicle Noise:	72.8	71.6	67.4	63.8	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	184	397	856
CNEL:	90	195	420	905

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Jurupa Av.
Road Segment: w/o Cypress Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,943 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,330 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.64	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.50	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.85	0.61	-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:	69.5	68.0	66.3	60.2	68.8	69.5
Medium Trucks:	64.4	63.3	57.0	55.4	63.9	64.1
Heavy Trucks:	68.8	67.9	58.8	60.1	68.4	68.6
Vehicle Noise:	72.8	71.7	67.4	63.8	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	185	398	857
CNEL:	91	195	421	906

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Jurupa Av.
Road Segment: w/o Juniper Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,006 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,335 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.65	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.49	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.84	0.61	-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:	69.5	68.1	66.3	60.2	68.9	69.5
Medium Trucks:	64.4	63.3	57.0	55.4	63.9	64.1
Heavy Trucks:	68.8	67.9	58.8	60.1	68.4	68.6
Vehicle Noise:	72.8	71.7	67.4	63.8	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	185	399	859
CNEL:	91	196	421	908

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Jurupa Av.
Road Segment: w/o Sierra Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,015 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,426 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.53%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.81	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.32	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.67	0.61	-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:	69.7	68.2	66.5	60.4	69.0	69.6
Medium Trucks:	64.5	63.5	57.1	55.6	64.1	64.3
Heavy Trucks:	69.0	68.0	59.0	60.3	68.6	68.7
Vehicle Noise:	73.0	71.8	67.6	64.0	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	190	409	881
CNEL:	93	201	432	931

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Citrus Av.
Road Segment: n/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,894 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	1,427 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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%	94.87%
Medium Trucks:	84.8%	4.9%	10.3%	2.42%
Heavy Trucks:	86.5%	2.7%	10.8%	2.71%

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:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.01	1.64	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-15.94	1.68	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-15.45	1.67	-1.20	-5.47	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:	66.9	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	62.2	61.2	54.8	53.3	61.8	62.0
Heavy Trucks:	68.0	67.1	58.0	59.3	67.6	67.8
Vehicle Noise:	71.1	70.0	65.2	62.2	70.6	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	109	235	507
CNEL:	53	115	247	533

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Juniper Av.
Road Segment: n/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,149 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	283 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	95.68%
Medium Trucks:	84.8%	4.9%	10.3%	2.25%
Heavy Trucks:	86.5%	2.7%	10.8%	2.07%

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:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.00	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-23.30	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-23.64	2.52	-1.20	-5.67	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:	60.8	59.4	57.6	51.5	60.2	60.8
Medium Trucks:	55.7	54.7	48.3	46.8	55.3	55.5
Heavy Trucks:	60.7	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	64.4	63.2	58.8	55.4	63.9	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	29	62	133
CNEL:	14	30	65	140

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Juniper Av.
Road Segment: s/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,440 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	399 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 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%	2.09%
Heavy Trucks:	86.5%	2.7%	10.8%	1.93%

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:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.50	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-22.13	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-22.47	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.3	60.9	59.1	53.0	61.7	62.3
Medium Trucks:	56.9	55.9	49.5	48.0	56.4	56.7
Heavy Trucks:	61.8	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	65.7	64.5	60.2	56.7	65.2	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	75	163
CNEL:	17	37	80	172

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Sierra Av.
Road Segment: n/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,676 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,832 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.40%
Medium Trucks:	84.8%	4.9%	10.3%	2.34%
Heavy Trucks:	86.5%	2.7%	10.8%	2.26%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.34	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-12.77	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.92	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	71.0	69.2	63.2	71.8	72.4
Medium Trucks:	67.1	66.1	59.7	58.2	66.7	66.9
Heavy Trucks:	71.4	70.4	61.4	62.6	71.0	71.1
Vehicle Noise:	75.6	74.4	70.3	66.6	75.1	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	144	311	669	1,442
CNEL:	153	329	709	1,527

