Rich-Haven Specific Plan-2022 Amendment

NOISE AND VIBRATION ANALYSIS

CITY OF ONTARIO

PREPARED BY:

Bill Lawson, PE, INCE
blawson@urbanxroads.com
(949) 584-3148

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LIST OF ABBREVIATED TERMS

•	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak Particle Velocity
Project	Rich-Haven Specific Plan-2022 Amendment
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Rich-Haven Specific Plan-2022 Amendment development ("Project"). The proposed Project includes the development of a single 168,759 square foot warehouse building. This study has been prepared to satisfy applicable City of Ontario standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this Rich-Haven Specific Plan-2022 Amendment Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
On-Site Traffic Noise	8	*Less Than Significant*	-
Operational Noise	10	*Less Than Significant*	-
Construction Noise	11	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Rich-Haven Specific Plan-2022 Amendment ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 BACKGROUND AND PROJECT DESCRIPTION

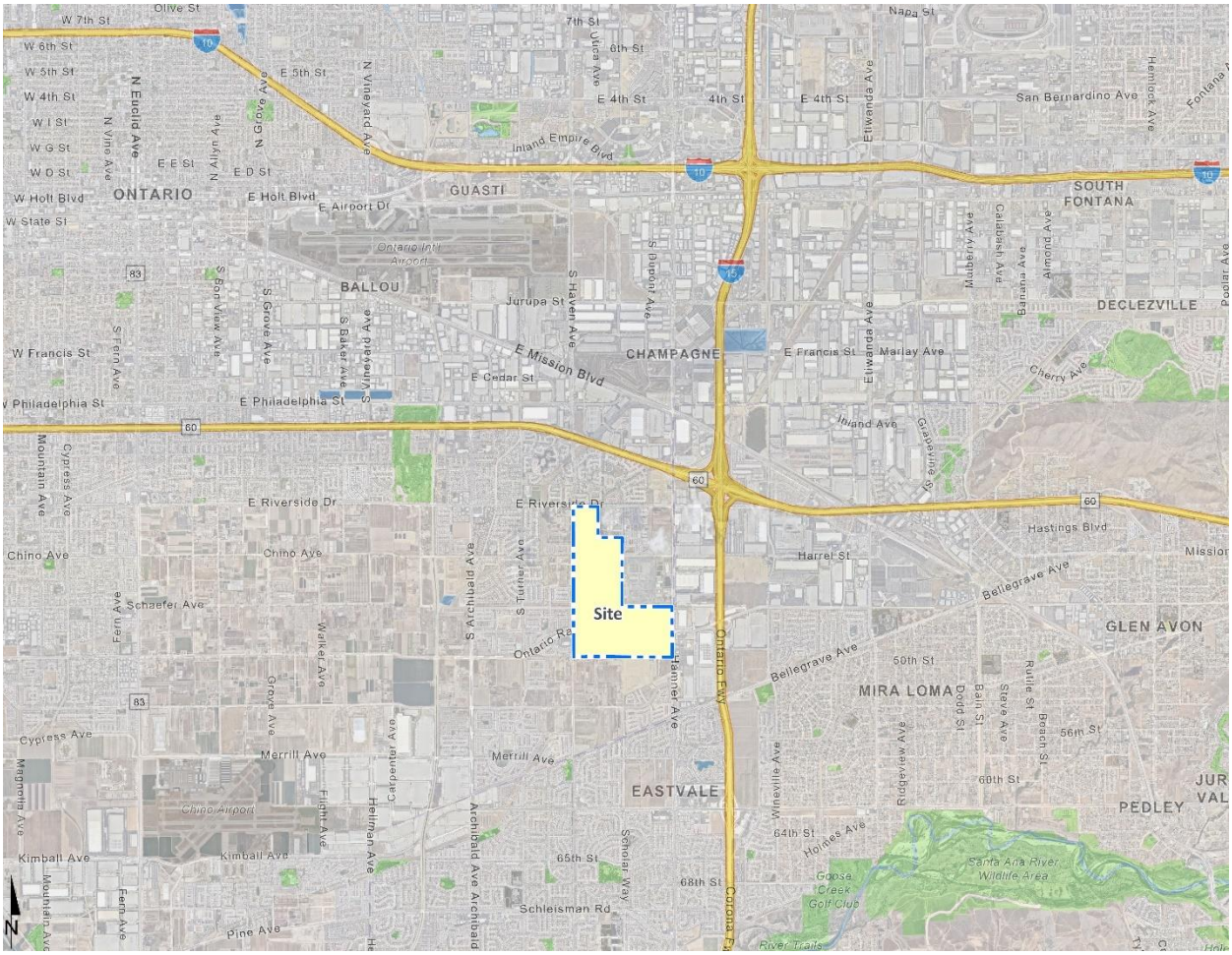
The Rich-Haven Specific Plan (RHSP) was approved by the City of Ontario in 2015, with subsequent Specific Plan Amendments approved in 2016, 2018, and 2021. The current (2021) Rich-Haven Specific Plan ("2021 Specific Plan") comprises approximately 584 acres located west of Interstate 15 (I-15), and south of State Route 60 (SR-60). The 2021 Specific Plan Area lies within the 8,200-acre Ontario Ranch area, bounded generally by Riverside Drive to the north, "Old" East Edison Avenue [alignment] to the south, Mill Creek Avenue and Hamner Avenue to the east, and Haven Avenue to the west. The location and boundaries of the 2022 RHSP Specific Plan Amendment evaluated herein coincide with the location and boundaries in the 2021 Specific Plan. Location of the Project is presented at Exhibit 1-A.

The 2021 Specific Plan entitlements allow for development of up to 7,194 dwelling units (all residential types), up to 990,902 square feet of commercial/office space, up to 1,183,525 square feet of light industrial uses, approximately 27 acres of public parkland, and approximately 20 acres of Southern California Edison (SCE) Parcel open space and SCE Easements. The 2022 RHSP Specific Plan Amendment (2022 Specific Plan Amendment, Project) evaluated in here proposes a new amendment of the RHSP as described herein.

Under the proposed 2022 RHSP Specific Plan Amendment, the Specific Plan Area would be developed with up to 7,194 dwelling units, up to 925,002 square feet of commercial space, and up to 2,767,148 square feet of light industrial uses. Other existing RHSP land uses, e.g., public parkland, Southern California Edison (SCE) Parcel open space and SCE Easements would not be substantively affected under the 2022 RHSP Specific Plan Amendment. This EIR evaluates potential environmental impacts of entire buildout of the Specific Plan Area that would result from the 2022 RHSP Specific Plan Amendment. In summary, the proposed 2022 Specific Plan Amendment would result in the following primary revisions to the 2021 Specific Plan:

- Total residential development within the Specific Plan Area would be maintained at 7,194 dwelling units. Residential units and residential densities would however be reassigned within the Specific Plan Area.
- Total commercial development would be reduced by approximately 65,900 square feet, an approximate 6.7 percent reduction in the 2021 Specific Plan commercial entitlements.

EXHIBIT 1-A: LOCATION MAP

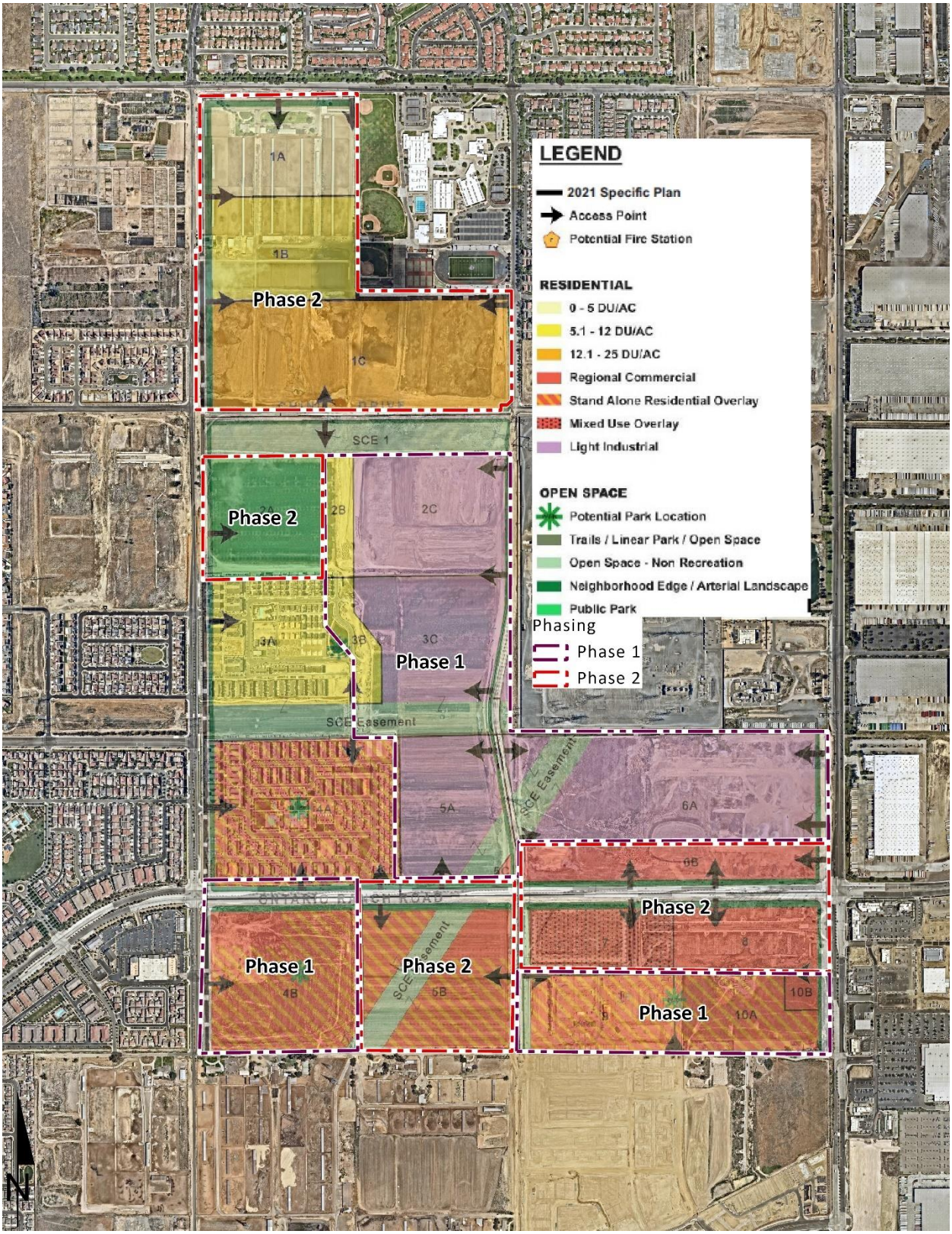


- Total light industrial development would be increased by approximately 1,583,623 square feet, an approximate 134 percent increase from the 2021 Specific Plan Amendment.

Note that portions of Planning Areas 3A and 4A within the Project site have been developed. Planning Areas 2, 3, 4A, 5C, 6, 10, and portions of 7, 8, and 9 are anticipated to be developed as part of the first phase with an anticipated Opening Year of 2024. Project Buildout and of Phase 2 is anticipated in Year 2027. Project Planning Areas and Phases are illustrated at Exhibit 1-B.

The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and park activities. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site.

EXHIBIT 1-B: LAND USE PLAN



1.2 RECOMMENDED CONDITIONS OF APPROVAL

As substantiated in this analysis, all Project-source noise and vibration impacts would be less-than-significant. . The following measures would further reduce Project noise impacts. To ensure that Project noise impacts remain at levels that would be less-than-significant, it is recommended that the following noise abatement measures be incorporated as Project Conditions of Approval

1.2.1: Prior to Grading Permit issuance, the Applicant shall demonstrate that the project complies with the following:

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers, to the satisfaction of the Noise Control Officer;
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers to the satisfaction of the City Planner; and
- During construction and to the satisfaction of the City Planner, stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors during construction activities.

1.2.2: Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of 10:00 p.m. and 7:00 a.m. during is prohibited. The City Planner may approve additional hours when it can be found that such additional hours will not generate additional disturbance, or that mitigation measures will ensure compatibility with nearby residential areas.

1.2.3: Prior to the construction of residential development along Riverside Drive, Haven Avenue, Mill Creek Avenue, Edison Avenue, and Milliken Avenue, an acoustical noise analysis should be prepared prior to the submittal of final tentative tract maps to ensure that exterior and interior noise levels are met. The acoustical analysis shall demonstrate that the buildings have been designed to limit interior noise levels to 45 dBA CNEL and exterior noise (backyards and habitable balconies and patios) to less than 65 dBA CNEL. Individual developments shall, to the extent feasible, implement site-planning techniques.

1.2.4: Prior to final development plan approval, on a project-by-project basis and to the discretion of the Ontario Planning Department, subsequent noise studies shall be prepared, which demonstrates the site placement of stationary noise sources would not exceed criteria established in the City of Ontario Municipal Code. The analysis shall verify that loading dock facilities, rooftop equipment, trash compactors and other stationary noise sources are adequately shielded and/or located at an adequate distance from residential areas in order to comply with the City's noise standards.

1.2.5: Prior to Building Permit issuance and to the satisfaction of the Ontario Planning Department, the Project Applicants, on a project-by-project basis, shall demonstrate compliance with the following with respect to mechanical equipment:

- Mechanical equipment shall include specifications of quiet equipment;

- Mechanical equipment shall be properly selected and installed, and shall include sound attenuation packages;
- To the extent possible, mechanical equipment shall be oriented away from the nearest noise sensitive receptors; and
- The need for sound attenuation measures, and design of, such measures shall be determined as part of the final engineering design on a project-by-project basis.

1.2.6: Where a commercial zone abuts a residential zone or residential use, all deliveries of goods and supplies; trash pick-up, including the use of parking lot trash sweepers; and the operation of machinery or mechanical equipment which emits noise levels in excess of 65 dBA, as measured from the closest property line to the equipment, shall only be allowed between the hours of 7:00 a.m. and 10:00 p.m., unless otherwise specified in an approved conditional use permit or other discretionary approval.

1.2.7: Prior to final development plan approval, on a project-by-project basis, a subsequent noise analysis shall be prepared, to the satisfaction of the Ontario Planning Department, which demonstrates that all feasible sound attenuation has been incorporated into the parking areas (i.e., landscaping and brushed driving surfaces), such that noise from parking area has been minimized to the greatest extent practicable.

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2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

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

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

2.2 NOISE DESCRIPTORS

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

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

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

2.3.2 GROUND ABSORPTION

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

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

2.3.3 ATMOSPHERIC EFFECTS

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

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

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

2.6 LAND USE COMPATIBILITY WITH NOISE

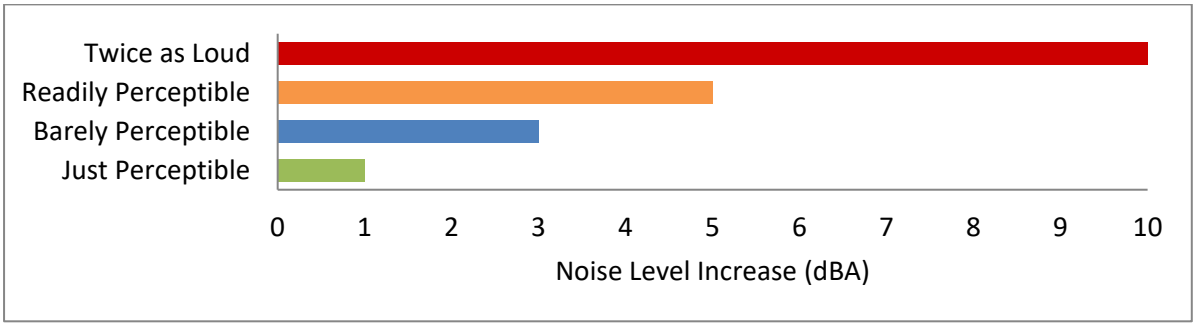
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development,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

2.7 COMMUNITY RESPONSE TO NOISE

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

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

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



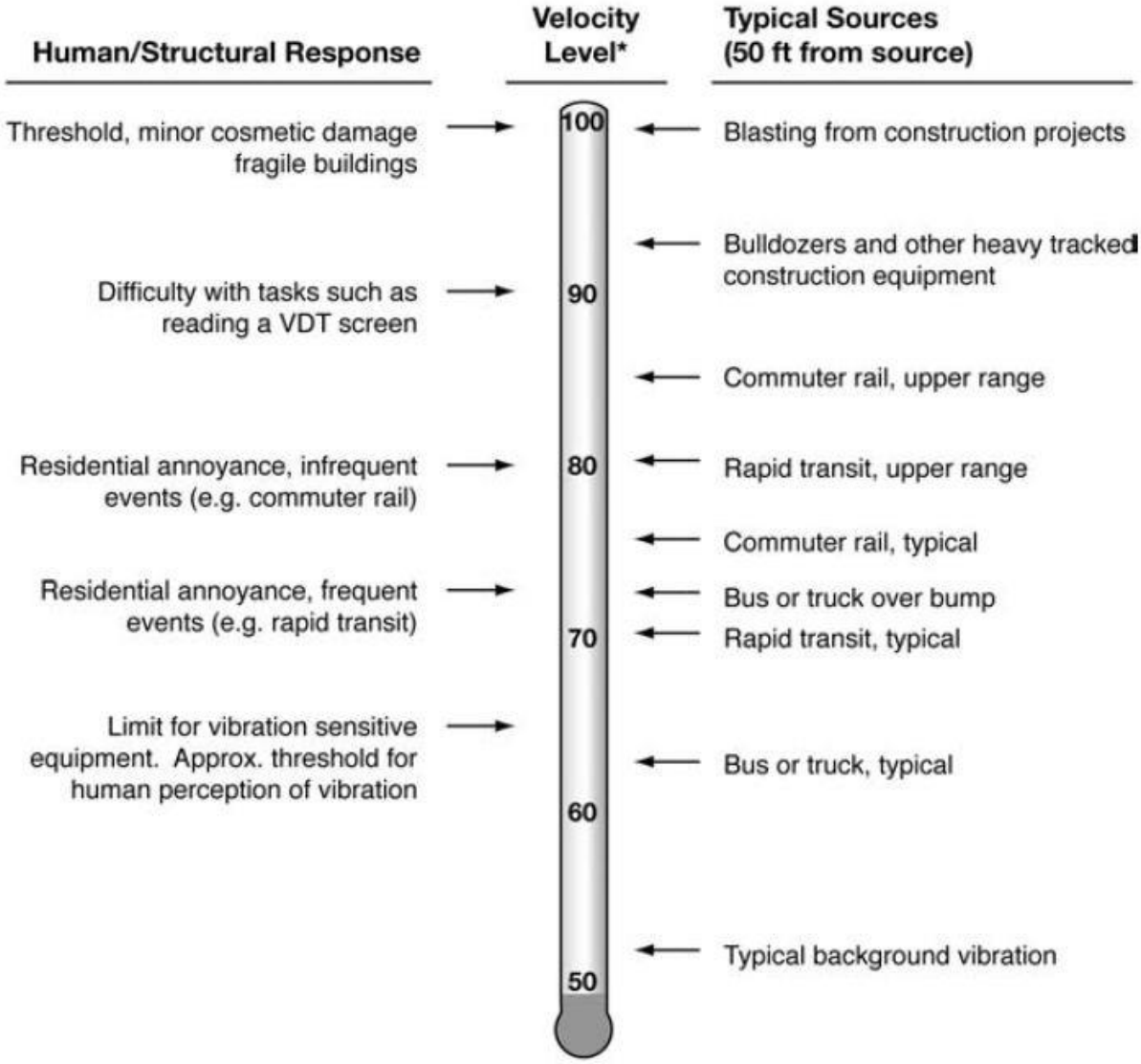
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (8), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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

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



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

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

3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (9) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF ONTARIO GENERAL PLAN NOISE ELEMENT

The City of Ontario General Plan (Policy Plan) identifies several policies to minimize the impacts of excessive noise levels throughout the community. Policy Plan Section S4, Noise Hazards, establishes a goal of maintaining *an environment where noise does not adversely affect the public's health, safety, and welfare.* (10) To satisfy this goal, the Policy Plan identifies seven policies related to: noise mitigation; coordination with transportation authorities; noise mitigation; truck traffic; roadway design; airport noise compatibility and rail noise mitigation. The noise criteria identified on Table 5-13-3 of The Ontario Plan 2050 Final Supplemental Environmental Impact Report (FSEIR) (11) provide guidelines to evaluate land use compatibility within various noise environments. Table 5-13-3 is reproduced here as Exhibit 3-A *Ontario Noise Level Exposure and Land Use Compatibility Guidelines*.

EXHIBIT 3-A: ONTARIO NOISE LEVEL EXPOSURE AND LAND USE COMPATIBILITY GUIDELINES

Land Use Categories		Community Noise Equivalent Level (CNEL)			
Category	Uses	Clearly Acceptable[1]	Normally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]
Residential/Lodging	Single Family/Duplex	<60	60-65	65-70	70-85
	Multifamily	<60	60-65	65-75	75-85
	Mobile Homes	<60	60-65	-	65-85
	Hotel/Motel	<65	65-70	70-80	80-85
Public/Institutional	Schools/Hospitals	<60	60-65	65-70	70-85
	Churches/Libraries	<60	60-65	65-70	70-85
	Auditoriums/Concert Halls	<55	55-60	60-70	70-85
Commercial	Offices	<65	65-75	75-80	80-85
	Retail	<70	70-75	75-80	80-85
Industrial	Manufacturing	<70	70-75	75-85	-
	Warehousing	<70	70-80	80-85	-
Recreational/Open Space	Parks/Playgrounds	<65	65-70	70-75	75-85
	Golf Course/Riding Stables	<65	65-70	70-75	75-85
	Outdoor Spectator Sports	<60	60-65	65-70	
	Outdoor Music Shells/Amphitheaters	-	<60	60-65	65-85
	Livestock/Wildlife Preserves	<70	-	70-75	75-85
	Crop Agriculture	<55-85	-	-	-

Source: Ontario 2010.

[1] No special noise insulation required, assuming buildings of normal conventional construction.

[2] Acoustical reports will be required for major new residential construction. Conventional construction with closed windows and fresh air supply systems of air conditions will normally suffice.

[3] New construction should be discouraged. Noise/aviation easements required for all new construction. If new construction does proceed, a detailed analysis of noise reduction requirements must be made, and necessary noise insulation features included.

[4] No new construction should be permitted.

Source: The Ontario Plan 2050 Draft SEIR (Table 5.13-3).

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Rich-Haven Specific Plan-2022 Amendment, stationary-source (operational) noise levels are evaluated against standards established under a City's Municipal Code. The City of Ontario requires that noise from new stationary sources in the City comply with the City's Noise Ordinance, which limits the acceptable noise at the property line of the impacted property, to reduce nuisances to sensitive land uses. Compliance with the City's Noise Ordinance would result in noise levels that are acceptable to the City and would result in less than significant noise impacts from stationary sources. The City of Ontario Municipal Code, Title 5, Chapter 29 noise standards are included in Appendix 3.1.

Section 5-29.04(a) identifies the allowable daytime and nighttime ambient exterior noise standards for each land use type. For Manufacturing and Industrial land uses (Noise Zone V), such as the Project, ambient exterior noise levels may not exceed 70 dBA L_{eq}. For residential land uses (Noise Zone I), ambient exterior noise levels may not exceed 65 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and may not exceed 45 dBA L_{eq} during the nighttime hours (10:00

p.m. to 7:00 a.m.) (12). The lower noise level standard shall apply on the boundary between two (2) different noise zones. If the ambient noise level exceeds the resulting standard, the ambient noise level shall be the standard. The maximum acceptable Project-related operational noise levels received at off-site land uses in the City of Ontario are identified on Table 3-1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Noise Zone	Land Use	Exterior Noise Levels (dBA Leq)[2]	
		Daytime (7am-10pm)	Nighttime (10pm-7am)
I	Single-Family Residential	65	45
II	Multi-Family Residential	65	50
III	Commercial	65	60
IV	Residential Mixed-Use	70	70
V	Manufacturing and Industrial	70	70

[1] Source: Section 5-29.04 of the City of Ontario Municipal 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 period.

3.4 CONSTRUCTION NOISE STANDARDS

The City of Ontario has set restrictions to control noise impacts associated with construction. Section 5-29.09 of the Municipal Code states: *No person, while engaged in construction, remodeling, digging, grading, demolition or any other related building activity, shall operate any tool, equipment or machine in a manner that produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a Police or Code Enforcement Officer, on any weekday except between the hours of 7:00 a.m. and 6:00 p.m. or on Saturday or Sunday between the hours of 9:00 a.m. and 6:00 p.m*. (12) While the City establishes limits to the hours during which construction activity may take place, it does not identify specific noise level limits for construction noise levels at potentially affected receiver locations for CEQA analysis purposes.