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Sierra Av.
Road Segment: s/o Santa Ana Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,836 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,847 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.33%
Medium Trucks:	84.8%	4.9%	10.3%	2.36%
Heavy Trucks:	86.5%	2.7%	10.8%	2.32%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.35	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-12.72	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.80	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	71.0	69.2	63.2	71.8	72.4
Medium Trucks:	67.2	66.2	59.8	58.2	66.7	66.9
Heavy Trucks:	71.5	70.5	61.5	62.8	71.1	71.2
Vehicle Noise:	75.7	74.5	70.3	66.7	75.2	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	146	314	676	1,456
CNEL:	154	332	715	1,541

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Sierra Av.
Road Segment: n/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,266 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,257 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.29%
Medium Trucks:	84.8%	4.9%	10.3%	2.36%
Heavy Trucks:	86.5%	2.7%	10.8%	2.35%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.62	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.44	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.46	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	70.3	68.5	62.5	71.1	71.7
Medium Trucks:	66.5	65.4	59.1	57.5	66.0	66.2
Heavy Trucks:	70.8	69.9	60.8	62.1	70.4	70.6
Vehicle Noise:	75.0	73.8	69.6	66.0	74.5	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	131	282	607	1,308
CNEL:	138	298	642	1,384

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Sierra Av.
Road Segment: s/o Jurupa Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,190 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	3,429 vehicles
Vehicle Speed:	50 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:	66.0 feet
Centerline Dist. to Observer:	66.0 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%	95.41%
Medium Trucks:	84.8%	4.9%	10.3%	2.34%
Heavy Trucks:	86.5%	2.7%	10.8%	2.25%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.85	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	81.00	-13.24	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.42	0.11	-1.20	-5.30	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:	71.9	70.5	68.7	62.7	71.3	71.9
Medium Trucks:	66.7	65.6	59.3	57.7	66.2	66.4
Heavy Trucks:	70.9	69.9	60.9	62.1	70.5	70.6
Vehicle Noise:	75.1	73.9	69.8	66.1	74.6	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	288	621	1,338
CNEL:	142	305	658	1,417

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Jurupa Av.
Road Segment: w/o Citrus av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,248 vehicles
Peak Hour Percentage:	8.98%
Peak Hour Volume:	2,447 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 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%	95.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.36%
Heavy Trucks:	86.5%	2.7%	10.8%	2.41%

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:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.84	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-14.21	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-14.13	0.61	-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:	69.7	68.2	66.5	60.4	69.0	69.7
Medium Trucks:	64.6	63.6	57.2	55.7	64.2	64.4
Heavy Trucks:	69.5	68.6	59.5	60.8	69.1	69.3
Vehicle Noise:	73.3	72.1	67.7	64.3	72.8	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	197	425	916
CNEL:	97	208	449	966

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Jurupa Av.
Road Segment: w/o Oleander Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	26,286 vehicles	*Autos:*	15
Peak Hour Percentage:	8.98%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,360 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	80 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	94.82%
Medium Trucks:	84.8%	4.9%	10.3%	2.42%
Heavy Trucks:	86.5%	2.7%	10.8%	2.76%

Site Data		***Noise Source Elevations (in feet)***	
Barrier Height:	**0.0 feet**	*Autos:*	0.000
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297
Centerline Dist. to Barrier:	60.0 feet	*Heavy Trucks:*	8.004 *Grade Adjustment:* 0.0
Centerline Dist. to Observer:	60.0 feet		
Barrier Distance to Observer:	0.0 feet	***Lane Equivalent Distance (in feet)***	
Observer Height (Above Pad):	5.0 feet	*Autos:*	45.000
Pad Elevation:	0.0 feet	*Medium Trucks:*	44.803
Road Elevation:	0.0 feet	*Heavy Trucks:*	44.822
Road Grade:	0.0%		
Left View:	-90.0 degrees		
Right View:	90.0 degrees		

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.66	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.27	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-13.70	0.61	-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:	69.5	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	64.6	63.6	57.2	55.6	64.1	64.3
Heavy Trucks:	70.0	69.0	60.0	61.2	69.6	69.7
Vehicle Noise:	73.4	72.2	67.6	64.4	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	433	932
CNEL:	98	211	456	982

Monday, February 3, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Jurupa Av.
Road Segment: w/o Cypress Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	26,370 vehicles	*Autos:*	15
Peak Hour Percentage:	8.98%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,368 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	80 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	94.82%
Medium Trucks:	84.8%	4.9%	10.3%	2.42%
Heavy Trucks:	86.5%	2.7%	10.8%	2.76%

Site Data		***Noise Source Elevations (in feet)***	
Barrier Height:	**0.0 feet**	*Autos:*	0.000
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297
Centerline Dist. to Barrier:	60.0 feet	*Heavy Trucks:*	8.004 *Grade Adjustment:* 0.0
Centerline Dist. to Observer:	60.0 feet		
Barrier Distance to Observer:	0.0 feet	***Lane Equivalent Distance (in feet)***	
Observer Height (Above Pad):	5.0 feet	*Autos:*	45.000
Pad Elevation:	0.0 feet	*Medium Trucks:*	44.803
Road Elevation:	0.0 feet	*Heavy Trucks:*	44.822
Road Grade:	0.0%		
Left View:	-90.0 degrees		
Right View:	90.0 degrees		

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.68	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.25	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-13.69	0.61	-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:	69.5	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	64.6	63.6	57.2	55.7	64.1	64.4
Heavy Trucks:	70.0	69.0	60.0	61.2	69.6	69.7
Vehicle Noise:	73.4	72.2	67.6	64.4	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	433	934
CNEL:	98	212	457	984

Monday, February 3, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Jurupa Av.
Road Segment: w/o Juniper Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	26,433 vehicles	*Autos:*	15
Peak Hour Percentage:	8.98%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,374 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	80 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	94.82%
Medium Trucks:	84.8%	4.9%	10.3%	2.42%
Heavy Trucks:	86.5%	2.7%	10.8%	2.76%

Site Data		***Noise Source Elevations (in feet)***	
Barrier Height:	**0.0 feet**	*Autos:*	0.000
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297
Centerline Dist. to Barrier:	60.0 feet	*Heavy Trucks:*	8.004 *Grade Adjustment:* 0.0
Centerline Dist. to Observer:	60.0 feet		
Barrier Distance to Observer:	0.0 feet	***Lane Equivalent Distance (in feet)***	
Observer Height (Above Pad):	5.0 feet	*Autos:*	45.000
Pad Elevation:	0.0 feet	*Medium Trucks:*	44.803
Road Elevation:	0.0 feet	*Heavy Trucks:*	44.822
Road Grade:	0.0%		
Left View:	-90.0 degrees		
Right View:	90.0 degrees		

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.69	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.24	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-13.68	0.61	-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:	69.5	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	64.6	63.6	57.2	55.7	64.1	64.4
Heavy Trucks:	70.0	69.0	60.0	61.2	69.6	69.7
Vehicle Noise:	73.4	72.2	67.7	64.4	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	201	434	935
CNEL:	98	212	457	985

Monday, February 3, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) + Project
Road Name: Jurupa Av.
Road Segment: w/o Sierra Av.
Project Name: Foothill Commerce Ctr.
Job Number: 12980

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	27,188 vehicles	*Autos:*	15
Peak Hour Percentage:	8.98%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	2,441 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	45 mph		
Near/Far Lane Distance:	80 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	95.05%
Medium Trucks:	84.8%	4.9%	10.3%	2.40%
Heavy Trucks:	86.5%	2.7%	10.8%	2.55%