Construction noise would be considered significant if construction activities occurring outside of the hours specified (7:00 AM and 6:00 PM weekdays and 9:00 AM to 6:00 PM weekends, excluding federal holidays) or if construction activities substantially elevate the ambient noise environment at noise-sensitive uses for a substantial period. It is assumed that the Modified Project construction activities would comply with the City's hour of activity restrictions, thereby precluding construction activities during noise-sensitive time periods. However, neither the City of Ontario General Plan Noise Element or Municipal Codes establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or permanent increase in ambient noise levels*. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive land use. (8 p. 179)

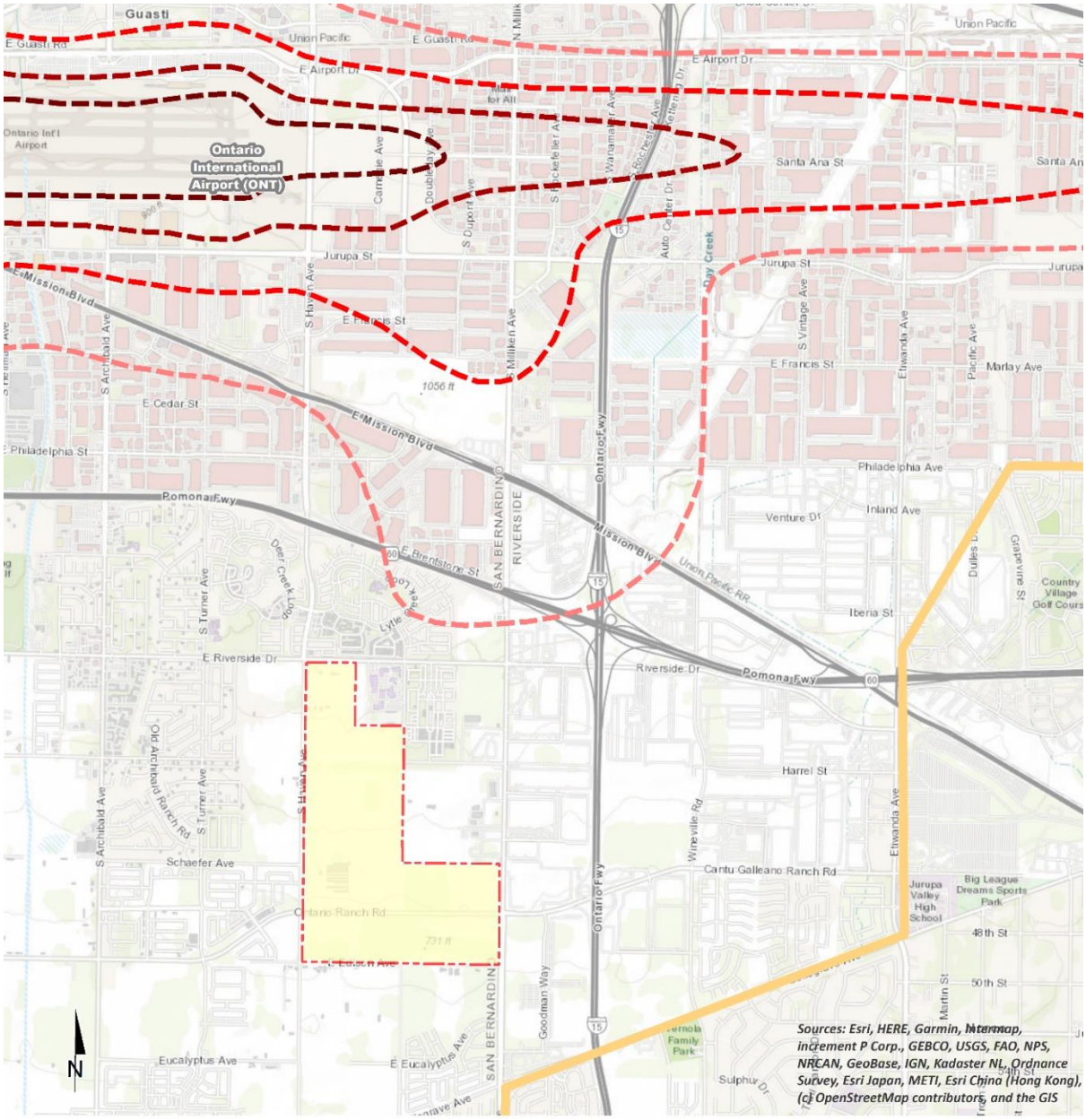
3.5 VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (8) To analyze vibration impacts originating from the operation and construction of Rich-Haven Specific Plan-2022 Amendment, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Ontario does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (13 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

3.6 AIRPORT LAND USE COMPATIBILITY

The Project site is located approximately 2.4 miles south of the Ontario International Airport (ONT). This places the Project site within the ONT Airport Influence Area according to Policy Map 2-1 of the *Ontario International Airport Land Use Compatibility Plan (ONT ALUCP).* The ONT ALUCP was amended July 2018 to promote compatibility between airport and the land uses that surround it (14). Since the Project site is located within the ONT Airport Influence Area, the Project is subject to the Noise Criteria established on Table 2-3 in the ONT ALUCP. As shown on Exhibit 3-B, the Project site is located within the ONT Airport Influence Area but outside the 60 dBA CNEL airport noise impact zone consistent with Policy Map 2-3. According to Table 2-3 of the ONT ALUCP, the Rich-Haven Specific Plan-2022 Amendment, residential, commercial, light industrial and community facilities land uses located outside the 60 dBA CNEL, are considered *normally compatible land use.* For *normally compatible land use,* either the activities associated with the land use are inherently noisy or standard construction methods will sufficiently attenuate exterior noise to an acceptable indoor community noise equivalent level (CNEL).

EXHIBIT 3-B: ONT FUTURE AIRPORT NOISE CONTOURS



LEGEND:

- Project Site Boundary
- ONT Airport Influence Area

Ontario Airport Noise Impact Zone

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

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

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4 SIGNIFICANCE CRITERIA

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

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

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

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

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

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

4.1.1 NOISE-SENSITIVE RECEIVERS

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

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

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

4.1.2 NON-NOISE-SENSITIVE RECEIVERS

The *Ontario Noise Level Exposure and Land Use Compatibility Guidelines* were used to establish the satisfactory noise levels of significance for the non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise level for non-noise-sensitive general industrial land uses is 75 dBA CNEL. Noise levels greater than 75 dBA CNEL are considered *normally unacceptable.* (10)

To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive general industrial land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the *normally acceptable* 75 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on *Ontario Noise Level Exposure and Land Use Compatibility Guidelines normally acceptable* 75 dBA CNEL exterior noise level criteria for non-noise sensitive general industrial land uses.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of the Rich-Haven Specific Plan-2022 Amendment, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as “older residential structures” with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The closest airport which would require additional noise analysis under CEQA guideline C is the

Ontario International Airport. As previously indicated in Section 3.6, the Project site is located within the ONT Airport Influence Area but is located outside the 60 dBA CNEL airport noise impact zone. Therefore, airport noise impacts are considered *less than significant,* and no further noise analysis is provided under Guideline C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site	Noise-Sensitive[1]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise Sensitive[2]	if ambient is > 75 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Residential	Exterior Noise Level Limit[3]	55 dBA L_{eq}	45 dBA L_{eq}
	Noise-Sensitive[1]	if ambient is < 60 dBA L_{eq}	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	Noise Level Threshold[4]	80 dBA L_{eq}	70 dBA L_{eq}
		Vibration Level Threshold[5]	0.3 PPV (in/sec)	n/a

[1] FICON, 1992.
[2] Table 5-13-3 of The Ontario Plan 2050 Final Supplemental Environmental Impact Report (FSEIR) (Exhibit 3-A)
[3] City of Ontario Municipal Code Section 5-29.09(a)(Appendix 3.2)
[4] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[5] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m. "n/a" = construction activities are not planned during the nighttime hours; "PPV" = peak particle velocity.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at eight 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 Friday, September 30, 2022. 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. (19)

5.2 NOISE MEASUREMENT LOCATIONS

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

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting 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}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location.

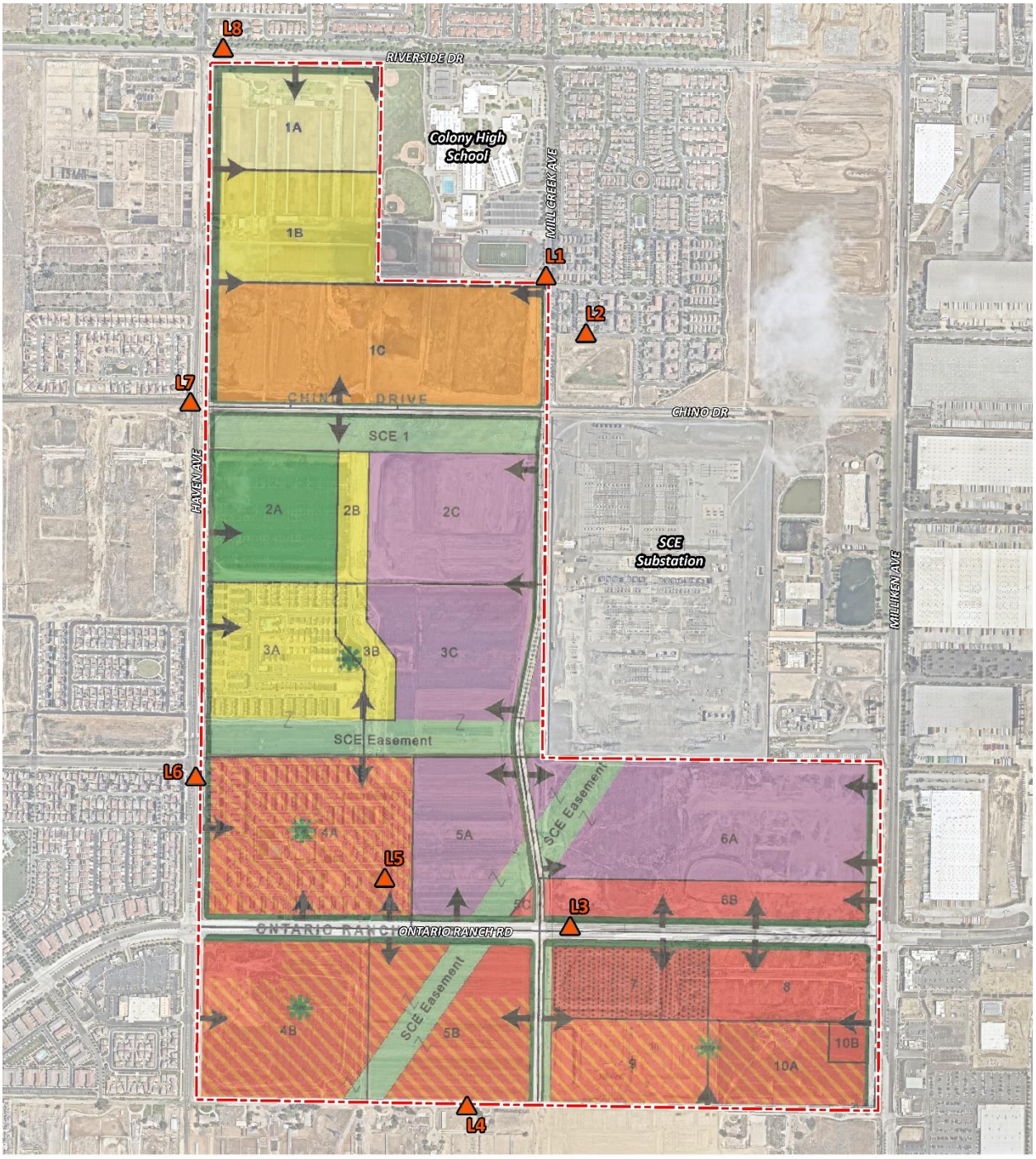
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located near the northwest corner of the Project Site near the Colony High School Football Field	56.0	55.6
L2	Located east of the Project Site just south of the existing residence at 3271 S Quincy Way.	48.9	48.4
L3	Located within the Rich Haven Specific Plan north of Ontario Ranch Road.	69.1	64.0
L4	Located south of the Project Site near the existing residence at 10823 Edison Avenue.	56.3	52.1
L5	Located within the Rich Haven Specific Plan near the existing residence at 3965 S Sunrise Avenue.	63.1	55.1
L6	Located west of the Project Site near the existing residence at 3860 S Oasis Paseo	68.8	62.4
L7	Located west of the Project Site near the existing residence at 3393 Clover Place	65.4	60.2
L8	Located north of the Project Site near the existing residence at 2943 S Alder Creek Drive.	68.5	64.3

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

Table 5-1 provides the (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.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with City of Ontario *Noise Level Exposure and Land Use Compatibility Guidelines* (see Exhibit 3-A), all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (20) 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. (21) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (22)

6.1.1 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 18 off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Ontario General Plan and Circulation Element, and the posted vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on *Rich-Haven Specific Plan-2022 Amendment Traffic Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios. (23)

- Existing 2022 Traffic Conditions
- Existing Plus Project 2022 Traffic Conditions
- Opening Year Cumulative (OYC) 2027 Without Project
- Opening Year Cumulative (OYC) 2027 With Project
- Horizon Year (HY) 2050 Without Project
- Horizon Year (HY) 2050 With Project

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. This analysis relies on a comparative evaluation of the off-site traffic noise impacts at the boundary of the right-of-way of the receiving adjacent land use, without and with project ADT traffic volumes from the Project traffic study.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification[1]	Receiving Land Use[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Archibald Av.	n/o Ontario Ranch Rd.	Principal Arterial	Sensitive	60'	55
2	Haven Av.	n/o Riverside Dr.	Principal Arterial	Sensitive	60'	55
3	Haven Av.	s/o Riverside Dr.	Principal Arterial	Sensitive	50'	50
4	Haven Av.	n/o Ontario Ranch Rd.	Principal Arterial	Sensitive	50'	50
5	Mill Creek Av.	s/o Chino Av.	Collector	Sensitive	44'	45
6	Milliken Av.	n/o Riverside Dr.	Principal Arterial	Non-Sensitive	60'	55
7	Milliken Av.	s/o Riverside Dr.	Principal Arterial	Non-Sensitive	60'	55
8	Hamner Av.	s/o Chino Av.	Principal Arterial	Non-Sensitive	60'	55
9	Hamner Av.	s/o Ontario Ranch Rd.	Principal Arterial	Non-Sensitive	60'	55
10	Riverside Dr.	w/o Haven Av.	Minor Arterial	Sensitive	60'	50
11	Riverside Dr.	w/o Milliken Av.	Minor Arterial	Sensitive	60'	50
12	Chino Av.	e/o Archibald Av.	Collector	Sensitive	44'	40
13	Ontario Ranch Rd.	w/o Archibald Av.	Principal Arterial	Sensitive	84'	55
14	Ontario Ranch Rd.	e/o Archibald Av.	Principal Arterial	Sensitive	84'	55
15	Ontario Ranch Rd.	w/o Haven Av.	Principal Arterial	Sensitive	84'	55
16	Ontario Ranch Rd.	e/o Haven Av.	Principal Arterial	Sensitive	84'	55
17	Ontario Ranch Rd.	w/o Hamner Av.	Principal Arterial	Non-Sensitive	84'	55
18	Ontario Ranch Rd.	e/o Hamner Av.	Principal Arterial	Non-Sensitive	84'	55

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

To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]					
			Existing (2022)		OYC (2027)		HY (2050)	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Archibald Av.	n/o Ontario Ranch Rd.	21,909	26,968	26,337	31,396	37,904	42,963
2	Haven Av.	n/o Riverside Dr.	18,527	34,509	26,968	42,951	33,655	49,637
3	Haven Av.	s/o Riverside Dr.	10,432	28,244	20,983	38,795	28,411	46,224
4	Haven Av.	n/o Ontario Ranch Rd.	13,491	40,050	18,453	45,012	24,005	50,564
5	Mill Creek Av.	s/o Chino Av.	2,866	9,207	3,164	9,505	7,391	13,732
6	Milliken Av.	n/o Riverside Dr.	19,818	33,876	22,416	36,475	53,343	67,401
7	Milliken Av.	s/o Riverside Dr.	18,436	28,604	21,431	31,599	41,531	51,699
8	Hamner Av.	s/o Chino Av.	18,514	28,300	20,979	30,765	42,863	52,650
9	Hamner Av.	s/o Ontario Ranch Rd.	26,376	34,332	29,827	37,783	31,170	39,126
10	Riverside Dr.	w/o Haven Av.	15,880	17,898	18,998	21,016	32,988	35,006
11	Riverside Dr.	w/o Milliken Av.	9,308	16,275	13,501	20,468	36,188	43,155
12	Chino Av.	e/o Archibald Av.	5,409	8,054	9,529	12,173	11,003	13,647
13	Ontario Ranch Rd.	w/o Archibald Av.	13,582	20,888	16,875	24,182	18,501	25,807
14	Ontario Ranch Rd.	e/o Archibald Av.	16,280	33,653	19,855	37,228	19,774	37,147
15	Ontario Ranch Rd.	w/o Haven Av.	18,294	39,277	22,078	43,061	52,058	73,041
16	Ontario Ranch Rd.	e/o Haven Av.	23,755	49,864	27,304	53,412	41,417	67,526
17	Ontario Ranch Rd.	w/o Hamner Av.	22,522	54,967	33,350	65,795	45,327	77,772
18	Ontario Ranch Rd.	e/o Hamner Av.	27,822	51,979	38,968	63,124	50,098	74,255

[1] Rich Haven Specific Plan Traffic Analysis, Urban Crossroads, Inc.

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Rich-Haven Specific Plan-2022 Amendment Traffic Analysis*.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	70.72%	11.77%	17.51%	100.00%
Medium Trucks	82.20%	3.49%	14.31%	100.00%
Heavy Trucks	70.82%	6.23%	22.95%	100.00%

[1] Based on an existing vehicle count taken on Ontario Ranch Road west of Hamner Avenue (Rich Haven Specific Plan Traffic Analysis, Urban Crossroads, Inc.). 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.

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 6-4 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.

TABLE 6-4: WITHOUT PROJECT VEHICLE MIX

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	86.53%	2.42%	11.05%	100.00%

Based on an existing vehicle count taken on Ontario Ranch Road west of Hamner Avenue (Rich Haven Specific Plan Traffic Analysis, Urban Crossroads, Inc.) Vehicle mix percentage values rounded to the nearest one-hundredth.

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

TABLE 6-5: EXISTING (2022) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Archibald Av.	n/o Ontario Ranch Rd.	89.06%	1.97%	8.97%	100.00%
2	Haven Av.	n/o Riverside Dr.	92.77%	1.30%	5.93%	100.00%
3	Haven Av.	s/o Riverside Dr.	95.03%	0.89%	4.08%	100.00%
4	Haven Av.	n/o Ontario Ranch Rd.	95.46%	0.82%	3.72%	100.00%
5	Mill Creek Av.	s/o Chino Av.	95.81%	0.75%	3.44%	100.00%
6	Milliken Av.	n/o Riverside Dr.	91.28%	1.55%	7.17%	100.00%
7	Milliken Av.	s/o Riverside Dr.	90.32%	1.72%	7.96%	100.00%
8	Hamner Av.	s/o Chino Av.	90.18%	1.74%	8.08%	100.00%
9	Hamner Av.	s/o Ontario Ranch Rd.	89.65%	1.86%	8.49%	100.00%
10	Riverside Dr.	w/o Haven Av.	88.05%	2.15%	9.80%	100.00%
11	Riverside Dr.	w/o Milliken Av.	92.30%	1.38%	6.32%	100.00%
12	Chino Av.	e/o Archibald Av.	90.95%	1.63%	7.42%	100.00%
13	Ontario Ranch Rd.	w/o Archibald Av.	90.42%	1.70%	7.87%	100.00%
14	Ontario Ranch Rd.	e/o Archibald Av.	92.98%	1.25%	5.77%	100.00%
15	Ontario Ranch Rd.	w/o Haven Av.	93.29%	1.20%	5.51%	100.00%
16	Ontario Ranch Rd.	e/o Haven Av.	93.24%	1.21%	5.55%	100.00%
17	Ontario Ranch Rd.	w/o Hamner Av.	93.13%	1.21%	5.66%	100.00%
18	Ontario Ranch Rd.	e/o Hamner Av.	91.47%	1.51%	7.02%	100.00%

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

TABLE 6-6: OYC (2027) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Archibald Av.	n/o Ontario Ranch Rd.	88.70%	2.03%	9.27%	100.00%
2	Haven Av.	n/o Riverside Dr.	91.54%	1.52%	6.94%	100.00%
3	Haven Av.	s/o Riverside Dr.	92.72%	1.31%	5.97%	100.00%
4	Haven Av.	n/o Ontario Ranch Rd.	94.48%	0.99%	4.53%	100.00%
5	Mill Creek Av.	s/o Chino Av.	95.52%	0.81%	3.68%	100.00%
6	Milliken Av.	n/o Riverside Dr.	90.94%	1.61%	7.45%	100.00%
7	Milliken Av.	s/o Riverside Dr.	89.96%	1.79%	8.25%	100.00%
8	Hamner Av.	s/o Chino Av.	89.89%	1.80%	8.31%	100.00%
9	Hamner Av.	s/o Ontario Ranch Rd.	89.37%	1.91%	8.72%	100.00%
10	Riverside Dr.	w/o Haven Av.	87.83%	2.19%	9.99%	100.00%
11	Riverside Dr.	w/o Milliken Av.	91.12%	1.60%	7.29%	100.00%
12	Chino Av.	e/o Archibald Av.	89.46%	1.89%	8.65%	100.00%
13	Ontario Ranch Rd.	w/o Archibald Av.	89.89%	1.80%	8.31%	100.00%
14	Ontario Ranch Rd.	e/o Archibald Av.	92.36%	1.36%	6.28%	100.00%
15	Ontario Ranch Rd.	w/o Haven Av.	92.70%	1.30%	6.00%	100.00%
16	Ontario Ranch Rd.	e/o Haven Av.	92.79%	1.29%	5.92%	100.00%
17	Ontario Ranch Rd.	w/o Hamner Av.	92.04%	1.41%	6.55%	100.00%
18	Ontario Ranch Rd.	e/o Hamner Av.	90.60%	1.67%	7.73%	100.00%

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

TABLE 6-7: HY (2050) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Archibald Av.	n/o Ontario Ranch Rd.	88.12%	2.14%	9.75%	100.00%
2	Haven Av.	n/o Riverside Dr.	90.87%	1.64%	7.49%	100.00%
3	Haven Av.	s/o Riverside Dr.	91.72%	1.49%	6.79%	100.00%
4	Haven Av.	n/o Ontario Ranch Rd.	93.61%	1.15%	5.24%	100.00%
5	Mill Creek Av.	s/o Chino Av.	92.75%	1.30%	5.95%	100.00%
6	Milliken Av.	n/o Riverside Dr.	88.92%	1.98%	9.10%	100.00%
7	Milliken Av.	s/o Riverside Dr.	88.63%	2.03%	9.34%	100.00%
8	Hamner Av.	s/o Chino Av.	88.49%	2.06%	9.45%	100.00%
9	Hamner Av.	s/o Ontario Ranch Rd.	89.27%	1.93%	8.80%	100.00%
10	Riverside Dr.	w/o Haven Av.	87.31%	2.28%	10.41%	100.00%
11	Riverside Dr.	w/o Milliken Av.	88.71%	2.03%	9.26%	100.00%
12	Chino Av.	e/o Archibald Av.	89.14%	1.95%	8.91%	100.00%
13	Ontario Ranch Rd.	w/o Archibald Av.	89.68%	1.84%	8.48%	100.00%
14	Ontario Ranch Rd.	e/o Archibald Av.	92.37%	1.36%	6.27%	100.00%
15	Ontario Ranch Rd.	w/o Haven Av.	90.17%	1.76%	8.07%	100.00%
16	Ontario Ranch Rd.	e/o Haven Av.	91.49%	1.52%	6.99%	100.00%
17	Ontario Ranch Rd.	w/o Hamner Av.	91.20%	1.56%	7.24%	100.00%
18	Ontario Ranch Rd.	e/o Hamner Av.	89.99%	1.78%	8.23%	100.00%

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

7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on the *Rich-Haven Specific Plan-2022 Amendment Traffic Analysis* prepared by Urban Crossroads, Inc. (23) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 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 to 7-6 present a summary of the exterior traffic noise levels for each traffic condition. Appendix 7.1 includes the traffic noise level contours worksheets for each traffic condition.