Site Data		***Noise Source Elevations (in feet)***	
Barrier Height:	**0.0 feet**	*Autos:*	0.000
Barrier Type (0-Wall, 1-Berm):	0.0	*Medium Trucks:*	2.297
Centerline Dist. to Barrier:	60.0 feet	*Heavy Trucks:*	8.004 *Grade Adjustment:* 0.0
Centerline Dist. to Observer:	60.0 feet		
Barrier Distance to Observer:	0.0 feet	***Lane Equivalent Distance (in feet)***	
Observer Height (Above Pad):	5.0 feet	*Autos:*	45.000
Pad Elevation:	0.0 feet	*Medium Trucks:*	44.803
Road Elevation:	0.0 feet	*Heavy Trucks:*	44.822
Road Grade:	0.0%		
Left View:	-90.0 degrees		
Right View:	90.0 degrees		

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.82	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-14.17	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-13.89	0.61	-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:	69.7	68.2	66.5	60.4	69.0	69.6
Medium Trucks:	64.7	63.7	57.3	55.7	64.2	64.4
Heavy Trucks:	69.8	68.8	59.8	61.0	69.4	69.5
Vehicle Noise:	73.4	72.2	67.7	64.4	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	200	432	931
CNEL:	98	211	455	981

Monday, February 3, 2020

APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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12980

CadnaA Noise Prediction Model: 12980_03.cna
Date: 18.04.20
Analyst: B. Lawson

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	41.9	40.6	47.0	70.0	65.0	0.0				5.00	a	6201490.04	2329937.01	5.00
RECEIVERS		R2	43.9	42.7	49.2	70.0	65.0	0.0				5.00	a	6202703.83	2328599.95	5.00
RECEIVERS		R3	63.5	62.5	68.9	70.0	65.0	0.0				5.00	a	6202174.11	2327722.48	5.00
RECEIVERS		R4	37.9	35.7	42.3	70.0	65.0	0.0				5.00	a	6201615.15	2327051.40	5.00
RECEIVERS		R5	49.7	48.2	54.7	70.0	65.0	0.0				5.00	a	6200457.23	2327517.52	5.00
RECEIVERS		R6	55.9	53.8	60.4	70.0	65.0	0.0				5.00	a	6201129.69	2327718.05	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			K0	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night				X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(dB)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6201340.68	2327343.27	48.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6202069.31	2327335.66	48.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6201405.36	2328079.50	48.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6201420.76	2329064.13	48.00
POINTSOURCE		TRASH01	94.0	94.0	94.0	Lw	94		300.00	0.00	180.00	0.0	5.00	a	6201269.09	2328127.73	5.00
POINTSOURCE		TRASH02	94.0	94.0	94.0	Lw	94		300.00	0.00	180.00	0.0	5.00	a	6201413.33	2327874.88	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		DWY1	88.1	-31.5	78.9	69.3	-50.3	60.1	PWL-Pt	89.7					92.0	0.0	11.0	6.2	0
LINESOURCE		DWY2	89.5	-32.7	81.1	71.9	-50.3	63.5	PWL-Pt	89.7					165.0	0.0	24.0	6.2	0
LINESOURCE		DWY2	93.8	-28.4	85.5	71.9	-50.3	63.5	PWL-Pt	89.7					165.0	0.0	24.0	6.2	0
LINESOURCE		DWY2	91.7	-30.4	83.4	71.9	-50.3	63.5	PWL-Pt	89.7					165.0	0.0	24.0	6.2	0
LINESOURCE		DWY4	88.0	-28.6	79.2	66.2	-50.3	57.5	PWL-Pt	89.7					45.0	0.0	6.0	6.2	0