TABLE 7-1: EXISTING (2022) WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	79.3	251	542	1167
2	Haven Av.	n/o Riverside Dr.	Sensitive	78.6	225	484	1043
3	Haven Av.	s/o Riverside Dr.	Sensitive	76.2	130	281	605
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	77.4	155	333	718
5	Mill Creek Av.	s/o Chino Av.	Sensitive	69.7	RW	90	195
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	78.9	235	507	1091
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	78.6	224	483	1040
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	78.6	225	484	1043
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	80.1	284	613	1320
10	Riverside Dr.	w/o Haven Av.	Sensitive	77.2	182	391	843
11	Riverside Dr.	w/o Milliken Av.	Sensitive	74.9	127	274	590
12	Chino Av.	e/o Archibald Av.	Sensitive	71.1	52	112	240
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	79.1	340	733	1578
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	79.9	384	827	1781
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	80.4	415	894	1925

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
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	81.5	494	1064	2291
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	81.3	476	1026	2211
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	82.2	549	1182	2546

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

TABLE 7-2: EXISTING (2022) WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	79.5	259	559	1204
2	Haven Av.	n/o Riverside Dr.	Sensitive	79.3	251	541	1166
3	Haven Av.	s/o Riverside Dr.	Sensitive	77.5	157	339	729
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	78.7	191	412	887
5	Mill Creek Av.	s/o Chino Av.	Sensitive	71.1	52	112	241
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	79.8	271	583	1257
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	79.4	254	548	1180
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	79.4	254	548	1180
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	80.4	296	639	1376
10	Riverside Dr.	w/o Haven Av.	Sensitive	77.3	185	398	857
11	Riverside Dr.	w/o Milliken Av.	Sensitive	75.5	139	300	645
12	Chino Av.	e/o Archibald Av.	Sensitive	71.4	54	117	252
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	79.9	382	822	1771
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	81.0	454	978	2108
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	81.5	493	1063	2290
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	82.6	580	1250	2693
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	83.1	624	1345	2897
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	83.5	663	1429	3079

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

TABLE 7-3: OYC (2027) WITHOUT PROJECT 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	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	80.1	284	612	1319
2	Haven Av.	n/o Riverside Dr.	Sensitive	80.2	289	622	1340
3	Haven Av.	s/o Riverside Dr.	Sensitive	79.3	208	447	963
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	78.7	191	410	884
5	Mill Creek Av.	s/o Chino Av.	Sensitive	70.1	45	97	208
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	79.4	255	550	1185
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	79.2	248	534	1150
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	79.1	244	526	1133
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	80.7	309	665	1433
10	Riverside Dr.	w/o Haven Av.	Sensitive	78.0	205	441	950
11	Riverside Dr.	w/o Milliken Av.	Sensitive	76.5	163	351	757
12	Chino Av.	e/o Archibald Av.	Sensitive	73.5	76	163	350
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	80.1	393	847	1824
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	80.8	438	944	2033
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	81.2	470	1013	2182
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	82.1	542	1167	2514
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	83.0	619	1333	2873
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	83.7	687	1479	3187

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

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

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	80.3	292	629	1355
2	Haven Av.	n/o Riverside Dr.	Sensitive	80.7	312	673	1450
3	Haven Av.	s/o Riverside Dr.	Sensitive	79.9	229	494	1065
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	79.8	224	482	1039
5	Mill Creek Av.	s/o Chino Av.	Sensitive	71.4	55	117	253
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	80.3	290	624	1344
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	80.0	277	596	1284
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	79.9	273	587	1265
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	80.9	320	690	1486

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
10	Riverside Dr.	w/o Haven Av.	Sensitive	78.1	207	447	963
11	Riverside Dr.	w/o Milliken Av.	Sensitive	76.9	174	374	805
12	Chino Av.	e/o Archibald Av.	Sensitive	73.7	78	167	360
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	80.7	432	930	2004
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	81.7	504	1087	2341
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	82.2	544	1173	2527
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	83.1	625	1346	2900
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	84.3	751	1619	3488
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	84.6	791	1703	3669

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

TABLE 7-5: HY (2050) WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	81.7	362	780	1681
2	Haven Av.	n/o Riverside Dr.	Sensitive	81.2	335	721	1553
3	Haven Av.	s/o Riverside Dr.	Sensitive	80.6	254	547	1179
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	79.9	227	489	1054
5	Mill Creek Av.	s/o Chino Av.	Sensitive	73.8	79	170	366
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	83.2	455	980	2112
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	82.1	385	829	1787
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	82.2	393	847	1825
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	80.9	318	685	1476
10	Riverside Dr.	w/o Haven Av.	Sensitive	80.4	296	637	1372
11	Riverside Dr.	w/o Milliken Av.	Sensitive	80.8	314	678	1460
12	Chino Av.	e/o Archibald Av.	Sensitive	74.1	83	179	386
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	80.5	418	900	1940
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	80.7	437	941	2028
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	84.9	833	1794	3866
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	84.0	715	1541	3319
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	84.3	759	1636	3525
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	84.8	812	1749	3768

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

TABLE 7-6: HY (2050) WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	81.8	369	795	1713
2	Haven Av.	n/o Riverside Dr.	Sensitive	81.6	357	768	1655
3	Haven Av.	s/o Riverside Dr.	Sensitive	81.1	274	590	1271
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	80.7	258	556	1197
5	Mill Creek Av.	s/o Chino Av.	Sensitive	74.4	86	186	401
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	83.6	481	1037	2233
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	82.5	408	880	1896
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	82.6	416	896	1931
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	81.1	329	709	1528
10	Riverside Dr.	w/o Haven Av.	Sensitive	80.4	298	642	1383
11	Riverside Dr.	w/o Milliken Av.	Sensitive	80.9	322	694	1495
12	Chino Av.	e/o Archibald Av.	Sensitive	74.3	85	183	395
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	81.0	456	982	2115
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	81.7	503	1084	2336
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	85.4	890	1917	4130
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	84.6	788	1698	3659
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	85.3	880	1897	4087
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	85.5	908	1956	4215

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

7.2 EXISTING (2022) PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the Traffic Analysis prepared by Urban Crossroads, Inc. However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until Year 2027 conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels range from 69.7 to 82.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions ranging from 71.1 to 83.5 dBA CNEL. Table 7-7 shows that the Project off-site traffic noise level increases range from 0.1 to 1.8 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

TABLE 7-7: EXISTING (2022) WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	79.3	79.5	0.2	1.5	No
2	Haven Av.	n/o Riverside Dr.	Sensitive	78.6	79.3	0.7	1.5	No
3	Haven Av.	s/o Riverside Dr.	Sensitive	76.2	77.5	1.3	1.5	No
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	77.4	78.7	1.3	1.5	No
5	Mill Creek Av.	s/o Chino Av.	Sensitive	69.7	71.1	1.4	1.5	No
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	78.9	79.8	0.9	3.0	No
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	78.6	79.4	0.8	3.0	No
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	78.6	79.4	0.8	3.0	No
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	80.1	80.4	0.3	3.0	No
10	Riverside Dr.	w/o Haven Av.	Sensitive	77.2	77.3	0.1	1.5	No
11	Riverside Dr.	w/o Milliken Av.	Sensitive	74.9	75.5	0.6	1.5	No
12	Chino Av.	e/o Archibald Av.	Sensitive	71.1	71.4	0.3	1.5	No
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	79.1	79.9	0.8	1.5	No
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	79.9	81.0	1.1	1.5	No
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	80.4	81.5	1.1	1.5	No
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	81.5	82.6	1.1	1.5	No
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	81.3	83.1	1.8	3.0	No
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	82.2	83.5	1.3	3.0	No

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

7.3 OYC (2027) TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the OYC without Project conditions CNEL noise levels. The OYC without Project exterior noise levels range from 70.1 to 83.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows that the OYC with Project conditions will range from 71.4 to 84.6 dBA CNEL. Table 7-8 shows that the Project off-site traffic noise level increases range from 0.1 to 1.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

TABLE 7-8: OYC (2027) WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	80.1	80.3	0.2	1.5	No
2	Haven Av.	n/o Riverside Dr.	Sensitive	80.2	80.7	0.5	1.5	No
3	Haven Av.	s/o Riverside Dr.	Sensitive	79.3	79.9	0.6	1.5	No
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	78.7	79.8	1.1	1.5	No
5	Mill Creek Av.	s/o Chino Av.	Sensitive	70.1	71.4	1.3	1.5	No
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	79.4	80.3	0.9	3.0	No
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	79.2	80.0	0.8	3.0	No
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	79.1	79.9	0.8	3.0	No
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	80.7	80.9	0.2	3.0	No
10	Riverside Dr.	w/o Haven Av.	Sensitive	78.0	78.1	0.1	1.5	No
11	Riverside Dr.	w/o Milliken Av.	Sensitive	76.5	76.9	0.4	1.5	No
12	Chino Av.	e/o Archibald Av.	Sensitive	73.5	73.7	0.2	1.5	No
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	80.1	80.7	0.6	1.5	No
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	80.8	81.7	0.9	1.5	No
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	81.2	82.2	1.0	1.5	No
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	82.1	83.1	1.0	1.5	No
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	83.0	84.3	1.3	3.0	No
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	83.7	84.6	0.9	3.0	No

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

7.4 HY (2050) TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the HY without Project conditions CNEL noise levels. The HY without Project exterior noise levels range from 73.8 to 84.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows that the HY with Project conditions will range from 74.3 to 85.5 dBA CNEL. Table 7-8 shows that the Project off-site traffic noise level increases range from 0.0 to 1.0 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

TABLE 7-9: HY (2050) WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Archibald Av.	n/o Ontario Ranch Rd.	Sensitive	81.7	81.8	0.1	1.5	No
2	Haven Av.	n/o Riverside Dr.	Sensitive	81.2	81.6	0.4	1.5	No
3	Haven Av.	s/o Riverside Dr.	Sensitive	80.6	81.1	0.5	1.5	No
4	Haven Av.	n/o Ontario Ranch Rd.	Sensitive	79.9	80.7	0.8	1.5	No
5	Mill Creek Av.	s/o Chino Av.	Sensitive	73.8	74.4	0.6	1.5	No
6	Milliken Av.	n/o Riverside Dr.	Non-Sensitive	83.2	83.6	0.4	3.0	No
7	Milliken Av.	s/o Riverside Dr.	Non-Sensitive	82.1	82.5	0.4	3.0	No
8	Hamner Av.	s/o Chino Av.	Non-Sensitive	82.2	82.6	0.4	3.0	No
9	Hamner Av.	s/o Ontario Ranch Rd.	Non-Sensitive	80.9	81.1	0.2	3.0	No
10	Riverside Dr.	w/o Haven Av.	Sensitive	80.4	80.4	0.0	1.5	No
11	Riverside Dr.	w/o Milliken Av.	Sensitive	80.8	80.9	0.1	1.5	No
12	Chino Av.	e/o Archibald Av.	Sensitive	74.1	74.3	0.2	1.5	No
13	Ontario Ranch Rd.	w/o Archibald Av.	Sensitive	80.5	81.0	0.5	1.5	No
14	Ontario Ranch Rd.	e/o Archibald Av.	Sensitive	80.7	81.7	1.0	1.5	No
15	Ontario Ranch Rd.	w/o Haven Av.	Sensitive	84.9	85.4	0.5	1.5	No
16	Ontario Ranch Rd.	e/o Haven Av.	Sensitive	84.0	84.6	0.6	1.5	No
17	Ontario Ranch Rd.	w/o Hamner Av.	Non-Sensitive	84.3	85.3	1.0	3.0	No
18	Ontario Ranch Rd.	e/o Hamner Av.	Non-Sensitive	84.8	85.5	0.7	3.0	No

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

8 ON-SITE TRAFFIC NOISE ANALYSIS

As outlined in Section 7, noise levels at the roadways bordering the proposed project along Haven Avenue, Mill Creek Avenue, Hamner Avenue, Riverside Drive, Chino Avenue and Ontario Ranch Road would have noise levels above 65 dBA. Therefore, on-site residential land uses located along these roadways would require additional noise attenuation to ensure that noise levels comply with the City's exterior and interior noise standards of 65 dBA CNEL and 45 dBA CNEL.

As the development phasing would be implemented through the approval of tentative tract maps and development permits, the proposed project would be required to implement noise abatement measure 1.2.4, which requires that an acoustical analysis be required for residential units upon submittal final site design plans. Noise abatement measure 1.2.4 includes providing attenuation measures such as soundwalls or increasing the distance between habitable spaces and roadways. With compliance with noise abatement measures, impacts from roadways noise to on-site residential homes would be *less than significant*.

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9 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

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

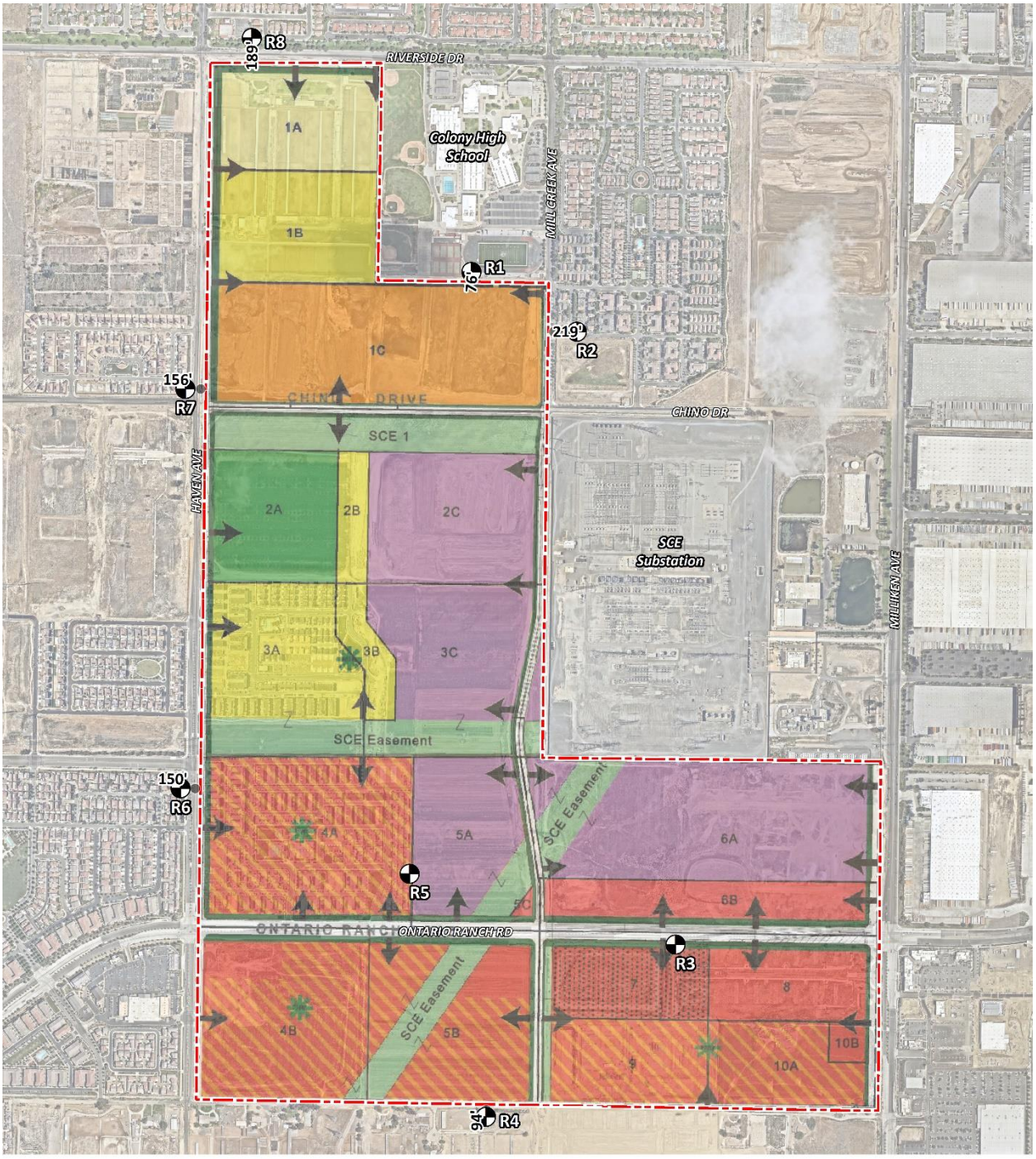
R1: Location R1 represents the Colony High School Football Stadium, approximately 76 feet north of the Project site. Receiver R1 is placed in the bleachers just north of Planning Area (PA) 1. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 3271 S Quincy Way, approximately 219 feet east of the Project site. Receiver R2 is placed in the private outdoor living areas facing the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents an on-site receiver location within the planned PA7 residential mixed use overlay area. Receiver R3 is placed approximately 460 feet south of the light industrial use within PA 6A. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing noise sensitive residence at 10823 Edison Avenue, approximately 94 feet south of the Project site. Since there are no private outdoor living areas (backyard) facing the Project site, receiver R4 is placed at the building's façade. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

EXHIBIT 9-A: RECEIVER LOCATIONS



LEGEND:

N

Site Boundary | Receiver Locations | Distance from receiver to Project site boundary (in feet)

R5: Location R5 represents the existing on-site noise sensitive residence at 3959 S Sunrise Avenue within the standalone residential overlay (PA4). Receiver R5 is placed in the private outdoor living areas facing the light industrial use within PA5A. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents the existing noise sensitive residence at 3455 Pine Ridge Loop, approximately 150 feet west of the Project site. Receiver R6 is placed in the private outdoor living areas facing the Project site. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

R7: Location R7 represents the existing noise sensitive residence at 3379 S Myrtle Drive, approximately 156 feet west of the Project site. Receiver R7 is placed in the private outdoor living areas facing the Project site. A 24-hour noise measurement was taken near this location, L7, to describe the existing ambient noise environment.

R8: Location R8 represents the existing noise sensitive residence at 2943 S Alder Creek Drive, approximately 189 feet north of the Project site. Receiver R8 is placed in the private outdoor living areas facing the Project site. A 24-hour noise measurement was taken near this location, L8, to describe the existing ambient noise environment.

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10 OPERATIONAL NOISE ANALYSIS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 9, resulting from the operation of the proposed Rich-Haven Specific Plan-2022 Amendment Project. It is expected that the primary noise source activities will be related to the light industrial and commercial land uses within planning areas 2C, 3C, 5A, 6A, 6B, 8 and 10B. The residential planning areas within the Rich-Haven Specific Plan-2022 Amendment are considered a noise-sensitive receiving land use. Therefore, no potential operational noise impacts for the residential land use are analyzed in the noise study. Exhibit 10-A identifies the noise source locations used to assess the operational noise levels.

10.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. To present the potential worst-case noise conditions, this analysis assumes the Project would be operational 24 hours per day, seven days per week. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and park activities.

10.2 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 10-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and park activities all operating at the same time. These sources of noise activity will likely vary throughout the day.

10.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (19)

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS

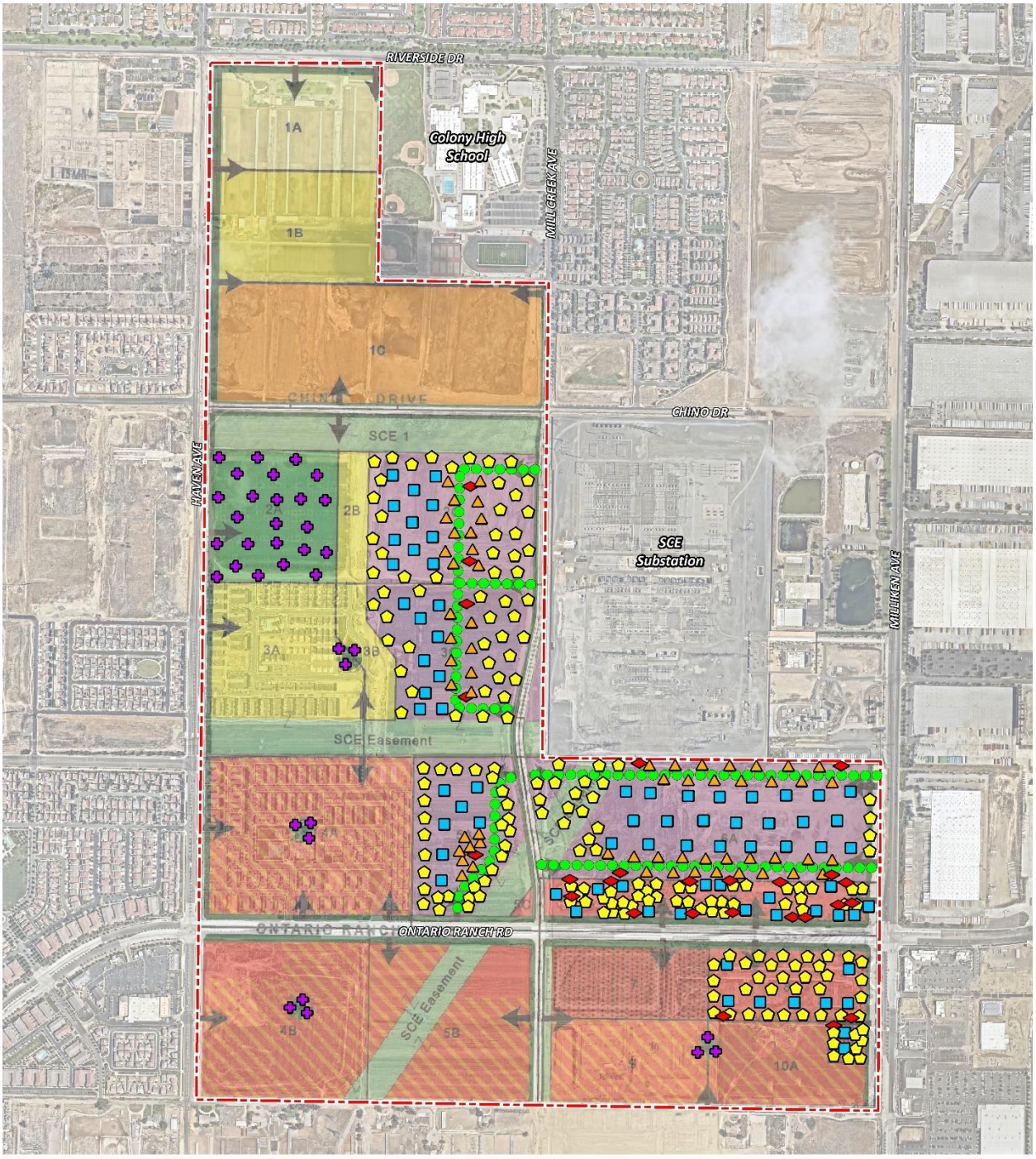

TABLE 10-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./ Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	62.8	103.4
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Trash Enclosure Activity	5'	60	30	57.3	89.0
Parking Lot Vehicle Movements	5'	60	60	52.6	81.1
Truck Movements	8'	60	60	59.8	93.2
Park Activities	5'	60'	0'	52.9	81.4

[1] As measured by Urban Crossroads, Inc.

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

[3] 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.

10.2.2 LOADING DOCK ACTIVITY

Noise sources at loading docks located with the Light Industrial may include maneuvering and idling trucks, truck refrigeration units, forklifts, banging and clanging of equipment (i.e., hand carts and roll-up doors), noise from public address systems, and voices of truck drivers and employees. The project proposes commercial uses, as described above that may contain loading docks. The reference loading dock activities are intended to describe the typical operational noise source levels associated with the Project. This includes truck idling, deliveries, backup alarms, unloading/loading, docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background forklift operations.

At a uniform reference distance of 50 feet, Urban Crossroads collected a reference noise level of 62.8 dBA L_{eq}. The loading dock activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources taken from the center of activity. The reference noise level measurement includes employees unloading a docked truck container included the squeaking of the truck's shocks when weight was removed from the truck, employees playing music over a radio, as well as a forklift horn and backup alarm. In addition, during the noise level measurement a truck entered the loading dock area and proceeded to reverse and dock in a nearby loading bay, adding truck engine, idling, air brakes noise, in addition to on-going idling of an already docked truck. Loading dock activity is estimated during all the daytime, evening, and nighttime hours.

Noise generated by loading docks could exceed the City's 65 dBA noise standard for residential and/or other sensitive noise receivers. Loading dock noise impacts are considered *less than significant* following compliance with the provisions of Ontario Municipal Code as specified in noise abatement measure 1.3.6, which would reduce noise impacts from loading docks to *less than significant* levels.

10.2.3 ROOF-TOP AIR CONDITIONING UNITS

Mechanical equipment, such as generators, trash compactors, heating, ventilation and air conditioning (HVAC) units would be included as part of the proposed improvements. Mechanical equipment would be utilized in commercial as well as institutional areas. The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise 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.

Noise generated from mechanical equipment could impact residential uses and other sensitive receivers within the project vicinity by exceeding the City's 65 dBA noise standard. However, the proposed project would be subject to the provisions of Ontario Municipal Code, which requires that noise levels emitted from such equipment not exceed 65 dBA at any property line within a residential zone, residential use, or other noise-sensitive use. Noise levels from mechanical equipment would be further minimized with implementation of mitigation requiring the orientation of equipment away from any sensitive receivers, proper selection of equipment, and installation of equipment with proper acoustical shielding; refer to noise abatement measure 1.2.5. With implementation of noise abatement measure 1.2.5 and compliance with Ontario Municipal Code provisions, potential impacts from mechanical equipment are considered *less than significant*.