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	0.00	a			6201244.53	2329159.06	0.00	0.00
					6201353.83	2329154.26	0.00	0.00
					6201357.43	2329016.13	0.00	0.00
LINESOURCE	0.00	a			6201236.89	2327885.60	0.00	0.00
					6201325.61	2327835.90	0.00	0.00
					6201368.34	2327812.67	0.00	0.00
					6201406.43	2327812.67	0.00	0.00
LINESOURCE	0.00	a			6201785.56	2327827.73	0.00	0.00
					6201783.83	2327903.33	0.00	0.00
					6201346.70	2327910.72	0.00	0.00
LINESOURCE	0.00	a			6201236.89	2327885.60	0.00	0.00
					6201346.70	2327910.72	0.00	0.00
					6201345.58	2328115.05	0.00	0.00
LINESOURCE	0.00	a			6202131.68	2327693.92	0.00	0.00
					6202127.73	2327297.59	0.00	0.00
					6202102.59	2327210.83	0.00	0.00

Area Source(s)

ID	Result. PWL			Result. PWL''			Lw / Li		Operating Time			Moving Pt. Src			Height
	Day	Evening	Night	Day	Evening	Night	Type	Value	Day	Special	Night	Number			
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	Day	Evening	Night	(ft)
COLD01	105.7	105.7	105.7	64.1	64.1	64.1	Lw	105.7	900.00	0.00	540.00				8
COLD02	105.7	105.7	105.7	65.0	65.0	65.0	Lw	105.7	900.00	0.00	540.00				8
PARKING02	79.0	79.0	79.0	40.5	40.5	40.5	Lw	79	900.00	0.00	540.00				5
PARKING03	79.0	79.0	79.0	45.5	45.5	45.5	Lw	79	900.00	0.00	540.00				5
PARKING04	79.0	79.0	79.0	50.2	50.2	50.2	Lw	79	900.00	0.00	540.00				5
PARKING05	79.0	79.0	79.0	52.9	52.9	52.9	Lw	79	900.00	0.00	540.00				5
PARKING06	79.0	79.0	79.0	44.5	44.5	44.5	Lw	79	900.00	0.00	540.00				5

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	a			6201269.10	2329010.56	8.00	0.00
					6201444.62	2329007.25	8.00	0.00
					6201435.51	2328118.87	8.00	0.00
					6201260.82	2328120.53	8.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	a			6201406.54	2327881.26	8.00	0.00
					6201725.04	2327879.79	8.00	0.00
					6201723.97	2327827.78	8.00	0.00
					6201838.65	2327826.05	8.00	0.00
					6201839.19	2327878.99	8.00	0.00
					6202150.02	2327872.98	8.00	0.00
					6202145.88	2327694.15	8.00	0.00
					6201407.36	2327706.56	8.00	0.00
AREASOURCE	5.00	a			6202079.02	2327295.12	5.00	0.00
					6202075.28	2327233.52	5.00	0.00
					6201269.80	2327242.85	5.00	0.00
					6201267.93	2327260.59	5.00	0.00
					6201251.13	2327262.45	5.00	0.00
					6201257.66	2327809.40	5.00	0.00
					6201305.27	2327800.07	5.00	0.00
					6201299.67	2327307.26	5.00	0.00
AREASOURCE	5.00	a			6201406.07	2327997.94	5.00	0.00
					6201795.28	2327994.20	5.00	0.00
					6201796.21	2327972.74	5.00	0.00
					6201697.27	2327926.07	5.00	0.00
					6201403.27	2327933.54	5.00	0.00
AREASOURCE	5.00	a			6201257.66	2328095.01	5.00	0.00
					6201318.33	2328095.94	5.00	0.00
					6201315.53	2327958.74	5.00	0.00
					6201256.73	2327960.60	5.00	0.00
AREASOURCE	5.00	a			6201288.47	2329124.49	5.00	0.00
					6201312.73	2329123.56	5.00	0.00
					6201312.73	2329070.36	5.00	0.00
					6201332.33	2329071.29	5.00	0.00
					6201332.33	2329033.03	5.00	0.00
					6201268.87	2329033.03	5.00	0.00
					6201269.80	2329103.96	5.00	0.00
					6201285.67	2329103.96	5.00	0.00
AREASOURCE	5.00	a			6201289.40	2329195.43	5.00	0.00
					6201847.54	2329187.96	5.00	0.00
					6201847.54	2329169.29	5.00	0.00
					6201806.48	2329139.43	5.00	0.00
					6201806.48	2329120.76	5.00	0.00
					6201409.80	2329130.09	5.00	0.00
					6201409.80	2329166.49	5.00	0.00
					6201287.53	2329170.23	5.00	0.00