10.2.5 TRASH ENCLOSURE ACTIVITY

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

10.2.6 PARKING LOT ACTIVITY

The commercial and institutional uses proposed by the project would include designated parking areas. Traffic associated with parking lots is not of sufficient volume to exceed community noise standards that are based on a time averaged scale such as the CNEL scale. However, the instantaneous maximum sound levels generated by a car door slamming, an engine starting up, and car passing by may be an annoyance to adjacent sensitive receivers. Noise abatement

measure 1.2.7 has been recommended requiring that subsequent noise analyses be prepared for future uses, as determined necessary by the City of Ontario, which demonstrate that all feasible sound attenuation has been incorporated into proposed parking areas (i.e., landscaping and brushed driving surfaces), so that noise from the parking areas has been minimized to the greatest extent practicable. Following mitigation, noise generated by parking lots is not expected to exceed the 65 dBA noise standard and a *less than significant impact* would occur in this regard. Also, it should be noted that noise attenuation from existing walls and intervening vegetation and topography would further lessen potential impacts.

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

10.2.7 TRUCK MOVEMENTS

It is anticipated that truck deliveries would occur at the proposed commercial uses and industrial land uses. Noise generated by delivery trucks on the project site could exceed the City's 65 dBA noise standard and a significant impact could occur unless mitigated. Delivery truck noise impacts would be minimized through compliance with the provisions of Ontario Municipal Code, as specified in noise abatement measure 1.2.6, which includes limitations on hours of operation when a commercial zone abuts a residential zone or residential use, would reduce noise impacts from trucks to less than significant levels.

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

10.2.8 PARK ACTIVITIES

The project proposes parks that would include both active and passive uses. The parks would include picnic areas, basketball courts, tot lots, football, soccer, or softball facilities. Activities at the park could expose surrounding receivers to noise impacts from events at these facilities. Since the residential land use would be located at a minimum of 50 feet from the proposed park facilities, noise generated from people utilizing the park would not exceed the City's 65 dBA noise standard. Furthermore, potential park activities would be limited to operation during daytime hours. Impacts in this regard are considered less than significant.

To represent the potential noise level impacts associated with the Project's Park activities, a reference noise level measurement was collected at the Founders Park in the unincorporated community of Ladera Ranch in the County of Orange. The reference noise levels collected at the

Founders Park are expected to reflect the noise level activities within the open space-recreation land use areas of the Project site, since the reference noise level measurement includes girls' youth soccer games, coaches shouting instructions, and parents speaking on cell phones at five feet from the noise level measurement location, and background noise levels from kids playing on swing sets and people cheering and clapping at 50 feet from the noise level measurement location. Using the uniform reference distance of 50 feet, the reference park activity noise level is 49.4 dBA L_{eq}. The playground activities are estimated to occur for 60 minutes during the peak hour conditions.

10.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 10.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

10.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and park activities, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 10-2 shows the Project operational noise levels during the daytime hours of 7:00

a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 33.1 to 45.8 dBA L_{eq}.

TABLE 10-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)							
	R1	R2	R3	R4	R5	R6	R7	R8
Loading Dock Activity	44.6	44.4	40.6	41.7	39.3	38.6	34.1	32.3
Roof-Top Air Conditioning Units	29.2	30.0	42.0	32.6	36.1	30.3	28.7	21.9
Trash Enclosure Activity	24.1	24.5	37.5	27.2	20.4	21.3	17.8	16.0
Parking Lot Vehicle Movements	27.3	29.2	36.8	29.2	37.4	26.7	25.9	19.8
Truck Movements	27.2	28.6	27.8	30.1	30.4	23.3	20.9	17.6
Park Activities	24.6	22.6	26.1	23.5	28.5	28.8	31.5	20.5
Total (All Noise Sources)	**44.9**	**44.8**	**45.8**	**42.8**	**42.9**	**39.6**	**35.9**	**33.1**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.1.

Table 10-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 32.9 to 44.8 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 10-1 and Appendix 10.1.

TABLE 10-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)							
	R1	R2	R3	R4	R5	R6	R7	R8
Loading Dock Activity	44.6	44.4	40.6	41.7	39.3	38.6	34.1	32.3
Roof-Top Air Conditioning Units	26.8	27.5	39.6	30.2	33.7	27.9	26.3	19.5
Trash Enclosure Activity	20.1	20.5	33.5	23.2	16.4	17.3	13.9	12.1
Parking Lot Vehicle Movements	27.3	29.2	36.8	29.2	37.4	26.7	25.9	19.8
Truck Movements	27.2	28.6	27.8	30.1	30.4	23.3	20.9	17.6
Park Activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (All Noise Sources)	**44.8**	**44.7**	**44.5**	**42.5**	**42.4**	**39.3**	**35.5**	**32.9**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.1.

10.5 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 Ontario exterior noise level standards at nearby noise-sensitive receiver locations. Table 10-4 shows the operational noise levels associated with Rich-Haven Specific Plan-2022 Amendment Project will satisfy the City of Ontario 70 dBA L_{eq} daytime and 65 dBA L_{eq} nighttime exterior noise level standards at the

nearest receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 10-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	44.9	44.8	65.0	45.0	No	No
R2	44.8	44.7	65.0	45.0	No	No
R3	45.8	44.5	65.0	45.0	No	No
R4	42.8	42.5	65.0	45.0	No	No
R5	42.9	42.4	65.0	45.0	No	No
R6	39.6	39.3	65.0	45.0	No	No
R7	35.9	35.5	65.0	45.0	No	No
R8	33.1	32.9	65.0	45.0	No	No

[1] See Exhibit 9-A for the receiver locations.
[2] Proposed Project operational noise level calculations are included in Appendix 10-1.
[3] Section 5-29.04 of the City of Ontario Municipal Code (Appendix 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.

10.6 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. (2) Instead, they must be logarithmically added using the following base equation:

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. As indicated on Table 10-5, the Project will generate a daytime noise level increase ranging from 0.0 to 1.4 dBA L_{eq} operational noise level increase at the nearest receiver locations. Table 10-6 shows that the Project will generate a nighttime operational noise level increase ranging from 0.0 to 1.6 dBA L_{eq} at the nearest receiver locations.

The Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented on Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 10-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	44.9	L1	56.0	56.3	0.3	5.0	No
R2	44.8	L2	48.9	50.3	1.4	5.0	No
R3	45.8	L3	69.1	69.1	0.0	1.5	No
R4	42.8	L4	56.3	56.5	0.2	5.0	No
R5	42.9	L5	63.1	63.1	0.0	5.0	No
R6	39.6	L6	68.8	68.8	0.0	1.5	No
R7	35.9	L7	65.4	65.4	0.0	1.5	No
R8	33.1	L8	68.5	68.5	0.0	1.5	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 10-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 10-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	44.9	L1	55.6	56.0	0.4	5.0	No
R2	44.8	L2	48.4	50.0	1.6	5.0	No
R3	45.8	L3	64.0	64.1	0.1	5.0	No
R4	42.8	L4	52.1	52.6	0.5	5.0	No
R5	42.9	L5	55.1	55.4	0.3	5.0	No
R6	39.6	L6	62.4	62.4	0.0	5.0	No
R7	35.9	L7	60.2	60.2	0.0	5.0	No
R8	33.1	L8	64.3	64.3	0.0	5.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 10-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

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11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 9. The Project Conditions of Approval identified at Section 1.3, would minimize or eliminate a construction-source noise impacts. It is recommended that the City consider these noise abatement measures in their deliberations regarding the Project i

While the City establishes limits to the hours during which construction activity may take place, it does not identify specific noise level limits for construction noise levels at potentially affected receiver locations for CEQA analysis purposes. In addition, since neither the City of Ontario General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use (8 p. 179).

11.1 CONSTRUCTION NOISE LEVELS

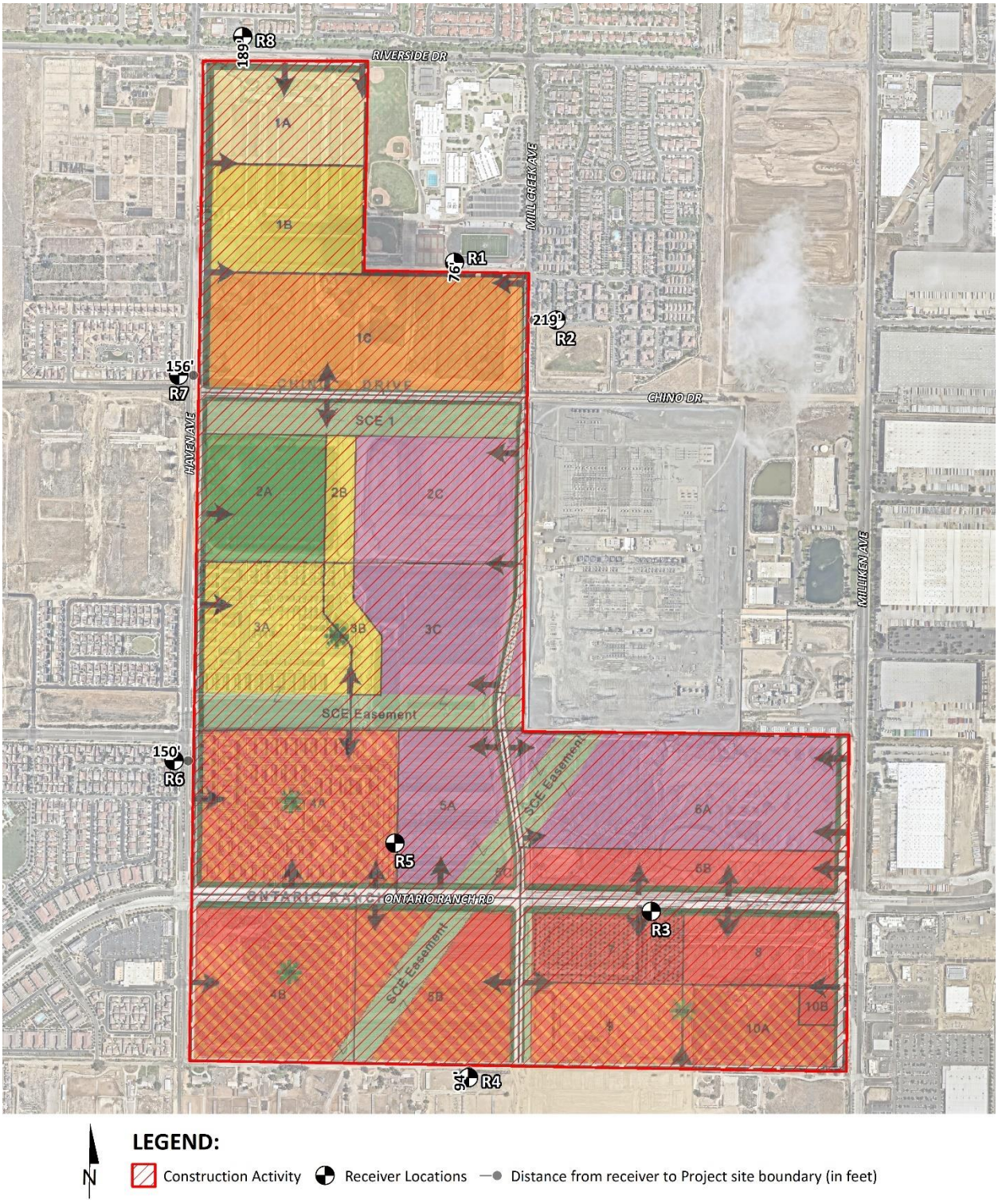
The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed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

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

11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (24) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 11-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS



11.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 11-1 presents the combined noise levels for the loudest construction equipment, assuming they operate at the same time. As shown on Table 11-2, the construction noise levels are expected to range from 46.5 to 63.8 dBA L_{eq} at the nearby receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Combined Noise Level (dBA L_{eq})[2]	Combined Sound Power Level (PWL)[3]
Demolition	Demolition Equipment	82	83	115
	Backhoes	74		
	Hauling Trucks	72		
Site Preparation	Crawler Tractors	78	80	112
	Hauling Trucks	72		
	Rubber Tired Dozers	75		
Grading	Graders	81	83	115
	Excavators	77		
	Compactors	76		
Building Construction	Cranes	73	81	113
	Tractors	80		
	Welders	70		
Paving	Pavers	74	83	115
	Paving Equipment	82		
	Rollers	73		
Architectural Coating	Cranes	73	77	109
	Air Compressors	74		
	Generator Sets	70		

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

TABLE 11-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	53.0	56.0	54.0	56.0	50.0	56.0
R2	50.3	53.3	51.3	53.3	47.3	53.3
R3	60.7	63.7	61.7	63.7	57.7	63.7
R4	52.8	55.8	53.8	55.8	49.8	55.8
R5	60.8	63.8	61.8	63.8	57.8	63.8
R6	52.1	55.1	53.1	55.1	49.1	55.1
R7	51.8	54.8	52.8	54.8	48.8	54.8
R8	49.5	52.5	50.5	52.5	46.5	52.5

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 11.1.

11.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 11-3. With the implementation of mitigation measures N-1 and N-2, construction noise impacts would be *less than significant*.

TABLE 11-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	56.0	80	No
R2	53.3	80	No
R3	63.7	80	No
R4	55.8	80	No
R5	63.8	80	No
R6	55.1	80	No
R7	54.8	80	No
R8	52.5	80	No

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 11-2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.6 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 11-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 11-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 11-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 30 to 219 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.003 to 0.068 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at all the noise sensitive receiver locations.

It is not anticipated that short-term construction operations or long-term operations for the proposed project would result in excessive groundborne vibration or ground borne noise levels. Vibration producing construction equipment such as pile drivers is not typically used for the type of residential homes and commercial buildings that would be developed as part of the Rich-Haven Specific Plan. Although the proposed project would include the use of heavy-duty construction equipment, vibration impacts that would be generated would not damage structures within the project vicinity. In addition, long-term operation at residential units typically would not produce excessive ground vibration. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site.

TABLE 11-5: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
R1	76'	0.001	0.007	0.014	0.017	0.017	0.3	No
R2	219'	0.000	0.001	0.003	0.003	0.003	0.3	No
R3	30'	0.002	0.027	0.058	0.068	0.068	0.3	No
R4	94'	0.000	0.005	0.010	0.012	0.012	0.3	No
R5	30'	0.002	0.027	0.058	0.068	0.068	0.3	No
R6	150'	0.000	0.002	0.005	0.006	0.006	0.3	No
R7	156'	0.000	0.002	0.005	0.006	0.006	0.3	No
R8	189'	0.000	0.002	0.004	0.004	0.004	0.3	No

[1] Receiver locations are shown on Exhibit 11-A.
[2] Distance from receiver location to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 11-4).
[4] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

12 REFERENCES

1. **State of California.** *California Environmental Quality Act, Environmental Checklist Form Appendix G.* 2021.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
9. **Office of Planning and Research.** *State of California General Plan Guidlines.* October 2019.
10. **City of Ontario.** *Policy Plan Safety Element, S4, Noise Hazards.* August 2022.
11. **The City of Ontario.** *The Ontario Plan 2050 Final Supplemental Environmental Impact Report (FSEIR).* August 2022.
12. **City of Ontario.** *Municipal Code, Chapter 29, Section 5- Noise.*
13. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
14. **City of Ontario.** *Ontario International Airport Land Use Compatibility Plan.* July 2018.
15. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
16. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
17. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
18. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
19. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
20. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.

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

22. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

23. **Urban Crossroads.** *Rich Haven Specific Plan.* October 2022.

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

13 CERTIFICATIONS

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Rich-Haven Specific Plan-2022 Amendment Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

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 ONTARIO DEVELOPMENT CODE

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CHAPTER 29: NOISE

Sec. 5-29.01. Declaration of findings and policy.

It is hereby found and declared that:

(a) The making and creation of excessive, unnecessary or unusually loud noises within the limits of the City is a condition that has existed for some time, however, the extent and volume of such noises is increasing;

(b) The making, creation or maintenance of such excessive, unnecessary, unnatural or unusually loud noises that are prolonged, unusual and unnatural in their time, place and use affect and are a detriment to public health, comfort, convenience, safety, welfare and prosperity of the residents of the City; and

(c) The necessity in the public interest for the provisions and prohibitions hereinafter contained and enacted, is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of and for the purpose of securing and promoting the public health, comfort, convenience, safety, welfare and prosperity and the peace and quiet of the residents of the City.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.02. Definitions.

As used in this chapter, specific words and phrases are defined as follows:

(a) "Ambient noise level" shall mean the all-encompassing noise level associated with a given environment and is a composite of sounds from all sources, excluding the alleged offensive noise or excessive sound, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

(b) "Applicable (noise) zone" shall mean the noise zone category based on the actual use of the property, provided that the actual use is a legal use in the City.

(c) "A-weighted sound level" shall mean the sound pressure level in decibels (dBAs) as measured with a sound level meter using the A-weighted filter network (scale) at slow response and at a pressure of twenty (20) micropascals. The A-weighted filter de-emphasizes the very low and a very high frequency component of sound in a manner similar to the response of the human ear, and is a numerical method of rating human judgment of loudness.

(d) "Decibel (dBA)" shall mean a unit for measuring the amplitude of a sound, equal to twenty (20) times the logarithm to the base ten (10) of the ratio of pressure of the sound measured to the reference pressure of twenty (20) micropascals.

(e) "Equivalent sound or noise level (Leq)" shall mean the International Electrotechnical Commission (IEC) 60804 Standard for measurement, or the most recent revision thereof, for the sound level corresponding to a steady state noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level or the energy average noise level during the sample period. The measurement period for the purposes of this chapter is fifteen (15) minutes.

(f) "Impulsive noise" shall mean a noise of short duration usually less than one (1) second and of high intensity, with an abrupt onset and rapid decay. Such objectionable noises may also be repetitive.

(g) "Intrusive noise" shall mean that noise that intrudes over and above the ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence and tonal information content, as well as the prevailing ambient noise level.

(h) "Maintenance" shall mean the upkeep, repair or preservation of existing property or structures.

(i) "Noise" shall mean any unwanted sound or sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing or is otherwise annoying.

(j) "Noise level (sound level)" shall mean the weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum. For purposes of this chapter, all noise levels (sound levels) shall be A-weighted sound pressure level.

(k) "Noise (sound) level meter" shall mean an instrument, including a microphone, an amplifier, an output meter and frequency weighting networks for the measurement and determination of noise and sound levels. For the purposes of this chapter, the sound level meter must meet the International Electrotechnical Commission (IEC) 60651 and 60804 Standards, or the most recent revisions thereof, for Type 1 sound level meters or an instrument and the associated recording and analyzing equipment that will provide equivalent data.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.03. Designated noise zones.

The properties hereinafter described shall be assigned to the following noise zones:

Noise Zone I:	All single-family residential properties;
Noise Zone II:	All multi-family residential properties and mobile home parks;
Noise Zone III:	All commercial property;
Noise Zone IV:	The residential portion of mixed use properties;
Noise Zone V:	All manufacturing or industrial properties and all other uses.

The actual use of the property, and not necessarily its zoning designation, shall be the determining factor in establishing whether a property is in Noise Zone I, II, III, IV or V, provided that the actual use is a legal use within the applicable zone.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.04. Exterior noise standards.

(a) The following exterior noise standards, unless otherwise specifically indicated, shall apply to all properties within a designated noise zone.

Allowable Exterior Noise Level (1)		***Allowed Equivalent Noise Level, Leq. (2)***	
Noise Zone	***Type of Land Use***	***7 a.m. to 10 p.m.***	***10 p.m. to 7 a.m.***
I	Single-Family Residential	65 dBA	45 dBA
II	Multi-Family Residential, Mobile Home Parks	65 dBA	50 dBA
III	Commercial Property	65 dBA	60 dBA
IV	Residential Portion of Mixed Use	70 dBA	70 dBA
V	Manufacturing and Industrial, Other Uses	70 dBA	70 dBA

(1) If the ambient noise level exceeds the resulting standard, the ambient noise level shall be the standard.

(2) Measurements for compliance are made on the affected property pursuant to §5-29.15.

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

(1) The noise standard for the applicable zone for any fifteen-minute (15) period; and

(2) A maximum instantaneous (single instance) noise level equal to the value of the noise standard plus twenty (20) dBA for any period of time (measured using A-weighted slow response).

(c) In the event the ambient noise level exceeds the noise standard, the maximum allowable noise level under such category shall be increased to reflect the maximum ambient noise level.

(d) The Noise Zone IV standard shall apply to that portion of residential property falling within one hundred (100) feet of a commercial property or use, if the noise originates from that commercial property or use.

(e) If the measurement location is on a boundary between two (2) different noise zones, the lower noise level standard applicable to the noise zone shall apply.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.05. Interior noise standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all properties within a designated noise zone.

Allowable Interior Noise Level (1)		**Allowed Equivalent Noise Level, Leq.** (2)	
Noise Zone	***Type of Land Use***	***7 a.m. to 10 p.m.***	***10 p.m. to 7 a.m.***
I	Single-Family Residential	45 dBA	40 dBA
II	Multi-Family Residential, Mobile Home Parks	45 dBA	40 dBA
IV	Residential Portion of Mixed Use	45 dBA	40 dBA

(1) If the ambient noise level exceeds the resulting standard, the ambient noise level shall be the standard.

(2) Measurements for compliance are made on the affected property pursuant to §5-29.15.

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

(1) The noise standard for the applicable zone for any fifteen-minute (15) period;

(2) A maximum instantaneous (single instance) noise level equal to the value of the noise standard plus twenty (20) dBA for any period of time (measured using A-weighted slow response).

(c) In the event the ambient noise level exceeds the noise standard, the maximum allowable noise level under such category shall be increased to reflect the maximum ambient noise level.

(d) The Noise Zone IV standard shall apply to that portion of residential property falling within one hundred (100) feet of a commercial property or use, if the noise originates from that commercial property or use.

(e) If the measurement location is on a boundary between two (2) different noise zones, the lower noise level standard applicable to the noise zone shall apply.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.06. Exemptions.

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

(a) Any activity conducted on public property, or on private property with the consent of the owner, by any public entity or its officers, employees, representatives, agents, subcontractors, permittees, licensees or lessees that the public entity has authorized are exempt from the provisions of this chapter. This includes, without limitation, sporting and recreational activities that are sponsored, co-sponsored, permitted or allowed by the City or any school district within the City's jurisdictional boundaries. This also includes, without limitation, occasional outdoor gatherings, public dances, shows or sporting and entertainment events, provided such events are conducted pursuant to an approval, authorization, contract, lease, permit or sublease by the appropriate public entity, specifically the planning commission or City Council;

(b) Occasional outdoor gatherings, public dances, show, sporting and entertainment events, provided said events are

conducted pursuant to a permit or license issued by the appropriate jurisdiction relative to the staging of said events;

(c) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within forty-five (45) minutes in any hour of its being activated;

(d) Noise sources associated with construction, repair, remodeling, demolition or grading of any real property. Such activities shall instead be subject to the provisions of § 5-29.09;

(e) Noise sources associated with construction, repair, remodeling, demolition or grading of public rights-of-way or during authorized seismic surveys;

(f) All mechanical devices, apparatus or equipment associated with agriculture operations provided that:

(1) Operations do not take place between 8:00 p.m. and 7:00 a.m.;

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

(3) Such operations and equipment are associated with agricultural pest control through pesticide application, provided the application is made in accordance with permits issued by or regulations enforced by the California Department of Agriculture;

(g) Noise sources associated with the maintenance of real property. Such activities shall instead be subject to the provisions of § 5-29.08;

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

(i) Any noise sources associated with people and/or music associated with a party at a residential property. Such noise shall be subject to the provisions of OMC § 5-29.07;

(j) Any noise source emanating from an ice cream truck within the City. Such noise shall be subject to the provisions of OMC § 4-18.04;

(k) Any noise sources associated with barking dogs or other intermittent noises made by animals on any properly within the City. Such noise shall be subject to the provisions of OMC Chapter 1, Title 6;

(l) Noise sources related to uses approved by a permit or development agreement adopted prior to the date of adoption of this chapter and that contains acoustic or noise standard conditions of approval. This exemption shall only be applicable during the effective period of the City-approved permit or development agreement.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.07. Loud and disturbing noise.

(a) It is unlawful for any person or property owner within the City to make, cause or allow to be made any loud, excessive, impulsive or intrusive noise, disturbance or commotion that disturbs the peace or quiet of any area or that causes discomfort or annoyance to any reasonable person of normal sensitivities in the area, after a Police or Code Enforcement Officer has first requested that the person or property owner cease and desist from making such noise. The types of loud, disturbing, excessive, impulsive or intrusive noise may include, but shall not be limited to, yelling, shouting, hooting, whistling, singing, playing a musical instrument, or emitting or transmitting any loud music or noise from any mechanical or electrical sound making or sound-amplifying device.