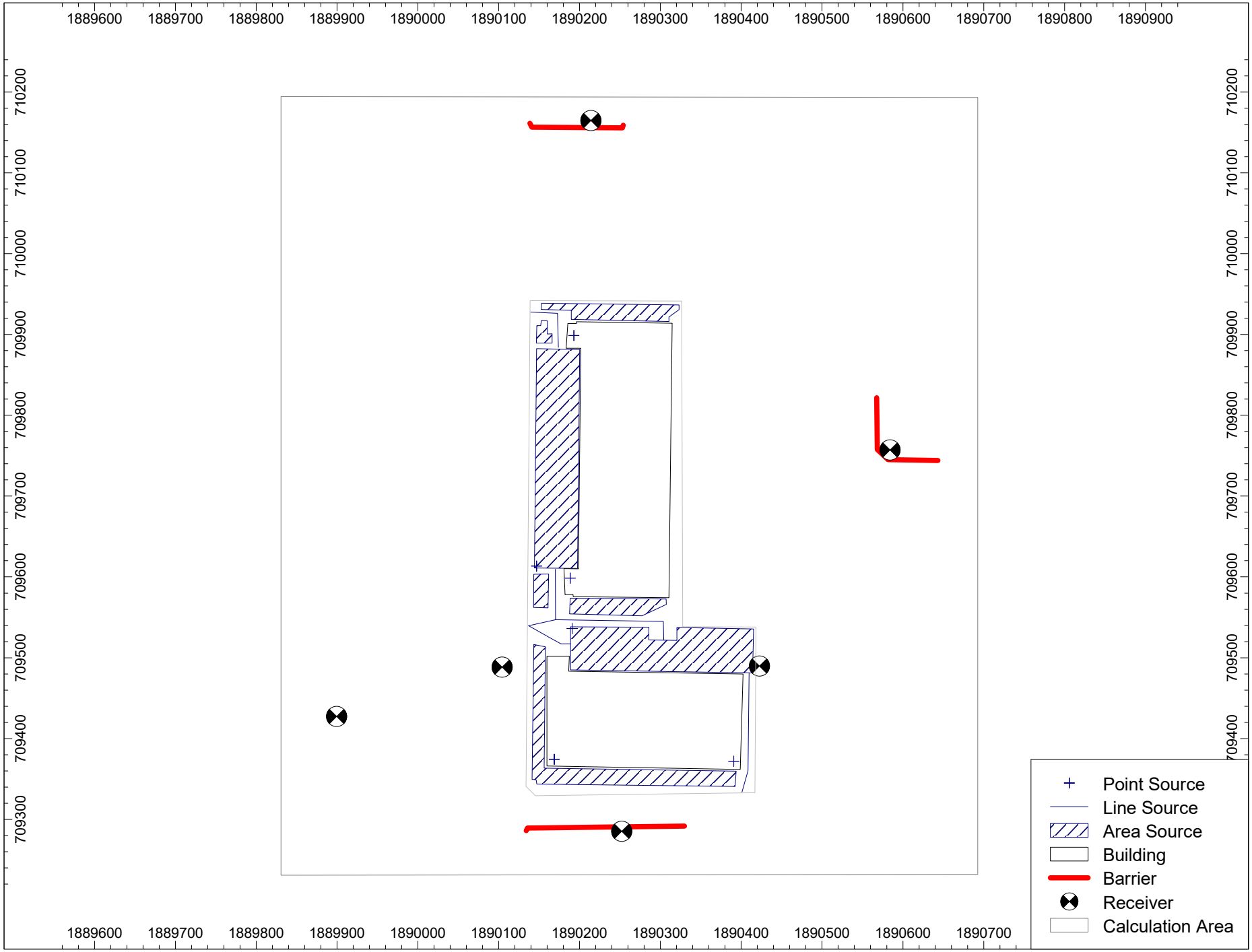
Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
			left	right		horz.	vert.	Begin		End	x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIERS		BARRIERS00001						6.00	a		6201227.36	2327054.24	6.00	0.00
											6201232.57	2327064.65	6.00	0.00
											6201869.29	2327072.47	6.00	0.00
BARRIERS		BARRIERS00002						6.00	a		6202897.62	2328556.52	6.00	0.00
											6202696.23	2328560.68	6.00	0.00
											6202652.48	2328600.96	6.00	0.00
											6202649.70	2328811.38	6.00	0.00
BARRIERS		BARRIERS00003						6.00	a		6201242.62	2329925.82	6.00	0.00
											6201250.43	2329909.67	6.00	0.00
											6201617.09	2329907.07	6.00	0.00
											6201621.26	2329917.49	6.00	0.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		43.00	a	6201819.50	2329114.28	43.00	0.00
								6201806.63	2327999.62	43.00	0.00
								6201418.27	2328003.91	43.00	0.00
								6201417.19	2328012.50	43.00	0.00
								6201385.01	2328011.42	43.00	0.00
								6201380.72	2328117.63	43.00	0.00
								6201438.65	2328116.56	43.00	0.00
								6201448.31	2329012.36	43.00	0.00
								6201389.30	2329012.36	43.00	0.00
								6201395.74	2329113.20	43.00	0.00
								6201431.14	2329113.20	43.00	0.00
								6201431.14	2329119.64	43.00	0.00
BUILDING		BUILDING00002	x	0		43.00	a	6201400.03	2327701.38	43.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
								6202107.02	2327689.58	43.00	0.00
								6202096.29	2327302.29	43.00	0.00
								6201310.99	2327316.24	43.00	0.00
								6201310.99	2327761.46	43.00	0.00
								6201402.18	2327761.46	43.00	0.00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709300
Point Source
Line Source
Area Source
Building
Barrier
Receiver
Calculation Area