(b) The factors, standards, and conditions that may be considered in determining whether a violation of the provisions of this section has been committed, included, but not limited to, the following:

(1) The level of the noise;

(2) The level and intensity of the background (ambient) noise, if any;

(3) The proximity of the noise to residential or commercial sleeping areas;

(4) The nature and zoning of the area within which the noise emanates;

(5) The density of inhabitation of the area within which the noise emanates;

(6) The time of day and night the noise occurs;

(7) The duration of the noise;

(8) Whether the noise is constant, recurrent or intermittent;

(9) Whether the noise is produced by a commercial or noncommercial activity; and

(10) Whether the use is lawful under the provisions of Title 5 of this Code and whether the noise is one that could reasonably be expected from the activity or allowed use.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.08. Real property maintenance noise regulations.

(a) No person, while engaged in maintenance of real property, shall operate any tool, equipment or machine in a manner that produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a Police or Code Enforcement Officer, except between the hours of 8:00 a.m. and 6:00 p.m.

(b) Trimming or pruning that requires the use of chainsaws or mulching machines shall only be allowed between the hours of 8:00 a.m. and 6:00 p.m. on a weekday and between the hours of 9:00 a.m. and 5:00 p.m. on Saturday or Sunday.

(c) The use of electrical or gasoline powered blowers, such as commonly used by gardeners or other persons for cleaning lawns, yards, driveways, gutters and other property shall only be allowed between the hours of 8:00 a.m. and 6:00 p.m. on a weekday and between the hours of 9:00 a.m. and 5:00 p.m. on Saturday or Sunday.

(d) No landowner, gardener, property maintenance service, contractor, subcontractor or employer shall permit or allow any person or persons working under his or her direction or control to operate any tool, equipment or machine in violation of the provisions of this section.

(e) Exceptions. The provisions of this section shall not apply to the following:

(1) Emergency property maintenance required by the building official;

(2) The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City, or its employees, contractors or agents, unless:

(i) The City Manager or department head determines that the maintenance, repair or improvement is immediately necessary to maintain public service,

(ii) The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours, or

(iii) The City Council has approved project specifications, contract provisions, or an environmental document that specifically authorizes maintenance during hours of the day that would otherwise be prohibited pursuant to this section; and

(3) Any maintenance that complies with the noise limits specified in §5-29.04.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.09. Construction activity noise regulations.

(a) No person, while engaged in construction, remodeling, digging, grading, demolition or any other related building activity, shall operate any tool, equipment or machine in a manner that produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a Police or Code Enforcement Officer, on any weekday except between the hours of 7:00 a.m. and 6:00 p.m. or on Saturday or Sunday between the hours of 9:00 a.m. and 6:00 p.m.

(b) No landowner, construction company owner, contractor, subcontractor, or employer shall permit or allow any person or persons working under their direction and control to operate any tool, equipment or machine in violation of the provisions of this section.

(c) Exceptions.

(1) The provisions of this section shall not apply to emergency construction work performed by a private party when authorized by the City Manager or his or her designee;

(2) The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City, or its employees, contractors or agents, unless:

(i) The City Manager or a department head determines that the maintenance, repair or improvement is immediately necessary to maintain public services,

(ii) The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours, or

(iii) The City Council has approved project specifications, contract provisions, or an environmental document that specifically authorizes construction during hours of the day that would otherwise be prohibited pursuant to this section; and

(3) Any construction that complies with the noise limits specified in §§5-29.04 or 5-29.05.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.10. Other public agency exceptions.

The provisions of this chapter shall not be construed to prohibit any work at different hours by or under the direction of any other public agency or public or private utility companies in cases of necessity or emergency.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.11. Schools, day care centers, churches, libraries, museums, health care institutions; Special provisions.

It is unlawful for any person to create any noise that causes the outdoor noise level at any school, day care center, hospital or similar health care institution, church, library or museum while the same is in use, to exceed the noise standards specified in § 5-29.04 prescribed for the assigned Noise Zone I.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.12. Sound amplifying equipment.

Loudspeakers, sound amplifiers, public address systems or similar devices used to amplify sounds shall be subject to the provisions of § 5-29.13. Such sound amplifying equipment shall not be construed to include electronic devices, including but not limited to, radios, tape players, tape recorders, compact disc players, MP3 players, electric keyboards, music synthesizers, record players or televisions, which are designed and operated for personal use, or used entirely within a building and are not designed or used to convey the human voice, music or any other sound to an audience outside such building, or which are used in vehicles and heard only by occupants of the vehicle in which installed.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.13. Amplified sound.

(a) The City Council enacts the following legislation for the sole purpose of securing and promoting the public health, comfort, safety and welfare for its citizenry. While recognizing that the use of sound amplifying equipment may be entitled to certain protection by the constitutional rights of freedom of speech and assembly, the City Council finds that in order to protect the public safety and the correlative rights of the citizens of this community to privacy and freedom from public nuisance of loud and unnecessary noise, reasonable regulation of the time, place and manner of the use of amplifying equipment is necessary. In no event shall approval or authorization required herein be withheld by reason of the constitutionally protected content of any material proposed to be broadcast through amplifying equipment.

(b) It is unlawful for any person, other than personnel of law enforcement or governmental agencies, to install, use or operate a loudspeaker or sound amplifying device in a fixed or movable position or mounted upon any vehicle within the City for the purpose of giving instructions, directions, talks, addresses or lectures to any persons or assemblages of persons in or upon any street, alley, sidewalk, park, place or public property without a permit to do so from the Police Chief or his or her designee. Notwithstanding any other provision of this chapter, the provisions of this section shall also apply to the use of sound amplifying equipment upon public or private property when used in connection with outdoor or indoor public or private events, whether or not admission is charged or food or beverages are sold, when such activity is to be attended by more than one hundred (100) persons and the noise emanating from the event will be audible at the property plane, or in the case of a street dance or concert on the nearest residential property. Those activities listed in § 5-29.06(a) are exempt from the requirements of this section.

(c) The Police Chief or his or her designee is authorized to approve and issue permits under this section.

(d) An application for a permit required by this section shall be filed with the Police Chief at least sixteen (16) days and no more than one hundred twenty (120) days prior to the date on which the sound amplifying equipment is intended to be used. Applications for events covered by the First Amendment of the United States Constitution are exempt from the time requirements of this section if it is shown that circumstances require a shorter filing period and the event will not constitute an unsafe condition. The application shall contain the following information:

(1) The name, address and telephone number of both the owner and the user of the sound amplifying equipment;

(2) The license number, if a sound truck is to be used;

(3) A general description of the sound amplifying equipment which is to be used;

(4) Whether sound amplifying equipment will be used for commercial or noncommercial purpose;

(5) The dates and times upon and within which, and the streets or property over or upon which, the equipment is proposed to be operated;

(6) The name or names of one (1) or more persons who will be present during the conduct of any activities for which registration is sought and who will have authority to reduce the volume of any sound amplifying equipment during the course of the activities if required pursuant to this chapter and, otherwise, to insure compliance with the provisions of this chapter;

(7) A statement by the applicant that he or she is willing and able to comply with the provisions of this chapter and the conditions of the permit; and

(8) A sketch of the area or facilities within which the activities are to be conducted, with approximate dimensions and illustration of the location and orientation of all sound-amplifying equipment.

(e) The Police Chief shall deny the permit application or revoke any permit if the chief finds any of the following:

(1) The application contains materially false or intentionally misleading information;

(2) The use of sound amplifying equipment at an event or activity proposed will be located in or upon a premises,

building or structure that is hazardous to the health or safety of the employees or patrons of the premises, business, activity, or event, or the general public, under the standards established by the Uniform Building or Fire Codes, or other applicable codes, as set forth in OMC Titles 4 and 8;

(3) The use of sound amplifying equipment at an event or activity proposed in or upon a premises, building or structure that lacks adequate on-site parking for participants attending the proposed event or activity under the applicable standards set forth in OMC Title 9;

(4) The conditions of any motor vehicle movement are such that, in his or her opinion, the use of the equipment would constitute an unreasonable interference with traffic safety;

(5) The conditions of pedestrian movement are such that the use of the equipment would constitute a detriment to traffic safety;

(6) The application submitted by the applicant reveals that the applicant would violate the provisions of this section or any other provision of federal, state and/or local law;

(7) The applicant is unwilling or unable to comply with the provisions of this chapter or any conditions imposed upon any permit issued;

(8) There had already been a permitted event at the intended location, or within a two hundred (200) yard radius of the intended location and the prior permitted event was located on residentially zoned property or on a street, alley, public parking lot or neighborhood park within three (3) months prior to the intended event. Community parks are exempt from this subsection (8); or

(9) The applicant or location has had previous violations within the past calendar year, and in the judgment of the Police Chief, issuance would be contrary to the intent of this section.

(f) In determining whether the use of the equipment would constitute an unreasonable interference with or detriment to traffic safety, the Police Chief shall consider, but shall not necessarily be limited to:

(1) The volumes, patterns and speed of vehicular and pedestrian traffic in the proposed area of use;

(2) The relationship of the proposed use of equipment and potential impacts upon traffic patterns;

(3) Availability of sufficient room for the operation of the equipment without significantly interfering with the traffic patterns;

(4) Proximity to schools, playgrounds and similar facilities where use of such equipment might attract children into traffic patterns; or

(5) Proximity to busy intersections or other potentially hazardous conditions where use of such equipment might constitute a hazard by reason of its tendency to distract drivers of vehicles or pedestrians.

(g) Issuance or denial.

(1) If the application is approved, the Police Chief shall return an approved copy of the application to the applicant and shall issue a permit. The permit shall constitute permission for the use of the sound amplifying equipment as requested.

(2) Any application filed shall be either approved or disapproved within five (5) days of the filing thereof.

(3) If the application is disapproved, the Police Chief shall return a disapproved copy forthwith to the applicant with a written statement on the reason for disapproval.

(i) Any person aggrieved by a decision of the Police Chief or his or her designee may file an appeal to the City Manager. A complete and proper appeal shall be filed with the City Clerk within ten (10) calendar days of the action that is the subject of the appeal. If the applicant fails to file an appeal within the ten (10) day filing period provided herein, denial shall take effect immediately upon expiration of such filing period. All appeals shall be in writing and shall contain the following information: (a) name(s) of the person filing the appeal, (b) a brief statement in ordinary and concise language of the relief sought, and (c) the signatures of all parties named as appellants and their mailing addresses. After receiving the appeal, the City Clerk shall immediately forward the matter to the City Manager for handling.

(ii) The City Manager shall, upon receipt of the appeal, set the matter for hearing before the City Manager or a hearing officer. Any hearing officer shall be a licensed attorney or recognized mediator designated by the City Manager. The hearing shall be set for not more than ten (10) calendar days after the receipt of the appeal unless a longer time is requested or consented to by the appellant. Notice of such hearing shall be given in writing and mailed at least five (5) calendar days prior to the date of the hearing, by U.S. mail, with a proof of service attached, addressed to the address listed on the permit application, or the written appeal if different from the permit application. The notice shall state the grounds of the complaint or reason for the denial and shall state the time and place where such hearing will be held.

(iii) The City Manager or hearing officer shall, within ten (10) calendar days following the conclusion of the hearing, make a written finding and decision, which shall be delivered to the City and the appellant by first class mail. Notwithstanding any provision in this Code, the decision of the City Manager or hearing officer shall be the final administrative decision of the City. Any party dissatisfied with the decision of the City Manager or hearing officer may seek review of such decision under the provisions of Code Civil Procedure, §§ 1094.5 and 1094.8, as amended from time to time.

(h) In addition to any other provisions of this Code, the use of sound-amplifying equipment and sound trucks in the City shall be subject to the following regulations:

(1) The only sounds permitted are music and human speech;

(2) Sound shall not be emitted within one hundred (100) yards of hospitals, churches, schools and City Hall;

(3) The volume of sound shall be controlled so that it will not be audible for a distance in excess of one hundred (100) feet from the sound amplifying equipment or sound truck, and so that the volume is not unreasonably loud, raucous, jarring, disturbing or a nuisance to persons within the range of allowed audibility; or

(4) The sound amplifying equipment or sound truck shall not be used between the hours of 8:00 p.m. and 8:00 a.m.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.14. Motor vehicles.

The use of any motor vehicle in such a condition as to create excessive, impulsive or intrusive noises is prohibited. The discharge into the open air of the exhaust of any internal combustion engine, stationary or mounted on wheels, motorboat or motor vehicle, including motor cycle, whether or not discharged through a muffler or other similar device, which discharge creates excessive, unusual, impulsive or intrusive noise is prohibited. Motor vehicles shall comply with the noise regulations of the California Vehicle Code.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.15. Noise level measurement.

(a) The location selected for measuring exterior noise levels in a residential area shall be at any part of a private yard, patio, deck or balcony normally used for human activity and identified by the owner or, if occupied by someone other than the owner, the occupant of the affected property as suspected of exceeding the noise level standard. This location may be the closest point in the private yard or patio, or on the deck or balcony, to the noise source, but should not be located in nonhuman activity areas such as trash container storage areas, planter beds, above or contacting a property line fence, or other areas not normally used as part of the yard, patio, deck or balcony. The location selected for measuring exterior noise levels in a nonresidential area shall be at the closest point to the noise source. The measurement microphone height shall be five (5) feet above finish elevation or, in the case of a deck or balcony, the measurement microphone height shall be five (5) feet above the finished floor level.

(b) The location selected for measuring interior noise levels shall be made within the affected residential unit. The measurements shall be made at a point at least four (4) feet from the wall, ceiling or floor, or within the frame of a window opening, nearest the noise source. The measurements shall be made with windows in an open position.

(c) Any decibel measurement made pursuant to the provisions of this chapter shall be measured in decibels (dBAs) as measured with a sound level meter using the A-weighted sound pressure level.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.16. Prima facie violation.

Any noise exceeding the noise level standard as specified in §§5-29.04 and 5-29.05, shall be deemed to be prima facie evidence of a violation of the provisions of this chapter.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.17. Penalty.

(a) Any person who negligently or knowingly violates any provision of this chapter shall be guilty of an infraction and upon conviction shall be punishable by a fine specified in OMC § 1-2.01. Each day a violation occurs shall constitute a separate offense and shall be punishable as such.

(b) Any person who negligently or knowingly violates any provision of this chapter may also be subject to fine(s) specified in the administrative citation schedule of fines set forth in OMC § 1-5.04. The manner of issuing administrative citations shall comply with all the procedures specified in OMC Chapter 5, Title 1.

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

(d) Any violation of this chapter is declared to be a public nuisance and may be abated in accordance with law. The expense of enforcing this chapter is declared to be public nuisance and may be by resolution of the City Council declared to be a lien and special assessment against the property on which such nuisance is maintained, and any such charge shall also be a personal obligation of the property owner.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.18. Enforcement and administration.

(a) It shall be the responsibility of Police or Code Enforcement Officers to enforce the provisions of this chapter and to perform all other functions required by this chapter. Such duties shall include, but not be limited to investigating potential violations, issuing warning notices and citations, and providing evidence to the City prosecutor for legal action.

(b) For violations of § 5-29.07, Police or Code Enforcement Officers shall obtain a declaration under penalty of perjury from two (2) declarants living in separate households within a sixty (60) day period stating in detail all of the following:

(1) That the declarant is a resident of a residential neighborhood located within two hundred (200) yards of the noise source; and

(2) Within the past month declarant has heard noise for substantially long periods to the extreme annoyance of the declarant.

(3) Declarations from two (2) declarants are required to prove a violation of §5-29.07, but are not required to prove that a person has violated any other provision of this chapter.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.19. City Manager waiver.

The City Manager is authorized to grant a temporary waiver to the provisions of this chapter for a period of time necessary to correct the violations of this chapter, if such temporary waiver would be in the public interest and there is no feasible and prudent alternative to the activity, or the method of conducting the activity, for which the temporary waiver is sought. This time period may include a commitment to a program that includes placing necessary orders and entering into necessary contracts within thirty (30) days for repair or installation.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.20. Noise abatement program.

(a) In circumstances where adopted community-wide noise standards and policies prove impractical in controlling noise generated from a specific source, the City Council may establish a noise abatement program that recognizes the characteristics of the noise source and affected property and that incorporates specialized mitigation measures.

(b) Noise abatement programs shall set forth in detail the approved terms, conditions and requirements for achieving maximum compliance with noise standards and policies. Said terms, conditions and requirements may include, but shall not be limited to, limitations, restrictions, or prohibitions on operating hours, location of operations, and the types of equipment.

(§ 2, Ord. 2888, eff. March 6, 2008)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:14822

14822_L1_A 1.North
34, 0' 52.160000"117, 34' 1.810000"

14822_L1_A 2.South
34, 0' 52.010000"117, 34' 1.700000"

14822_L1_A 3.East
34, 0' 52.050000"117, 34' 1.700000"

14822_L1_A 4.West
34, 0' 51.970000"117, 34' 1.780000"

14822_L2_E 1.North
34, 0' 47.870000"117, 33' 58.180000"

14822_L2_E 2.South
34, 0' 47.900000"117, 33' 58.160000"

14822_L2_E 3.East
34, 0' 47.930000"117, 33' 58.160000"

14822_L2_E 4.West
34, 0' 47.940000"117, 33' 58.160000"

JN:14822

14822_L3_H 1.North
34, 0' 3.560000"117, 33' 58.930000"

14822_L3_H 2.South
34, 0' 3.560000"117, 33' 58.900000"

14822_L3_H 3.East
34, 0' 3.560000"117, 33' 58.930000"

14822_L3_H 4.West
34, 0' 3.520000"117, 33' 58.930000"

JN:14822

14822_L4_I 1.North
33, 59' 49.970000"117, 34' 8.100000"

14822_L4_I 2.South
33, 59' 49.990000"117, 34' 8.100000"

14822_L4_I 3.East
33, 59' 49.990000"117, 34' 7.910000"

14822_L4_I 4.West
33, 59' 49.970000"117, 34' 7.990000"

JN:14822

14822_L5_G 1.North
34, 0' 6.940000"117, 34' 15.620000"

14822_L5_G 2.South
34, 0' 6.850000"117, 34' 15.620000"

14822_L5_G 3.East
34, 0' 6.830000"117, 34' 15.600000"

14822_L5_G 4.West
34, 0' 6.800000"117, 34' 15.680000"

JN:14822

14822_L6_S 1.North
34, 0' 14.360000"117, 34' 32.710000"

14822_L6_S 2.South
34, 0' 14.250000"117, 34' 32.650000"

14822_L6_S 3.East
34, 0' 14.250000"117, 34' 32.630000"

14822_L6_S 4.West
34, 0' 14.240000"117, 34' 32.710000"

JN:14822

14822_L7_X 1.North
34, 0' 42.380000"117, 34' 33.750000"

14822_L7_X 2.South
34, 0' 42.340000"117, 34' 33.750000"

14822_L7_X 3.East
34, 0' 42.370000"117, 34' 33.640000"

14822_L7_X 4.West
34, 0' 42.410000"117, 34' 33.670000"

JN:14822

14822_L8_Z 1.North
34, 1' 8.990000"117, 34' 31.010000"

14822_L8_Z 2.South
34, 1' 8.970000"117, 34' 31.010000"

14822_L8_Z 3.East
34, 1' 8.970000"117, 34' 31.010000"

14822_L8_Z 4.West
34, 1' 8.910000"117, 34' 31.090000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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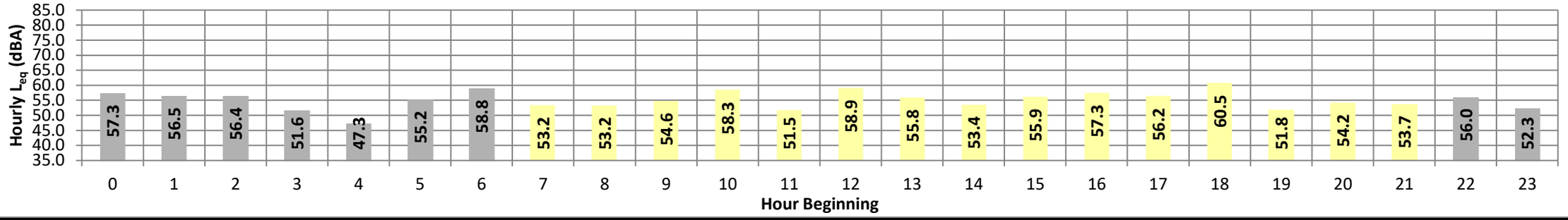
24-Hour Noise Level Measurement Summary

Date: Friday, September 30, 2022 | *Location:* L1 - Located near the northwest corner of the Project Site near | *Meter:* Piccolo II | *JN:* 14822

Project: Rich Haven SP | *Source:* the Colony High School Football Field | *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	57.3	61.7	55.8	61.5	61.2	60.0	59.1	57.2	56.7	56.2	56.0	55.9	57.3	10.0	67.3
	1	56.5	59.5	55.2	59.3	59.1	58.5	57.8	56.7	56.1	55.6	55.5	55.3	56.5	10.0	66.5
	2	56.4	66.5	46.9	65.0	63.7	62.4	61.4	58.3	49.0	47.5	47.3	47.1	56.4	10.0	66.4
	3	51.6	55.9	49.9	55.7	55.3	54.5	53.4	51.7	51.0	50.4	50.2	50.0	51.6	10.0	61.6
	4	47.3	55.9	37.4	55.5	55.0	53.7	52.3	48.3	43.0	38.0	37.8	37.5	47.3	10.0	57.3
	5	55.2	67.3	38.7	66.8	66.0	62.6	59.8	54.0	46.1	39.6	39.2	38.8	55.2	10.0	65.2
	6	58.8	64.6	55.6	64.4	64.1	63.2	62.5	59.1	57.1	56.1	56.0	55.8	58.8	10.0	68.8
Day	7	53.2	63.9	40.3	63.5	62.8	60.9	59.3	51.4	45.5	41.3	40.9	40.4	53.2	0.0	53.2
	8	53.2	63.0	43.8	62.7	62.0	59.8	57.8	52.7	49.3	45.2	44.5	44.0	53.2	0.0	53.2
	9	54.6	65.3	43.5	65.0	64.3	61.9	59.4	53.4	49.2	45.1	44.5	43.7	54.6	0.0	54.6
	10	58.3	65.4	50.0	65.1	64.6	63.1	61.8	58.9	57.1	52.0	51.3	50.2	58.3	0.0	58.3
	11	51.5	63.1	39.9	62.8	62.1	59.4	56.6	49.0	43.9	40.7	40.4	40.0	51.5	0.0	51.5
	12	58.9	67.1	48.9	66.7	66.2	64.2	62.5	59.1	57.3	53.7	51.4	49.1	58.9	0.0	58.9
	13	55.8	65.9	49.2	65.4	64.6	61.7	59.4	54.9	53.0	50.2	49.9	49.4	55.8	0.0	55.8
	14	53.4	64.0	43.1	63.7	63.0	60.8	58.8	52.1	47.8	44.2	43.8	43.3	53.4	0.0	53.4
	15	55.9	65.7	45.0	65.3	64.8	62.9	61.3	55.0	51.3	46.5	45.9	45.1	55.9	0.0	55.9
	16	57.3	68.5	44.4	68.1	67.6	66.2	63.6	53.5	48.5	45.3	44.8	44.4	57.3	0.0	57.3
	17	56.2	67.1	44.3	66.6	66.1	64.1	61.9	53.9	49.3	45.0	44.7	44.4	56.2	0.0	56.2
	18	60.5	75.8	44.9	74.3	72.0	67.8	63.8	55.0	49.2	45.6	45.3	45.0	60.5	0.0	60.5
	19	51.8	60.3	45.4	60.1	59.7	58.3	56.8	51.3	48.1	45.9	45.7	45.5	51.8	5.0	56.8
	20	54.2	64.7	44.1	64.2	63.8	61.8	59.4	52.8	48.0	44.6	44.4	44.2	54.2	5.0	59.2
	21	53.7	63.1	44.6	62.7	62.2	60.6	59.1	53.3	48.9	45.2	44.9	44.7	53.7	5.0	58.7
Night	22	56.0	66.3	51.6	65.8	65.2	62.2	59.3	54.3	53.0	52.1	51.9	51.7	56.0	10.0	66.0
	23	52.3	62.9	46.5	62.6	61.9	59.2	56.5	50.5	48.5	47.1	46.9	46.7	52.3	10.0	62.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.5	60.3	39.9	60.1	59.7	58.3	56.6	49.0	43.9	40.7	40.4	40.0
	Max	60.5	75.8	50.0	74.3	72.0	67.8	63.8	59.1	57.3	53.7	51.4	50.2
Energy Average		56.0	Average:		65.1	64.4	62.2	60.1	53.8	49.8	46.0	45.5	44.9
Night	Min	47.3	55.9	37.4	55.5	55.0	53.7	52.3	48.3	43.0	38.0	37.8	37.5
	Max	58.8	67.3	55.8	66.8	66.0	63.2	62.5	59.1	57.1	56.2	56.0	55.9
Energy Average		55.6	Average:		61.8	61.3	59.6	58.0	54.4	51.2	49.2	49.0	48.7

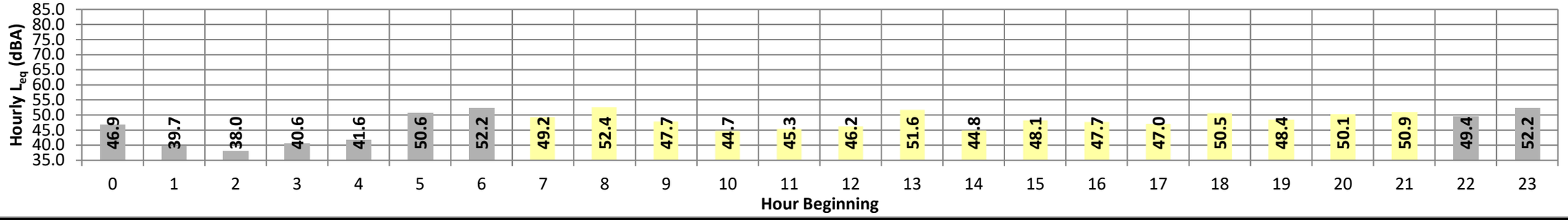
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
62.2	56.0	55.6

24-Hour Noise Level Measurement Summary

Date: Friday, September 30, 2022 *Location:* L2 - Located east of the Project Site just south of the existing *Meter:* Piccolo II *JN:* 14822

Project: Rich Haven SP *Source:* residence at 3271 S Quincy Way. *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	46.9	55.3	37.4	55.1	55.0	54.5	53.9	45.4	39.1	37.6	37.5	37.4	46.9	10.0	56.9
	1	39.7	47.7	37.0	47.2	46.7	44.5	42.4	39.3	38.2	37.3	37.2	37.1	39.7	10.0	49.7
	2	38.0	38.9	37.4	38.8	38.7	38.5	38.4	38.2	37.9	37.6	37.5	37.4	38.0	10.0	48.0
	3	40.6	45.9	39.0	45.7	45.4	44.3	43.1	40.1	39.6	39.2	39.1	39.1	40.6	10.0	50.6
	4	41.6	46.4	39.7	46.2	46.0	45.0	44.3	42.0	40.5	40.0	39.9	39.8	41.6	10.0	51.6
	5	50.6	58.4	37.9	58.0	57.7	57.0	56.1	51.4	46.1	38.3	38.1	38.0	50.6	10.0	60.6
	6	52.2	61.3	38.7	60.9	60.6	59.8	58.5	52.1	43.7	39.3	39.0	38.8	52.2	10.0	62.2
Day	7	49.2	57.4	45.2	57.1	56.7	54.5	52.5	48.8	47.4	45.8	45.6	45.4	49.2	0.0	49.2
	8	52.4	64.5	44.1	64.1	63.3	59.0	55.7	49.1	46.7	44.8	44.5	44.2	52.4	0.0	52.4
	9	47.7	55.2	43.0	54.5	53.8	52.2	51.2	48.0	46.1	44.0	43.6	43.2	47.7	0.0	47.7
	10	44.7	55.9	40.8	53.8	52.6	49.7	48.0	43.8	42.6	41.3	41.1	40.9	44.7	0.0	44.7
	11	45.3	54.0	39.9	53.5	52.8	51.1	49.7	45.0	42.5	40.6	40.3	40.0	45.3	0.0	45.3
	12	46.2	55.6	40.3	55.0	54.1	51.4	50.1	45.8	43.7	41.0	40.6	40.4	46.2	0.0	46.2
	13	51.6	62.0	41.9	61.7	59.9	57.4	56.8	51.3	47.0	43.1	42.6	42.1	51.6	0.0	51.6
	14	44.8	54.1	40.2	53.2	52.0	49.4	48.1	44.7	43.1	41.2	40.9	40.4	44.8	0.0	44.8
	15	48.1	58.1	41.1	57.2	56.4	53.9	52.4	48.2	44.4	41.9	41.6	41.2	48.1	0.0	48.1
	16	47.7	56.6	42.4	56.1	55.4	53.3	51.7	47.4	45.2	43.1	42.9	42.5	47.7	0.0	47.7
	17	47.0	56.1	41.6	55.4	54.8	53.0	51.4	46.4	44.3	42.1	41.9	41.6	47.0	0.0	47.0
	18	50.5	57.9	45.0	57.5	57.0	55.6	54.0	50.9	48.9	46.0	45.5	45.1	50.5	0.0	50.5
	19	48.4	56.8	43.4	56.0	55.3	54.0	52.4	48.3	46.3	43.9	43.7	43.5	48.4	5.0	53.4
	20	50.1	58.9	44.0	57.8	56.7	54.7	53.3	50.5	48.7	46.0	45.6	44.2	50.1	5.0	55.1
	21	50.9	59.4	43.3	58.7	58.2	56.7	55.4	51.5	48.3	44.0	43.8	43.4	50.9	5.0	55.9
Night	22	49.4	56.2	46.5	55.8	55.1	53.2	51.6	49.6	48.1	47.5	47.4	47.0	49.4	10.0	59.4
	23	52.2	56.1	50.9	55.9	55.5	54.8	54.4	52.3	51.4	51.2	51.1	51.0	52.2	10.0	62.2

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	44.7	54.0	39.9	53.2	52.0	49.4	48.0	43.8	42.5	40.6	40.3	40.0
	Max	52.4	64.5	45.2	64.1	63.3	59.0	56.8	51.5	48.9	46.0	45.6	45.4
Energy Average		48.9	Average:		56.8	55.9	53.7	52.2	48.0	45.7	43.3	42.9	42.5
Night	Min	38.0	38.9	37.0	38.8	38.7	38.5	38.4	38.2	37.9	37.3	37.2	37.1
	Max	52.2	61.3	50.9	60.9	60.6	59.8	58.5	52.3	51.4	51.2	51.1	51.0
Energy Average		48.4	Average:		51.5	51.2	50.2	49.2	45.6	42.7	40.9	40.8	40.6

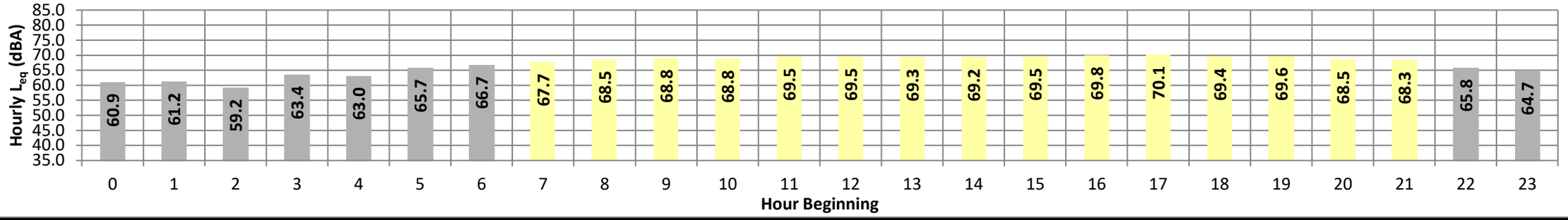
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
55.3	**48.9**	**48.4**

24-Hour Noise Level Measurement Summary

Date: Friday, September 30, 2022 *Location:* L3 - Located within the Rich Haven Specific Plan north of *Meter:* Piccolo II *JN:* 14822

Project: Rich Haven SP *Source:* Ontario Ranch Road. *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	60.9	72.3	39.2	71.8	71.1	68.7	66.6	58.7	51.5	41.0	39.9	39.3	60.9	10.0	70.9
	1	61.2	73.6	38.9	73.1	72.3	69.3	66.8	57.2	48.9	40.6	39.7	39.0	61.2	10.0	71.2
	2	59.2	70.1	39.3	69.8	69.4	67.7	65.6	55.8	47.7	40.5	40.0	39.4	59.2	10.0	69.2
	3	63.4	76.3	38.3	75.9	74.9	71.1	68.1	59.7	50.4	39.8	39.0	38.4	63.4	10.0	73.4
	4	63.0	73.7	41.6	73.4	72.9	70.9	69.1	61.4	53.6	43.7	42.9	41.8	63.0	10.0	73.0
	5	65.7	76.0	43.9	75.7	75.3	73.2	71.4	65.2	57.8	46.6	45.3	44.1	65.7	10.0	75.7
	6	66.7	76.3	47.4	76.0	75.5	73.5	72.0	67.3	60.3	50.5	48.8	47.5	66.7	10.0	76.7
Day	7	67.7	77.1	50.2	76.9	76.4	74.4	72.9	68.0	62.5	53.4	51.9	50.4	67.7	0.0	67.7
	8	68.5	77.2	52.1	77.0	76.6	75.0	74.0	69.3	64.2	55.3	53.9	52.4	68.5	0.0	68.5
	9	68.8	77.7	53.1	77.5	77.1	75.1	73.8	69.6	65.0	56.4	54.9	53.4	68.8	0.0	68.8
	10	68.8	76.9	52.9	76.6	76.3	74.6	73.4	70.1	65.7	56.7	55.0	53.3	68.8	0.0	68.8
	11	69.5	77.2	52.1	76.9	76.5	74.9	74.1	71.0	66.8	56.6	54.6	52.5	69.5	0.0	69.5
	12	69.5	76.8	55.8	76.6	76.2	74.8	74.0	70.8	67.2	59.1	57.4	56.0	69.5	0.0	69.5
	13	69.3	77.0	53.5	76.8	76.4	74.8	73.9	70.5	66.7	58.0	55.8	53.8	69.3	0.0	69.3
	14	69.2	76.9	56.1	76.6	76.2	74.9	73.7	70.4	66.7	59.8	58.1	56.4	69.2	0.0	69.2
	15	69.5	76.3	57.1	76.1	75.7	74.4	73.6	70.9	68.0	60.6	58.9	57.3	69.5	0.0	69.5
	16	69.8	78.0	56.7	77.7	77.0	74.9	73.7	70.9	67.8	60.8	58.7	57.0	69.8	0.0	69.8
	17	70.1	76.8	58.5	76.5	76.1	74.9	74.0	71.3	68.7	62.1	60.7	58.9	70.1	0.0	70.1
	18	69.4	76.7	57.6	76.3	75.9	74.4	73.4	70.6	67.8	60.8	59.4	58.0	69.4	0.0	69.4
	19	69.6	79.1	53.7	78.6	77.7	75.1	73.6	70.6	66.7	58.0	56.2	54.0	69.6	5.0	74.6
	20	68.5	77.5	52.5	77.2	76.7	74.7	73.3	69.4	64.8	55.5	54.2	52.7	68.5	5.0	73.5
	21	68.3	80.1	48.8	79.3	78.0	74.7	72.3	68.3	63.5	52.3	50.5	48.9	68.3	5.0	73.3
Night	22	65.8	75.3	47.7	74.9	74.4	72.5	71.3	66.3	60.0	50.5	49.1	48.0	65.8	10.0	75.8
	23	64.7	74.4	45.9	74.1	73.8	71.9	70.3	64.7	58.3	48.9	47.3	46.1	64.7	10.0	74.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	67.7	76.3	48.8	76.1	75.7	74.4	72.3	68.0	62.5	52.3	50.5	48.9
	Max	70.1	80.1	58.5	79.3	78.0	75.1	74.1	71.3	68.7	62.1	60.7	58.9
Energy Average		69.1	Average:		77.1	76.6	74.8	73.6	70.1	66.1	57.7	56.0	54.3
Night	Min	59.2	70.1	38.3	69.8	69.4	67.7	65.6	55.8	47.7	39.8	39.0	38.4
	Max	66.7	76.3	47.7	76.0	75.5	73.5	72.0	67.3	60.3	50.5	49.1	48.0
Energy Average		64.0	Average:		73.9	73.3	71.0	69.0	61.8	54.3	44.7	43.5	42.6

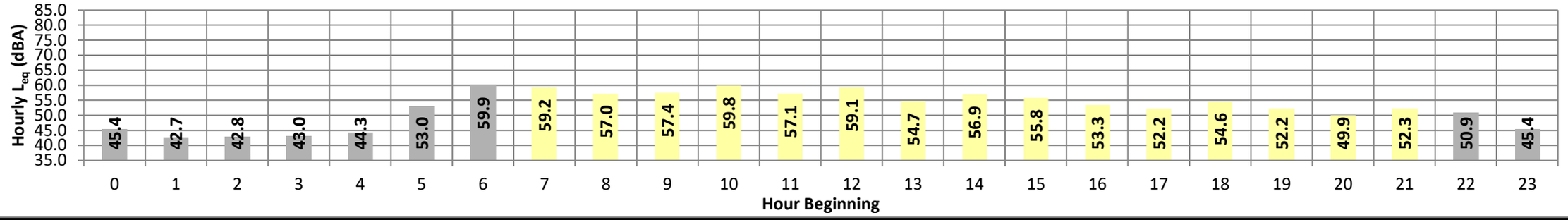
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
72.2	69.1	64.0

24-Hour Noise Level Measurement Summary

Date: Friday, September 30, 2022 *Location:* L4 - Located south of the Project Site near the existing *Meter:* Piccolo II *JN:* 14822

Project: Rich Haven SP *Source:* residence at 10823 Edison Avenue. *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	45.4	51.4	40.9	51.2	51.0	50.1	49.3	46.7	42.4	41.4	41.2	41.0	45.4	10.0	55.4
	1	42.7	45.3	41.2	45.0	44.8	44.2	43.8	43.0	42.5	41.6	41.5	41.3	42.7	10.0	52.7
	2	42.8	46.7	40.7	46.4	46.0	45.2	44.7	43.4	42.2	41.2	41.0	40.9	42.8	10.0	52.8
	3	43.0	46.3	41.1	46.0	45.7	45.1	44.8	43.5	42.6	41.6	41.4	41.2	43.0	10.0	53.0
	4	44.3	48.8	42.0	48.4	48.0	47.1	46.5	44.7	43.8	42.6	42.4	42.1	44.3	10.0	54.3
	5	53.0	62.6	45.3	62.2	61.6	59.4	57.5	53.3	49.4	45.9	45.6	45.4	53.0	10.0	63.0
	6	59.9	72.1	49.8	71.7	70.7	66.9	63.8	57.4	53.9	50.7	50.4	50.0	59.9	10.0	69.9
Day	7	59.2	71.2	49.9	70.7	70.0	66.8	63.4	56.0	52.7	50.6	50.3	50.0	59.2	0.0	59.2
	8	57.0	70.0	47.9	69.5	68.5	64.1	60.6	52.5	50.0	48.6	48.4	48.0	57.0	0.0	57.0
	9	57.4	70.7	46.2	70.1	69.1	65.4	61.4	51.4	48.7	46.9	46.7	46.4	57.4	0.0	57.4
	10	59.8	71.5	48.4	71.0	70.3	67.3	64.1	58.0	54.1	49.8	49.3	48.7	59.8	0.0	59.8
	11	57.1	70.7	43.9	69.7	68.4	64.9	61.7	51.9	48.2	45.1	44.6	44.1	57.1	0.0	57.1
	12	59.1	71.7	44.4	71.3	70.6	67.7	64.2	53.3	48.8	45.4	45.1	44.5	59.1	0.0	59.1
	13	54.7	66.1	43.3	65.9	65.2	62.5	59.9	52.0	47.4	44.3	43.9	43.5	54.7	0.0	54.7
	14	56.9	69.3	46.0	68.9	68.1	64.4	61.0	53.3	49.9	47.0	46.6	46.1	56.9	0.0	56.9
	15	55.8	67.6	44.4	67.3	66.7	63.4	60.3	52.6	48.6	45.3	44.9	44.5	55.8	0.0	55.8
	16	53.3	65.6	44.0	65.2	64.4	61.0	57.7	49.4	46.7	44.8	44.5	44.1	53.3	0.0	53.3
	17	52.2	62.9	44.9	62.3	61.3	59.3	57.6	50.4	47.6	45.6	45.3	45.0	52.2	0.0	52.2
	18	54.6	66.6	47.4	66.1	65.0	61.2	57.6	52.2	50.2	48.1	47.9	47.5	54.6	0.0	54.6
	19	52.2	62.0	47.6	61.6	60.7	57.8	55.6	51.5	49.7	48.2	47.9	47.7	52.2	5.0	57.2
	20	49.9	58.6	46.6	58.2	57.7	55.1	52.7	48.9	48.1	47.1	46.9	46.7	49.9	5.0	54.9
	21	52.3	62.4	45.8	62.0	61.2	58.4	56.3	51.6	48.6	46.4	46.2	45.9	52.3	5.0	57.3
Night	22	50.9	61.5	44.7	61.1	60.4	57.4	55.0	49.7	46.6	45.2	45.0	44.8	50.9	10.0	60.9
	23	45.4	52.4	42.7	52.2	51.7	49.9	48.3	45.0	44.0	43.1	43.0	42.8	45.4	10.0	55.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.9	58.6	43.3	58.2	57.7	55.1	52.7	48.9	46.7	44.3	43.9	43.5
	Max	59.8	71.7	49.9	71.3	70.6	67.7	64.2	58.0	54.1	50.6	50.3	50.0
Energy Average		56.3	Average:		66.7	65.8	62.6	59.6	52.3	49.3	46.9	46.6	46.2
Night	Min	42.7	45.3	40.7	45.0	44.8	44.2	43.8	43.0	42.2	41.2	41.0	40.9
	Max	59.9	72.1	49.8	71.7	70.7	66.9	63.8	57.4	53.9	50.7	50.4	50.0
Energy Average		52.1	Average:		53.8	53.3	51.7	50.4	47.4	45.3	43.7	43.5	43.3

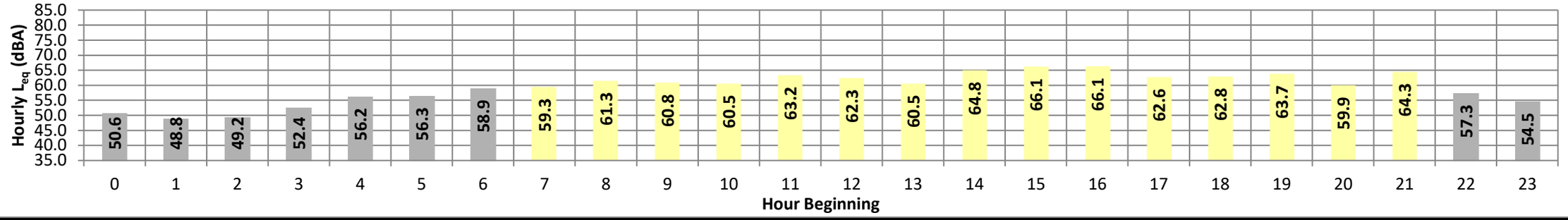
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
59.6	**56.3**	**52.1**

24-Hour Noise Level Measurement Summary

Date: Friday, September 30, 2022 *Location:* L5 - Located within the Rich Haven Specific Plan near the *Meter:* Piccolo II *JN:* 14822

Project: Rich Haven SP *Source:* existing residence at 3965 S Sunrise Avenue. *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	50.6	61.0	40.1	60.8	60.2	57.8	55.8	49.9	43.8	40.5	40.3	40.1	50.6	10.0	60.6
	1	48.8	58.7	39.7	58.4	57.9	55.7	54.2	47.6	43.1	40.4	40.1	39.8	48.8	10.0	58.8
	2	49.2	60.5	38.8	60.2	59.6	56.6	54.4	47.0	42.3	39.3	39.1	38.9	49.2	10.0	59.2
	3	52.4	63.1	39.9	62.8	62.3	60.0	57.8	51.0	45.5	40.9	40.4	40.0	52.4	10.0	62.4
	4	56.2	67.2	41.9	66.8	66.2	63.8	61.6	55.0	48.9	42.9	42.4	42.0	56.2	10.0	66.2
	5	56.3	66.5	41.4	66.1	65.6	63.4	61.9	55.6	50.3	43.5	42.3	41.6	56.3	10.0	66.3
	6	58.9	69.2	44.1	68.9	68.3	66.2	64.5	58.1	53.7	46.3	45.3	44.3	58.9	10.0	68.9
Day	7	59.3	70.3	45.9	70.0	69.1	66.2	64.2	58.3	54.2	48.1	47.2	46.1	59.3	0.0	59.3
	8	61.3	71.9	48.1	71.4	70.7	68.1	66.2	60.9	56.5	50.3	49.4	48.4	61.3	0.0	61.3
	9	60.8	70.4	49.2	70.0	69.2	66.7	65.2	61.0	57.6	51.6	50.6	49.5	60.8	0.0	60.8
	10	60.5	70.4	45.2	70.1	69.5	67.3	65.6	60.2	56.0	48.4	46.6	45.4	60.5	0.0	60.5
	11	63.2	73.5	51.8	73.1	72.5	69.8	67.8	62.4	59.4	53.7	52.9	52.1	63.2	0.0	63.2
	12	62.3	72.4	49.2	72.1	71.4	69.0	67.1	61.9	57.9	52.0	50.7	49.5	62.3	0.0	62.3
	13	60.5	70.6	48.8	70.3	69.7	67.5	65.3	59.7	56.5	50.7	49.9	49.1	60.5	0.0	60.5
	14	64.8	77.4	50.2	77.0	76.1	71.8	68.1	62.2	58.2	52.5	51.6	50.5	64.8	0.0	64.8
	15	66.1	75.4	54.3	74.9	74.2	71.6	70.3	66.4	63.4	57.8	55.6	54.6	66.1	0.0	66.1
	16	66.1	77.7	52.6	77.3	76.5	74.1	71.1	64.0	59.9	54.7	53.8	52.8	66.1	0.0	66.1
	17	62.6	72.2	52.8	71.8	70.9	68.4	66.7	62.7	59.7	54.9	53.7	53.0	62.6	0.0	62.6
	18	62.8	71.3	52.3	71.0	70.5	68.7	67.3	63.3	60.3	54.2	53.3	52.6	62.8	0.0	62.8
	19	63.7	75.9	51.9	75.4	74.6	71.1	68.0	61.1	57.9	53.4	52.8	52.1	63.7	5.0	68.7
	20	59.9	70.6	48.0	70.3	69.7	67.4	65.0	58.8	54.8	49.7	48.8	48.1	59.9	5.0	64.9
	21	64.3	76.7	55.6	76.0	75.3	70.2	67.4	62.0	59.9	56.6	56.1	55.7	64.3	5.0	69.3
Night	22	57.3	67.2	44.9	66.9	66.2	63.9	62.2	57.3	52.1	46.1	45.5	45.0	57.3	10.0	67.3
	23	54.5	65.4	41.6	65.1	64.5	61.9	59.6	53.5	48.1	42.4	42.0	41.7	54.5	10.0	64.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	59.3	70.3	45.2	70.0	69.1	66.2	64.2	58.3	54.2	48.1	46.6	45.4
	Max	66.1	77.7	55.6	77.3	76.5	74.1	71.1	66.4	63.4	57.8	56.1	55.7
Energy Average		63.1	Average:		72.7	72.0	69.2	67.0	61.7	58.2	52.6	51.5	50.6
Night	Min	48.8	58.7	38.8	58.4	57.9	55.7	54.2	47.0	42.3	39.3	39.1	38.9
	Max	58.9	69.2	44.9	68.9	68.3	66.2	64.5	58.1	53.7	46.3	45.5	45.0
Energy Average		55.1	Average:		64.0	63.4	61.0	59.1	52.8	47.5	42.5	41.9	41.5

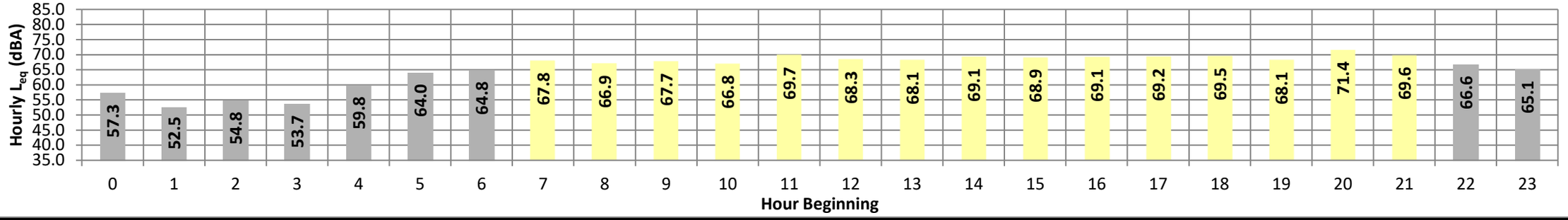
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
64.8	**63.1**	**55.1**

24-Hour Noise Level Measurement Summary

Date: Friday, September 30, 2022 *Location:* L6 - Located west of the Project Site near the existing residence *Meter:* Piccolo II *JN:* 14822