Appendix 9.2 - Distance from Noise Source to Receiver

Noise Source	Distance to Receiver Location (Feet)					
	R1	R2	R3	R4	R5	R6
Cold Storage Loading Dock Activity	932'	902'	15'	651'	982'	278'
Entry Gate & Truck Movements	800'	1,104'	51'	512'	862'	198'
Roof-Top Air Conditioning Units	875'	1,398'	414'	400'	900'	454'
Parking Lot Vehicle Movements	744'	1,103'	437'	187'	797'	126'
Trash Enclosure Activity	1,822'	1,480'	775'	847'	1,020'	324'

[1] See Exhibit 8-A for the receiver locations

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APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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12980

CadnaA Noise Prediction Model: 12980_03 Construction.cna
Date: 18.04.20
Analyst: B. Lawson

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	66.5	66.5	73.2	70.0	65.0	0.0				5.00	a	6201490.04	2329937.01	5.00
RECEIVERS		R2	68.1	68.1	74.8	70.0	65.0	0.0				5.00	a	6202703.83	2328599.95	5.00
RECEIVERS		R3	77.2	77.2	83.9	70.0	65.0	0.0				5.00	a	6202174.11	2327722.48	5.00
RECEIVERS		R4	73.1	73.1	79.8	70.0	65.0	0.0				5.00	a	6201615.15	2327051.40	5.00
RECEIVERS		R5	67.9	67.9	74.6	70.0	65.0	0.0				5.00	a	6200457.23	2327517.52	5.00
RECEIVERS		R6	74.6	74.6	81.2	70.0	65.0	0.0				5.00	a	6201129.69	2327718.05	5.00

Area Source(s)