Project: Rich Haven SP *Source:* at 3860 S Oasis Paseo *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	57.3	69.1	39.5	68.6	67.9	65.2	62.9	54.3	47.1	40.4	39.9	39.5	57.3	10.0	67.3
	1	52.5	64.6	38.2	64.2	63.7	60.7	58.0	47.1	40.9	38.7	38.5	38.3	52.5	10.0	62.5
	2	54.8	67.4	37.2	66.8	66.3	63.3	60.3	48.7	41.6	37.8	37.5	37.3	54.8	10.0	64.8
	3	53.7	66.2	37.0	65.6	65.1	62.0	59.3	48.6	42.2	37.7	37.5	37.1	53.7	10.0	63.7
	4	59.8	71.4	39.0	71.0	70.5	67.8	65.8	57.0	49.0	40.8	40.0	39.2	59.8	10.0	69.8
	5	64.0	74.6	45.2	74.1	73.4	71.2	69.6	63.5	57.1	47.5	46.0	45.3	64.0	10.0	74.0
	6	64.8	74.2	48.6	73.8	73.3	71.3	70.2	65.5	59.1	50.5	49.6	48.7	64.8	10.0	74.8
Day	7	67.8	77.4	51.9	77.0	76.3	74.4	72.8	68.4	63.6	54.8	53.4	52.3	67.8	0.0	67.8
	8	66.9	75.9	50.9	75.4	74.9	73.3	71.9	67.9	62.7	53.6	52.1	51.1	66.9	0.0	66.9
	9	67.7	76.7	50.8	76.3	75.8	74.0	72.8	68.8	63.3	53.1	52.0	51.0	67.7	0.0	67.7
	10	66.8	75.8	50.3	75.3	74.8	73.0	71.8	68.0	62.7	52.8	51.5	50.5	66.8	0.0	66.8
	11	69.7	79.3	52.0	78.9	78.3	76.3	74.9	70.3	65.2	55.4	53.7	52.3	69.7	0.0	69.7
	12	68.3	76.6	52.2	76.1	75.5	74.0	73.0	69.8	65.1	55.6	53.8	52.6	68.3	0.0	68.3
	13	68.1	77.1	51.7	76.6	76.2	74.6	73.1	69.1	64.0	55.5	53.8	52.1	68.1	0.0	68.1
	14	69.1	78.1	53.3	77.6	77.1	75.1	73.6	70.0	65.9	56.7	54.8	53.5	69.1	0.0	69.1
	15	68.9	78.0	55.4	77.6	76.9	74.5	73.4	69.8	66.1	58.0	56.9	55.6	68.9	0.0	68.9
	16	69.1	77.8	54.9	77.4	77.1	75.1	73.6	70.0	66.0	58.0	56.3	55.1	69.1	0.0	69.1
	17	69.2	80.3	56.0	79.6	78.5	75.8	73.7	69.1	64.9	58.1	57.0	56.2	69.2	0.0	69.2
	18	69.5	81.2	55.4	80.5	79.2	76.3	74.0	68.6	64.5	57.6	56.6	55.6	69.5	0.0	69.5
	19	68.1	75.9	54.4	75.5	75.1	73.9	72.9	69.4	65.2	57.0	55.6	54.6	68.1	5.0	73.1
	20	71.4	83.4	53.0	83.0	82.2	79.2	75.4	69.5	64.1	55.6	54.3	53.2	71.4	5.0	76.4
	21	69.6	79.1	51.7	78.8	78.2	76.6	75.3	69.8	63.1	54.0	52.7	51.8	69.6	5.0	74.6
Night	22	66.6	76.6	48.1	76.1	75.6	73.7	72.4	66.6	60.6	51.1	49.6	48.4	66.6	10.0	76.6
	23	65.1	75.7	45.0	75.2	74.6	72.4	70.6	64.9	56.7	47.0	45.8	45.1	65.1	10.0	75.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	66.8	75.8	50.3	75.3	74.8	73.0	71.8	67.9	62.7	52.8	51.5	50.5
	Max	71.4	83.4	56.0	83.0	82.2	79.2	75.4	70.3	66.1	58.1	57.0	56.2
Energy Average		68.8	Average:		77.7	77.1	75.1	73.5	69.2	64.4	55.7	54.3	53.2
Night	Min	52.5	64.6	37.0	64.2	63.7	60.7	58.0	47.1	40.9	37.7	37.5	37.1
	Max	66.6	76.6	48.6	76.1	75.6	73.7	72.4	66.6	60.6	51.1	49.6	48.7
Energy Average		62.4	Average:		70.6	70.0	67.5	65.5	57.4	50.5	43.5	42.7	42.1

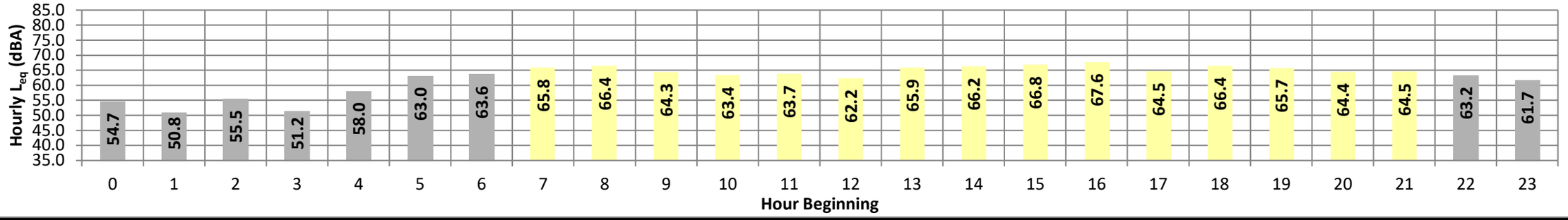
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
71.4	**68.8**	**62.4**

24-Hour Noise Level Measurement Summary

Date: Friday, September 30, 2022 *Location:* L7 - Located west of the Project Site near the existing residence *Meter:* Piccolo II *JN:* 14822

Project: Rich Haven SP *Source:* at 3393 Clover Place *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	54.7	66.4	38.8	66.1	65.4	62.3	60.3	52.1	43.6	39.4	39.1	38.9	54.7	10.0	64.7
	1	50.8	62.8	40.5	62.4	61.7	58.8	56.1	47.0	42.3	40.9	40.7	40.6	50.8	10.0	60.8
	2	55.5	68.6	40.8	68.2	67.3	64.1	60.0	48.6	42.6	41.2	41.1	40.9	55.5	10.0	65.5
	3	51.2	62.3	41.6	62.0	61.6	59.4	56.7	47.9	43.2	42.1	42.0	41.7	51.2	10.0	61.2
	4	58.0	69.0	41.6	68.7	68.1	66.2	64.2	55.8	48.4	42.6	42.1	41.8	58.0	10.0	68.0
	5	63.0	73.3	46.6	73.0	72.6	70.3	68.4	62.7	56.2	47.8	47.1	46.7	63.0	10.0	73.0
	6	63.6	71.3	52.8	71.0	70.6	69.3	68.3	65.0	60.6	54.2	53.6	52.9	63.6	10.0	73.6
Day	7	65.8	74.6	53.8	74.3	73.9	72.2	70.5	66.2	62.8	56.5	55.0	53.9	65.8	0.0	65.8
	8	66.4	78.9	53.0	78.0	76.6	71.6	69.6	65.5	61.8	55.5	54.4	53.3	66.4	0.0	66.4
	9	64.3	73.9	48.8	73.6	73.1	71.1	69.3	64.8	59.5	51.2	50.1	49.0	64.3	0.0	64.3
	10	63.4	72.1	48.5	71.9	71.3	69.3	67.9	64.4	59.9	50.9	49.6	48.7	63.4	0.0	63.4
	11	63.7	74.2	46.2	73.7	72.7	70.1	68.2	64.2	59.5	49.6	48.1	46.6	63.7	0.0	63.7
	12	62.2	70.2	45.2	70.0	69.5	67.9	66.7	63.7	59.5	48.8	46.9	45.5	62.2	0.0	62.2
	13	65.9	78.1	52.5	77.2	76.1	72.8	69.5	64.6	61.1	55.1	53.9	52.8	65.9	0.0	65.9
	14	66.2	76.5	53.8	76.0	75.2	72.8	70.9	65.8	62.4	56.4	55.3	54.1	66.2	0.0	66.2
	15	66.8	77.7	53.7	77.3	76.6	73.9	71.1	65.9	62.3	56.3	55.0	54.0	66.8	0.0	66.8
	16	67.6	79.7	53.2	79.4	78.2	74.1	71.2	66.0	63.0	56.7	55.1	53.6	67.6	0.0	67.6
	17	64.5	72.7	52.6	72.2	71.4	69.6	68.6	65.6	62.6	55.9	54.5	52.9	64.5	0.0	64.5
	18	66.4	77.5	53.3	76.9	76.1	72.5	70.5	65.7	62.5	56.1	54.9	53.6	66.4	0.0	66.4
	19	65.7	76.7	52.6	76.2	75.4	72.5	69.6	65.2	62.0	55.2	54.0	53.0	65.7	5.0	70.7
	20	64.4	75.2	47.5	74.8	74.2	71.3	68.7	64.1	59.9	50.8	49.4	47.8	64.4	5.0	69.4
	21	64.5	75.9	47.8	75.6	75.0	71.8	68.9	63.6	58.5	49.6	48.7	47.9	64.5	5.0	69.5
Night	22	63.2	75.4	45.9	74.7	73.5	70.2	68.2	62.2	56.2	47.2	46.5	46.0	63.2	10.0	73.2
	23	61.7	72.4	43.8	72.0	71.4	69.2	67.0	61.3	54.9	45.3	44.6	44.0	61.7	10.0	71.7

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	62.2	70.2	45.2	70.0	69.5	67.9	66.7	63.6	58.5	48.8	46.9	45.5
	Max	67.6	79.7	53.8	79.4	78.2	74.1	71.2	66.2	63.0	56.7	55.3	54.1
Energy Average		65.4	Average:		75.1	74.4	71.6	69.4	65.0	61.2	53.6	52.3	51.1
Night	Min	50.8	62.3	38.8	62.0	61.6	58.8	56.1	47.0	42.3	39.4	39.1	38.9
	Max	63.6	75.4	52.8	74.7	73.5	70.3	68.4	65.0	60.6	54.2	53.6	52.9
Energy Average		60.2	Average:		68.7	68.0	65.5	63.2	55.8	49.8	44.5	44.1	43.7

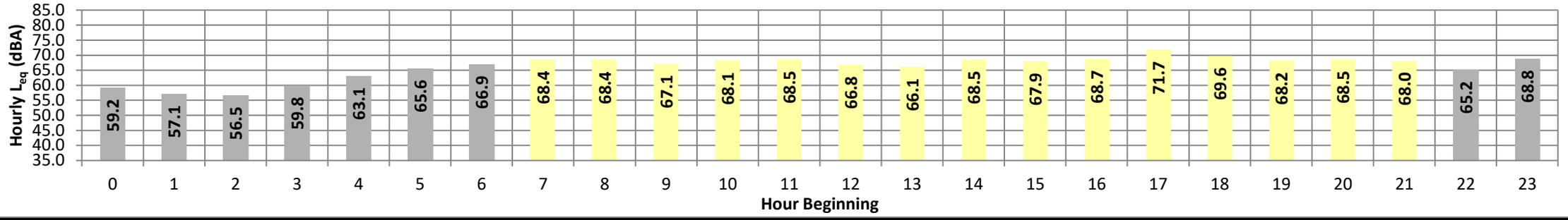
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
68.4	**65.4**	**60.2**

24-Hour Noise Level Measurement Summary

Date: Friday, September 30, 2022 *Location:* L8 - Located north of the Project Site near the existing *Meter:* Piccolo II *JN:* 14822

Project: Rich Haven SP *Source:* residence at 2943 S Alder Creek Drive. *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	59.2	70.5	47.0	70.2	69.5	66.8	64.4	57.4	51.8	48.0	47.6	47.1	59.2	10.0	69.2
	1	57.1	68.4	44.4	68.1	67.6	65.2	62.7	54.2	49.0	45.6	45.1	44.6	57.1	10.0	67.1
	2	56.5	68.3	42.5	68.0	67.5	64.8	62.0	52.1	47.9	43.5	43.0	42.6	56.5	10.0	66.5
	3	59.8	70.8	45.2	70.5	70.0	67.9	65.6	57.3	51.3	46.4	45.8	45.3	59.8	10.0	69.8
	4	63.1	73.5	50.6	73.3	72.8	70.2	68.4	62.0	57.0	51.7	51.1	50.7	63.1	10.0	73.1
	5	65.6	75.1	54.1	74.7	74.1	72.1	70.9	65.9	61.3	55.8	54.9	54.2	65.6	10.0	75.6
	6	66.9	75.7	56.3	75.4	74.8	72.9	71.6	67.4	63.8	57.8	57.0	56.5	66.9	10.0	76.9
Day	7	68.4	77.0	59.9	76.6	75.8	73.8	72.5	69.1	66.2	61.4	60.6	60.0	68.4	0.0	68.4
	8	68.4	76.4	60.3	76.0	75.4	73.7	72.5	69.2	66.0	61.7	61.1	60.5	68.4	0.0	68.4
	9	67.1	75.7	55.4	75.3	74.8	73.1	71.9	67.9	63.9	57.4	56.5	55.6	67.1	0.0	67.1
	10	68.1	77.5	56.0	77.1	76.5	74.2	72.8	68.6	64.1	58.1	57.2	56.2	68.1	0.0	68.1
	11	68.5	78.3	56.3	77.8	77.1	74.9	73.2	68.9	64.8	58.3	57.4	56.5	68.5	0.0	68.5
	12	66.8	76.2	55.9	75.9	75.2	73.5	71.8	66.8	62.8	57.4	56.6	56.1	66.8	0.0	66.8
	13	66.1	75.2	56.3	74.5	73.8	71.7	70.4	66.8	63.1	57.8	57.0	56.5	66.1	0.0	66.1
	14	68.5	77.7	57.7	77.3	76.8	74.5	73.2	68.6	65.2	59.6	58.8	57.9	68.5	0.0	68.5
	15	67.9	76.6	60.4	76.1	75.2	72.7	71.5	68.3	66.1	62.0	61.3	60.6	67.9	0.0	67.9
	16	68.7	78.8	58.5	78.3	77.5	75.0	73.1	68.4	65.3	60.2	59.4	58.7	68.7	0.0	68.7
	17	71.7	84.5	59.3	83.9	82.9	76.9	75.0	69.6	65.8	60.9	60.1	59.4	71.7	0.0	71.7
	18	69.6	81.1	58.5	80.7	79.8	76.4	73.4	68.4	65.2	60.0	59.4	58.7	69.6	0.0	69.6
	19	68.2	79.0	57.3	78.5	77.7	75.1	72.6	67.3	63.7	58.7	58.1	57.5	68.2	5.0	73.2
	20	68.5	82.1	55.2	80.6	79.2	75.4	71.9	66.4	62.1	56.9	56.1	55.4	68.5	5.0	73.5
	21	68.0	78.5	54.3	78.1	77.6	75.8	73.8	66.1	61.4	55.8	55.0	54.5	68.0	5.0	73.0
Night	22	65.2	75.0	53.5	74.7	74.1	71.7	70.1	65.2	60.7	55.2	54.4	53.7	65.2	10.0	75.2
	23	68.8	81.0	55.5	80.6	79.9	77.0	73.4	65.2	60.8	56.5	56.0	55.6	68.8	10.0	78.8

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	66.1	75.2	54.3	74.5	73.8	71.7	70.4	66.1	61.4	55.8	55.0	54.5
	Max	71.7	84.5	60.4	83.9	82.9	76.9	75.0	69.6	66.2	62.0	61.3	60.6
Energy Average		68.5	Average:		77.8	77.0	74.4	72.6	68.0	64.4	59.1	58.3	57.6
Night	Min	56.5	68.3	42.5	68.0	67.5	64.8	62.0	52.1	47.9	43.5	43.0	42.6
	Max	68.8	81.0	56.3	80.6	79.9	77.0	73.4	67.4	63.8	57.8	57.0	56.5
Energy Average		64.3	Average:		72.8	72.3	69.8	67.7	60.7	55.9	51.2	50.5	50.0

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
72.1	**68.5**	**64.3**

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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

Scenario: E
Road Name: Archibald Av.
Road Segment: n/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,909 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,733 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-0.95	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.48	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.89	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:	70.2	68.9	67.2	64.1	71.5	71.9
Medium Trucks:	65.3	64.7	57.0	58.4	66.1	66.3
Heavy Trucks:	75.9	74.6	70.1	71.0	78.0	78.2
Vehicle Noise:	77.2	76.0	72.0	72.0	79.1	79.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	243	523	1,127	2,429
CNEL:	251	542	1,167	2,514

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

Scenario: E+P
Road Name: Archibald Av.
Road Segment: n/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,968 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,133 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	89.06%
Medium Trucks:	82.2%	3.5%	14.3%	1.97%
Heavy Trucks:	70.8%	6.2%	23.0%	8.97%

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:	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:	71.78	0.08	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.48	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.89	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:	71.2	70.0	68.2	65.2	72.6	73.0
Medium Trucks:	65.3	64.7	57.0	58.4	66.1	66.3
Heavy Trucks:	75.9	74.6	70.1	71.0	78.0	78.2
Vehicle Noise:	77.5	76.2	72.4	72.2	79.3	79.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	250	539	1,162	2,504
CNEL:	259	559	1,204	2,595

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

Scenario: OY
Road Name: Archibald Av.
Road Segment: n/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,337 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,083 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-0.15	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-15.68	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.09	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:	71.0	69.7	68.0	64.9	72.3	72.7
Medium Trucks:	66.1	65.5	57.8	59.2	66.9	67.1
Heavy Trucks:	76.7	75.4	70.9	71.8	78.8	79.0
Vehicle Noise:	78.0	76.8	72.8	72.8	79.9	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	275	592	1,274	2,746
CNEL:	284	612	1,319	2,842

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

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: n/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,396 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,483 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	88.70%
Medium Trucks:	82.2%	3.5%	14.3%	2.03%
Heavy Trucks:	70.8%	6.2%	23.0%	9.27%

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:	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:	71.78	0.72	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-15.68	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.09	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:	71.9	70.6	68.8	65.8	73.2	73.6
Medium Trucks:	66.1	65.5	57.8	59.2	66.9	67.1
Heavy Trucks:	76.7	75.4	70.9	71.8	78.8	79.0
Vehicle Noise:	78.2	77.0	73.1	73.0	80.1	80.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	282	607	1,307	2,816
CNEL:	292	629	1,355	2,918

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Archibald Av. | Job Number: 14822
Road Segment: n/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,904 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,998 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	1.43	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.10	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.51	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:	72.6	71.3	69.6	66.5	73.9	74.3
Medium Trucks:	67.7	67.1	59.4	60.7	68.5	68.7
Heavy Trucks:	78.3	77.0	72.5	73.4	80.4	80.6
Vehicle Noise:	79.6	78.4	74.4	74.4	81.5	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	350	754	1,625	3,500
CNEL:	362	780	1,681	3,623

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Archibald Av. | Job Number: 14822
Road Segment: n/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,963 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,398 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	88.12%
Medium Trucks:	82.2%	3.5%	14.3%	2.14%
Heavy Trucks:	70.8%	6.2%	23.0%	9.75%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	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:	71.78	2.05	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.10	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.51	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:	73.2	71.9	70.2	67.1	74.5	75.0
Medium Trucks:	67.7	67.1	59.4	60.7	68.5	68.7
Heavy Trucks:	78.3	77.0	72.5	73.4	80.4	80.6
Vehicle Noise:	79.8	78.5	74.6	74.5	81.6	81.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	356	768	1,654	3,563
CNEL:	369	795	1,713	3,690

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: n/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,527 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,465 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-1.68	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-17.21	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.62	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:	69.5	68.2	66.4	63.4	70.8	71.2
Medium Trucks:	64.6	64.0	56.3	57.6	65.4	65.6
Heavy Trucks:	75.2	73.9	69.4	70.3	77.3	77.5
Vehicle Noise:	76.5	75.3	71.3	71.3	78.4	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	217	468	1,008	2,172
CNEL:	225	484	1,043	2,248

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: n/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,509 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,730 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	92.77%
Medium Trucks:	82.2%	3.5%	14.3%	1.30%
Heavy Trucks:	70.8%	6.2%	23.0%	5.93%

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:	71.78	1.33	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-17.21	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.62	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:	72.5	71.2	69.4	66.4	73.8	74.2
Medium Trucks:	64.6	64.0	56.3	57.6	65.4	65.6
Heavy Trucks:	75.2	73.9	69.4	70.3	77.3	77.5
Vehicle Noise:	77.3	76.1	72.5	71.9	79.1	79.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	242	521	1,122	2,418
CNEL:	251	541	1,166	2,513

Friday, October 14, 2022

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: n/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,968 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,133 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-0.05	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-15.58	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.99	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:	71.1	69.8	68.1	65.0	72.4	72.9
Medium Trucks:	66.2	65.6	57.9	59.3	67.0	67.2
Heavy Trucks:	76.8	75.5	71.0	71.9	78.9	79.1
Vehicle Noise:	78.1	76.9	72.9	72.9	80.0	80.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	279	601	1,295	2,789
CNEL:	289	622	1,340	2,887

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: n/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,951 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,397 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	91.54%
Medium Trucks:	82.2%	3.5%	14.3%	1.52%
Heavy Trucks:	70.8%	6.2%	23.0%	6.94%

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:	71.78	2.22	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-15.58	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.99	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:	73.4	72.1	70.3	67.3	74.7	75.1
Medium Trucks:	66.2	65.6	57.9	59.3	67.0	67.2
Heavy Trucks:	76.8	75.5	71.0	71.9	78.9	79.1
Vehicle Noise:	78.7	77.5	73.8	73.4	80.5	80.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	301	648	1,396	3,008
CNEL:	312	673	1,450	3,123

Friday, October 14, 2022

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: n/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,655 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,662 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	0.92	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.62	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.02	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:	72.1	70.8	69.0	66.0	73.4	73.8
Medium Trucks:	67.2	66.6	58.9	60.2	68.0	68.1
Heavy Trucks:	77.8	76.5	72.0	72.9	79.9	80.0
Vehicle Noise:	79.1	77.9	73.9	73.9	81.0	81.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	323	697	1,501	3,233
CNEL:	335	721	1,553	3,347

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: n/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,637 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,926 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	90.87%
Medium Trucks:	82.2%	3.5%	14.3%	1.64%
Heavy Trucks:	70.8%	6.2%	23.0%	7.49%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	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:	71.78	2.82	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.62	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.02	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:	74.0	72.7	70.9	67.9	75.3	75.7
Medium Trucks:	67.2	66.6	58.9	60.2	68.0	68.1
Heavy Trucks:	77.8	76.5	72.0	72.9	79.9	80.0
Vehicle Noise:	79.6	78.3	74.6	74.2	81.4	81.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	344	741	1,595	3,437
CNEL:	357	768	1,655	3,567

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: s/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,432 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	825 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.76	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-19.29	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-12.70	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	65.4	63.6	60.6	68.0	68.4
Medium Trucks:	62.0	61.3	53.6	55.0	62.8	62.9
Heavy Trucks:	72.9	71.7	67.1	68.0	75.0	75.2
Vehicle Noise:	74.1	72.9	68.9	68.9	76.0	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	126	271	584	1,259
CNEL:	130	281	605	1,303

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: s/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,244 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,234 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	95.03%
Medium Trucks:	82.2%	3.5%	14.3%	0.89%
Heavy Trucks:	70.8%	6.2%	23.0%	4.08%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.97	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-19.29	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-12.70	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	70.1	68.4	65.3	72.7	73.1
Medium Trucks:	62.0	61.3	53.6	55.0	62.8	62.9
Heavy Trucks:	72.9	71.7	67.1	68.0	75.0	75.2
Vehicle Noise:	75.4	74.2	70.9	70.0	77.2	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	151	325	700	1,509
CNEL:	157	339	729	1,571

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: s/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,983 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,660 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.72	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.26	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.66	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	68.4	66.7	63.6	71.0	71.4
Medium Trucks:	65.0	64.4	56.7	58.0	65.8	66.0
Heavy Trucks:	76.0	74.7	70.2	71.1	78.1	78.2
Vehicle Noise:	77.2	75.9	71.9	72.0	79.1	79.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	201	432	931	2,007
CNEL:	208	447	963	2,076

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: s/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,795 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,069 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	92.72%
Medium Trucks:	82.2%	3.5%	14.3%	1.31%
Heavy Trucks:	70.8%	6.2%	23.0%	5.97%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.25	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.26	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.66	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	71.4	69.6	66.6	74.0	74.4
Medium Trucks:	65.0	64.4	56.7	58.0	65.8	66.0
Heavy Trucks:	76.0	74.7	70.2	71.1	78.1	78.2
Vehicle Noise:	77.9	76.6	73.0	72.5	79.7	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	221	476	1,025	2,209
CNEL:	229	494	1,065	2,294

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: s/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,411 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,247 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.59	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.94	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.35	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.7	68.0	64.9	72.3	72.8
Medium Trucks:	66.3	65.7	58.0	59.4	67.1	67.3
Heavy Trucks:	77.3	76.0	71.5	72.4	79.4	79.6
Vehicle Noise:	78.5	77.3	73.2	73.3	80.4	80.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	246	529	1,140	2,456
CNEL:	254	547	1,179	2,540