ID	Result. PWL			Result. PWL''			Lw / Li		Operating Time			Moving Pt. Src			Height
	Day	Evening	Night	Day	Evening	Night	Type	Value	Day	Special	Night	Number			
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	Day	Evening	Night	(ft)
SITEBOUNDARY00001	126.6	126.6	126.6	75.3	75.3	75.3	Lw''	75.3							8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a			6201857.57	2329203.75	8.00	0.00
					6201862.24	2327881.31	8.00	0.00
					6202160.19	2327880.72	8.00	0.00
					6202155.08	2327207.64	8.00	0.00
					6201264.62	2327195.47	8.00	0.00
					6201226.70	2327233.56	8.00	0.00
					6201242.76	2329205.84	8.00	0.00

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URBAN CROSSROADS

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April 18, 2020

SUBJECT: FONTANA FOOTHILLS COMMERCE CENTER NOISE IMPACT ANALYSIS RESPONSE TO COMMENTS LETTER

Urban Crossroads, Inc. is pleased to submit this Response to Comments for the Fontana Foothills Commerce Center ("Project"), which is in the City of Fontana. This letter has been prepared in response to the April 7nd, 2020 comments prepared by Michael Baker on the March 3, 2020 *Fontana Foothills Commerce Center Noise Impact Analysis* ("NIA") prepared by Urban Crossroads, Inc.

RESPONSE 1: P18

Reference to Municipal Code Section 30-259 has been revised to correctly refence Section 30-543.

RESPONSE 2: P18

Reference to Municipal Code Section 30-183 has been revised to correctly refence Section 30-543.

RESPONSE 3: P30

The traffic volumes shown on Table 6-1 have been updated for consistency with TIA and now show volumes in (1,000's).

RESPONSE 4: P31-33

The with Project traffic vehicle mix is needed to account for the number of actual vehicles since the traffic volumes provided in the *Traffic Impact Analysis* are expressed as passenger car equivalents (PCE) and artificially overstate the actual number of vehicle and truck trips. Standard traffic engineering practice still requires the use of PCE's which convert trucks into passenger cars. This approach increases the traffic volumes in an effort to account for the truck impacts on level of service. However, while this legacy approach may be useful for traffic impact analysis purposes, it does not adequately account for the noise level impacts associated with heavy trucks. The use of PCE in the traffic study is consistent with industry practice and should be included in the TIA, and the use of actual vehicles is appropriate for use in the Noise Study. Additional text has been added to the report to reflect the comment.

RESPONSE 5: P43

Rounding has been added to the formulas and these tables have been corrected.

RESPONSE 6: P47

A review of the parcel boundaries shows that the primary residential structure at 11216 Sierra Avenue is located 200 feet east of the Project site. The secondary structure is located 15 feet east of the Project site. Receiver R3 has been updated to reflect this distance.

RESPONSE 7: P52

Table 9-2 has been modified in response to this comment.

RESPONSE 8: P54

The operational noise analysis is based on the CadnaA noise prediction model that calculates the distances from each source to each receiver. With multiple point, area and line noise sources, a graphic showing the distances from each individual noise source will not fully describe the CadnaA noise prediction model inputs. In addition, to avoid confusion the noise study by design presents only one distance, the distance from the Project site boundary to the receiver location. However, in response to this comment we have added a table in Appendix 9.1 showing the distance from the nearest project operational noise source to each receiver locations. In addition, we have modified Exhibit 9-A to include the receivers and scaled representation of the CadnaA noise model to support manual calculations.

RESPONSE 9: P55

See response 8.

RESPONSE 10: P57

Tables 9-6 and 9-7 has been modified in response to this comment.

RESPONSE 11: P60

Exhibit 10-A has been revised in response to this comment.

RESPONSE 12: P62

Table 10-2 has been revised in response to this comment.

RESPONSE 13: P62

The distances have been updated in response to this comment.

RESPONSE 14: P63

Table 10-3 has been revised in response to this comment.