Friday, October 14, 2022

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: s/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,224 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,656 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	91.72%
Medium Trucks:	82.2%	3.5%	14.3%	1.49%
Heavy Trucks:	70.8%	6.2%	23.0%	6.79%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.96	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.94	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.35	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	72.1	70.3	67.3	74.7	75.1
Medium Trucks:	66.3	65.7	58.0	59.4	67.1	67.3
Heavy Trucks:	77.3	76.0	71.5	72.4	79.4	79.6
Vehicle Noise:	79.0	77.8	74.1	73.7	80.8	81.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	264	569	1,225	2,640
CNEL:	274	590	1,271	2,739

Friday, October 14, 2022

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: n/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,491 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,067 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.64	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-18.17	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-11.58	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.5	64.7	61.7	69.1	69.5
Medium Trucks:	63.1	62.5	54.8	56.1	63.9	64.0
Heavy Trucks:	74.1	72.8	68.2	69.1	76.1	76.3
Vehicle Noise:	75.2	74.0	70.0	70.0	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	149	322	694	1,495
CNEL:	155	333	718	1,546

Friday, October 14, 2022

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Haven Av. | Job Number: 14822
Road Segment: n/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,050 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,168 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	95.46%
Medium Trucks:	82.2%	3.5%	14.3%	0.82%
Heavy Trucks:	70.8%	6.2%	23.0%	3.72%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.51	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-18.17	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-11.58	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.9	71.7	69.9	66.8	74.3	74.7
Medium Trucks:	63.1	62.5	54.8	56.1	63.9	64.0
Heavy Trucks:	74.1	72.8	68.2	69.1	76.1	76.3
Vehicle Noise:	76.7	75.5	72.2	71.3	78.5	78.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	183	395	851	1,834
CNEL:	191	412	887	1,912

Friday, October 14, 2022

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

Scenario: OY
Road Name: Haven Av.
Road Segment: n/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,453 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,460 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.28	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.81	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-10.22	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.9	66.1	63.1	70.5	70.9
Medium Trucks:	64.4	63.8	56.1	57.5	65.3	65.4
Heavy Trucks:	75.4	74.1	69.6	70.5	77.5	77.7
Vehicle Noise:	76.6	75.4	71.3	71.4	78.5	78.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	184	397	855	1,842
CNEL:	191	410	884	1,905

Friday, October 14, 2022

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

Scenario: OY+P
Road Name: Haven Av.
Road Segment: n/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,012 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,560 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	94.48%
Medium Trucks:	82.2%	3.5%	14.3%	0.99%
Heavy Trucks:	70.8%	6.2%	23.0%	4.53%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.97	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.81	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-10.22	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	72.1	70.4	67.3	74.7	75.1
Medium Trucks:	64.4	63.8	56.1	57.5	65.3	65.4
Heavy Trucks:	75.4	74.1	69.6	70.5	77.5	77.7
Vehicle Noise:	77.7	76.5	73.1	72.3	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	215	463	999	2,151
CNEL:	224	482	1,039	2,239

Friday, October 14, 2022

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

Scenario: HY
Road Name: Haven Av.
Road Segment: n/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,005 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,899 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.14	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.67	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.08	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	69.0	67.2	64.2	71.6	72.0
Medium Trucks:	65.6	65.0	57.3	58.6	66.4	66.5
Heavy Trucks:	76.6	75.3	70.8	71.6	78.6	78.8
Vehicle Noise:	77.8	76.5	72.5	72.5	79.6	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	219	473	1,019	2,195
CNEL:	227	489	1,054	2,270

Friday, October 14, 2022

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

Scenario: HY+P
Road Name: Haven Av.
Road Segment: n/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,564 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,000 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	62 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	93.61%
Medium Trucks:	82.2%	3.5%	14.3%	1.15%
Heavy Trucks:	70.8%	6.2%	23.0%	5.24%

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:	39.547
Medium Trucks:	39.323
Heavy Trucks:	39.345

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.44	1.42	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.67	1.46	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.08	1.46	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.9	72.6	70.8	67.8	75.2	75.6
Medium Trucks:	65.6	65.0	57.3	58.6	66.4	66.5
Heavy Trucks:	76.6	75.3	70.8	71.6	78.6	78.8
Vehicle Noise:	78.6	77.4	73.9	73.3	80.4	80.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	248	534	1,151	2,481
CNEL:	258	556	1,197	2,579

Friday, October 14, 2022

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

Scenario: E
Road Name: Mill Creek Av.
Road Segment: s/o Chino Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,866 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	227 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.91	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-24.44	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.85	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.6	58.3	56.6	53.5	61.0	61.4
Medium Trucks:	55.1	54.5	46.8	48.1	55.9	56.1
Heavy Trucks:	66.5	65.2	60.7	61.6	68.6	68.8
Vehicle Noise:	67.6	66.3	62.2	62.4	69.5	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	87	188	406
CNEL:	42	90	195	420

Friday, October 14, 2022

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

Scenario: E+P
Road Name: Mill Creek Av.
Road Segment: s/o Chino Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,207 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	728 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	95.81%
Medium Trucks:	82.2%	3.5%	14.3%	0.75%
Heavy Trucks:	70.8%	6.2%	23.0%	3.44%

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:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.40	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-24.44	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.85	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	63.9	62.1	59.0	66.5	66.9
Medium Trucks:	55.1	54.5	46.8	48.1	55.9	56.1
Heavy Trucks:	66.5	65.2	60.7	61.6	68.6	68.8
Vehicle Noise:	69.1	67.8	64.5	63.6	70.8	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	107	231	498
CNEL:	52	112	241	519

Friday, October 14, 2022

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

Scenario: OY
Road Name: Mill Creek Av.
Road Segment: s/o Chino Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,164 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.48	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-24.01	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.42	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.1	58.8	57.0	54.0	61.4	61.8
Medium Trucks:	55.5	54.9	47.2	48.6	56.4	56.5
Heavy Trucks:	66.9	65.7	61.1	62.0	69.0	69.2
Vehicle Noise:	68.0	66.8	62.7	62.8	69.9	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	43	93	201	434
CNEL:	45	97	208	448

Friday, October 14, 2022

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

Scenario: OY+P
Road Name: Mill Creek Av.
Road Segment: s/o Chino Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,505 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	752 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	95.52%
Medium Trucks:	82.2%	3.5%	14.3%	0.81%
Heavy Trucks:	70.8%	6.2%	23.0%	3.68%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.28	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-24.01	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.42	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	64.0	62.2	59.2	66.6	67.0
Medium Trucks:	55.5	54.9	47.2	48.6	56.4	56.5
Heavy Trucks:	66.9	65.7	61.1	62.0	69.0	69.2
Vehicle Noise:	69.4	68.1	64.8	64.0	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	113	243	523
CNEL:	55	117	253	545

Friday, October 14, 2022

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

Scenario: HY
Road Name: Mill Creek Av.
Road Segment: s/o Chino Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,391 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	585 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.80	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-20.33	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-13.74	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.7	62.5	60.7	57.6	65.1	65.5
Medium Trucks:	59.2	58.6	50.9	52.3	60.0	60.2
Heavy Trucks:	70.6	69.4	64.8	65.7	72.7	72.9
Vehicle Noise:	71.7	70.5	66.4	66.5	73.6	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	165	354	764
CNEL:	79	170	366	789

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

Scenario: HY+P
Road Name: Mill Creek Av.
Road Segment: s/o Chino Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,732 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,086 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	92.75%
Medium Trucks:	82.2%	3.5%	14.3%	1.30%
Heavy Trucks:	70.8%	6.2%	23.0%	5.95%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.81	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-20.33	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-13.74	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	65.5	63.7	60.6	68.1	68.5
Medium Trucks:	59.2	58.6	50.9	52.3	60.0	60.2
Heavy Trucks:	70.6	69.4	64.8	65.7	72.7	72.9
Vehicle Noise:	72.3	71.1	67.4	67.0	74.2	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	83	179	387	833
CNEL:	86	186	401	864

Friday, October 14, 2022

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

Scenario: E
Road Name: Milliken Av.
Road Segment: n/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,818 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,568 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-1.38	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.92	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.32	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:	69.8	68.5	66.7	63.7	71.1	71.5
Medium Trucks:	64.9	64.3	56.6	57.9	65.7	65.8
Heavy Trucks:	75.5	74.2	69.7	70.6	77.6	77.7
Vehicle Noise:	76.8	75.6	71.6	71.6	78.7	78.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	227	489	1,054	2,271
CNEL:	235	507	1,091	2,351

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

Scenario: E+P
Road Name: Milliken Av.
Road Segment: n/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,876 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,680 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	91.28%
Medium Trucks:	82.2%	3.5%	14.3%	1.55%
Heavy Trucks:	70.8%	6.2%	23.0%	7.17%

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:	71.78	1.18	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.52	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.87	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:	72.3	71.1	69.3	66.2	73.7	74.1
Medium Trucks:	65.3	64.7	57.0	58.3	66.1	66.2
Heavy Trucks:	75.9	74.7	70.1	71.0	78.0	78.2
Vehicle Noise:	77.8	76.5	72.9	72.4	79.6	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	261	562	1,211	2,608
CNEL:	271	583	1,257	2,707

Friday, October 14, 2022

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

Scenario: OY
Road Name: Milliken Av.
Road Segment: n/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,416 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,773 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-0.85	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.38	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.79	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:	70.3	69.0	67.3	64.2	71.6	72.0
Medium Trucks:	65.4	64.8	57.1	58.5	66.2	66.4
Heavy Trucks:	76.0	74.7	70.2	71.1	78.1	78.3
Vehicle Noise:	77.3	76.1	72.1	72.1	79.2	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	247	531	1,145	2,466
CNEL:	255	550	1,185	2,552

Friday, October 14, 2022

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

Scenario: OY+P
Road Name: Milliken Av.
Road Segment: n/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,475 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,885 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	90.94%
Medium Trucks:	82.2%	3.5%	14.3%	1.61%
Heavy Trucks:	70.8%	6.2%	23.0%	7.45%

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:	71.78	1.48	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.03	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.39	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:	72.6	71.4	69.6	66.6	74.0	74.4
Medium Trucks:	65.8	65.2	57.5	58.8	66.6	66.7
Heavy Trucks:	76.4	75.1	70.6	71.5	78.5	78.7
Vehicle Noise:	78.2	77.0	73.3	72.9	80.0	80.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	279	601	1,295	2,790
CNEL:	290	624	1,344	2,896

Friday, October 14, 2022

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

Scenario: HY
Road Name: Milliken Av.
Road Segment: n/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	53,343 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,219 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	2.92	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-12.62	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.02	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:	74.1	72.8	71.0	68.0	75.4	75.8
Medium Trucks:	69.2	68.6	60.9	62.2	70.0	70.1
Heavy Trucks:	79.8	78.5	74.0	74.9	81.9	82.0
Vehicle Noise:	81.1	79.9	75.9	75.9	83.0	83.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	440	947	2,040	4,395
CNEL:	455	980	2,112	4,549

Friday, October 14, 2022

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

Scenario: HY+P
Road Name: Milliken Av.
Road Segment: n/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	67,401 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	5,331 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	88.92%
Medium Trucks:	82.2%	3.5%	14.3%	1.98%
Heavy Trucks:	70.8%	6.2%	23.0%	9.10%

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:	71.78	4.05	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-12.47	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-5.85	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:	75.2	73.9	72.2	69.1	76.5	76.9
Medium Trucks:	69.3	68.7	61.0	62.4	70.2	70.3
Heavy Trucks:	80.0	78.7	74.1	75.0	82.0	82.2
Vehicle Noise:	81.5	80.3	76.4	76.2	83.3	83.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	464	1,000	2,155	4,643
CNEL:	481	1,037	2,233	4,811

Friday, October 14, 2022

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

Scenario: E
Road Name: Milliken Av.
Road Segment: s/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,436	vehicles
Peak Hour Percentage:	7.91%	
Peak Hour Volume:	1,458	vehicles
Vehicle Speed:	55	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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-1.70	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-17.23	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-10.64	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	68.2	66.4	63.4	70.8	71.2
Medium Trucks:	64.6	64.0	56.3	57.6	65.4	65.5
Heavy Trucks:	75.2	73.9	69.4	70.3	77.2	77.4
Vehicle Noise:	76.5	75.3	71.3	71.3	78.4	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	216	466	1,005	2,165
CNEL:	224	483	1,040	2,240

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

Scenario: E+P
Road Name: Milliken Av.
Road Segment: s/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,604	vehicles
Peak Hour Percentage:	7.91%	
Peak Hour Volume:	2,263	vehicles
Vehicle Speed:	55	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:	70.7%	11.8%	17.5%	90.32%
Medium Trucks:	82.2%	3.5%	14.3%	1.72%
Heavy Trucks:	70.8%	6.2%	23.0%	7.96%

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:	71.78	0.39	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-16.81	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-10.15	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:	71.6	70.3	68.5	65.5	72.9	73.3
Medium Trucks:	65.0	64.4	56.7	58.0	65.8	66.0
Heavy Trucks:	75.7	74.4	69.8	70.7	77.7	77.9
Vehicle Noise:	77.3	76.1	72.4	72.0	79.2	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	245	528	1,138	2,451
CNEL:	254	548	1,180	2,542

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

Scenario: OY
Road Name: Milliken Av.
Road Segment: s/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,431	vehicles
Peak Hour Percentage:	7.91%	
Peak Hour Volume:	1,695	vehicles
Vehicle Speed:	55	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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-1.04	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-16.58	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.98	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:	70.1	68.8	67.1	64.0	71.4	71.9
Medium Trucks:	65.2	64.6	56.9	58.3	66.0	66.2
Heavy Trucks:	75.8	74.5	70.0	70.9	77.9	78.1
Vehicle Noise:	77.1	75.9	71.9	71.9	79.0	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	239	516	1,111	2,393
CNEL:	248	534	1,150	2,477

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

Scenario: OY+P
Road Name: Milliken Av.
Road Segment: s/o Riverside Dr.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,599	vehicles
Peak Hour Percentage:	7.91%	
Peak Hour Volume:	2,499	vehicles
Vehicle Speed:	55	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:	70.7%	11.8%	17.5%	89.96%
Medium Trucks:	82.2%	3.5%	14.3%	1.79%
Heavy Trucks:	70.8%	6.2%	23.0%	8.25%

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:	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:	71.78	0.81	0.58	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-16.21	0.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.56	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:	72.0	70.7	68.9	65.9	73.3	73.7
Medium Trucks:	65.6	65.0	57.3	58.6	66.4	66.6
Heavy Trucks:	76.2	75.0	70.4	71.3	78.3	78.5
Vehicle Noise:	77.9	76.7	72.9	72.6	79.7	80.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	267	575	1,238	2,667
CNEL:	277	596	1,284	2,765

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Milliken Av. | Job Number: 14822
Road Segment: s/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,531 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,285 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	1.83	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.71	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.11	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:	73.0	71.7	69.9	66.9	74.3	74.7
Medium Trucks:	68.1	67.5	59.8	61.1	68.9	69.1
Heavy Trucks:	78.7	77.4	72.9	73.8	80.8	81.0
Vehicle Noise:	80.0	78.8	74.8	74.8	81.9	82.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	372	801	1,727	3,720
CNEL:	385	829	1,787	3,850

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Milliken Av. | Job Number: 14822
Road Segment: s/o Riverside Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,699 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,089 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	88.63%
Medium Trucks:	82.2%	3.5%	14.3%	2.03%
Heavy Trucks:	70.8%	6.2%	23.0%	9.34%

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:	71.78	2.88	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.51	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.89	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:	74.0	72.8	71.0	68.0	75.4	75.8
Medium Trucks:	68.3	67.7	60.0	61.3	69.1	69.3
Heavy Trucks:	78.9	77.6	73.1	74.0	81.0	81.2
Vehicle Noise:	80.4	79.2	75.3	75.1	82.3	82.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	394	849	1,830	3,942
CNEL:	408	880	1,896	4,084

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,514 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,464 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-1.68	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-17.21	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.62	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:	69.5	68.2	66.4	63.4	70.8	71.2
Medium Trucks:	64.6	64.0	56.3	57.6	65.4	65.6
Heavy Trucks:	75.2	73.9	69.4	70.3	77.3	77.5
Vehicle Noise:	76.5	75.3	71.3	71.3	78.4	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	217	468	1,008	2,171
CNEL:	225	484	1,043	2,247

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,300 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,239 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	90.18%
Medium Trucks:	82.2%	3.5%	14.3%	1.74%
Heavy Trucks:	70.8%	6.2%	23.0%	8.08%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	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:	71.78	0.34	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.79	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.14	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:	71.5	70.2	68.5	65.4	72.8	73.2
Medium Trucks:	65.0	64.4	56.7	58.1	65.8	66.0
Heavy Trucks:	75.7	74.4	69.9	70.8	77.7	77.9
Vehicle Noise:	77.3	76.1	72.3	72.0	79.2	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	245	528	1,138	2,451
CNEL:	254	548	1,180	2,542

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,979 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,659 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-1.14	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.67	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.08	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:	70.0	68.7	67.0	63.9	71.4	71.8
Medium Trucks:	65.1	64.5	56.8	58.2	66.0	66.1
Heavy Trucks:	75.7	74.5	69.9	70.8	77.8	78.0
Vehicle Noise:	77.1	75.8	71.8	71.8	78.9	79.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	236	508	1,095	2,359
CNEL:	244	526	1,133	2,442

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,765 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,434 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	89.89%
Medium Trucks:	82.2%	3.5%	14.3%	1.80%
Heavy Trucks:	70.8%	6.2%	23.0%	8.31%

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:	71.78	0.69	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-16.30	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.65	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:	71.9	70.6	68.8	65.8	73.2	73.6
Medium Trucks:	65.5	64.9	57.2	58.6	66.3	66.5
Heavy Trucks:	76.2	74.9	70.3	71.2	78.2	78.4
Vehicle Noise:	77.8	76.6	72.8	72.5	79.6	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	263	566	1,220	2,629
CNEL:	273	587	1,265	2,726

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,863 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,390 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	1.97	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.57	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.97	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:	73.1	71.9	70.1	67.0	74.5	74.9
Medium Trucks:	68.2	67.6	59.9	61.3	69.1	69.2
Heavy Trucks:	78.8	77.6	73.0	73.9	80.9	81.1
Vehicle Noise:	80.2	78.9	74.9	74.9	82.0	82.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	380	818	1,763	3,799
CNEL:	393	847	1,825	3,932

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	52,650 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,165 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	88.49%
Medium Trucks:	82.2%	3.5%	14.3%	2.06%
Heavy Trucks:	70.8%	6.2%	23.0%	9.45%

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:	71.78	2.96	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-13.38	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.76	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:	74.1	72.8	71.1	68.0	75.4	75.9
Medium Trucks:	68.4	67.8	60.1	61.5	69.2	69.4
Heavy Trucks:	79.0	77.8	73.2	74.1	81.1	81.3
Vehicle Noise:	80.5	79.3	75.4	75.3	82.4	82.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	401	865	1,863	4,015
CNEL:	416	896	1,931	4,159

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,376 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,086 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	-0.14	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-15.68	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.08	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:	71.0	69.7	68.0	64.9	72.3	72.8
Medium Trucks:	66.1	65.5	57.8	59.2	66.9	67.1
Heavy Trucks:	76.7	75.5	70.9	71.8	78.8	79.0
Vehicle Noise:	78.0	76.8	72.8	72.8	79.9	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	275	592	1,276	2,748
CNEL:	284	613	1,320	2,845

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,332 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,716 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	89.65%
Medium Trucks:	82.2%	3.5%	14.3%	1.86%
Heavy Trucks:	70.8%	6.2%	23.0%	8.49%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	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:	71.78	1.16	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-15.68	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.08	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:	72.3	71.0	69.3	66.2	73.6	74.1
Medium Trucks:	66.1	65.5	57.8	59.2	66.9	67.1
Heavy Trucks:	76.7	75.5	70.9	71.8	78.8	79.0
Vehicle Noise:	78.3	77.1	73.3	73.0	80.2	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	286	616	1,327	2,859
CNEL:	296	639	1,376	2,964

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,827 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,359 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	0.39	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-15.14	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.55	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:	71.6	70.3	68.5	65.5	72.9	73.3
Medium Trucks:	66.7	66.0	58.3	59.7	67.5	67.6
Heavy Trucks:	77.3	76.0	71.4	72.3	79.3	79.5
Vehicle Noise:	78.6	77.4	73.4	73.3	80.4	80.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	298	643	1,385	2,983
CNEL:	309	665	1,433	3,088

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Hamner Av. | Job Number: 14822
Road Segment: s/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,783 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,989 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	89.37%
Medium Trucks:	82.2%	3.5%	14.3%	1.91%
Heavy Trucks:	70.8%	6.2%	23.0%	8.72%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	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:	71.78	1.56	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-15.14	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.55	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:	72.7	71.4	69.7	66.6	74.0	74.5
Medium Trucks:	66.7	66.0	58.3	59.7	67.5	67.6
Heavy Trucks:	77.3	76.0	71.4	72.3	79.3	79.5
Vehicle Noise:	78.8	77.6	73.8	73.6	80.7	80.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	309	666	1,434	3,090
CNEL:	320	690	1,486	3,203

Friday, October 14, 2022

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

Scenario: HY
Road Name: Hamner Av.
Road Segment: s/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,170 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,466 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	71.78	0.58	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.95	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.36	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:	71.7	70.5	68.7	65.7	73.1	73.5
Medium Trucks:	66.9	66.2	58.5	59.9	67.7	67.8
Heavy Trucks:	77.4	76.2	71.6	72.5	79.5	79.7
Vehicle Noise:	78.8	77.5	73.6	73.5	80.6	80.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	307	662	1,426	3,072
CNEL:	318	685	1,476	3,180

Friday, October 14, 2022

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

Scenario: HY+P
Road Name: Hamner Av.
Road Segment: s/o Ontario Ranch Rd.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,126 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,095 vehicles
Vehicle Speed:	55 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:	70.7%	11.8%	17.5%	89.27%
Medium Trucks:	82.2%	3.5%	14.3%	1.93%
Heavy Trucks:	70.8%	6.2%	23.0%	8.80%

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:	71.78	1.70	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	82.40	-14.95	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.36	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:	72.9	71.6	69.8	66.8	74.2	74.6
Medium Trucks:	66.9	66.2	58.5	59.9	67.7	67.8
Heavy Trucks:	77.4	76.2	71.6	72.5	79.5	79.7
Vehicle Noise:	79.0	77.8	74.0	73.7	80.9	81.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	318	684	1,475	3,177
CNEL:	329	709	1,528	3,293

Friday, October 14, 2022

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

Scenario: E
Road Name: Riverside Dr.
Road Segment: w/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,880 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,256 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	70.20	-1.93	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-17.47	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.87	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:	67.7	66.4	64.6	61.6	69.0	69.4
Medium Trucks:	62.9	62.3	54.6	56.0	63.8	63.9
Heavy Trucks:	73.9	72.6	68.1	69.0	76.0	76.2
Vehicle Noise:	75.1	73.9	69.8	69.9	77.0	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	176	378	815	1,756
CNEL:	182	391	843	1,816

Friday, October 14, 2022

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

Scenario: E+P
Road Name: Riverside Dr.
Road Segment: w/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,898 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,416 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	88.05%
Medium Trucks:	82.2%	3.5%	14.3%	2.15%
Heavy Trucks:	70.8%	6.2%	23.0%	9.80%

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:	70.20	-1.34	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-17.47	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.87	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	67.0	65.2	62.2	69.6	70.0
Medium Trucks:	62.9	62.3	54.6	56.0	63.8	63.9
Heavy Trucks:	73.9	72.6	68.1	69.0	76.0	76.2
Vehicle Noise:	75.2	74.0	70.0	70.0	77.1	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	178	384	827	1,783
CNEL:	185	398	857	1,845

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Haven Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,998 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,503 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	70.20	-1.15	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.69	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.09	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	67.2	65.4	62.3	69.8	70.2
Medium Trucks:	63.7	63.1	55.4	56.8	64.5	64.7
Heavy Trucks:	74.7	73.4	68.9	69.8	76.8	77.0
Vehicle Noise:	75.9	74.7	70.6	70.7	77.8	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	198	426	918	1,978
CNEL:	205	441	950	2,047

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Haven Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,016 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,662 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	87.83%
Medium Trucks:	82.2%	3.5%	14.3%	2.19%
Heavy Trucks:	70.8%	6.2%	23.0%	9.99%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	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:	70.20	-0.65	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-16.69	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.09	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:	68.9	67.7	65.9	62.8	70.3	70.7
Medium Trucks:	63.7	63.1	55.4	56.8	64.5	64.7
Heavy Trucks:	74.7	73.4	68.9	69.8	76.8	77.0
Vehicle Noise:	76.0	74.8	70.8	70.8	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	200	432	930	2,004
CNEL:	207	447	963	2,074

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Haven Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,988 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,609 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	70.20	1.24	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.29	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.70	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:	70.8	69.6	67.8	64.7	72.2	72.6
Medium Trucks:	66.1	65.5	57.8	59.2	66.9	67.1
Heavy Trucks:	77.1	75.8	71.3	72.2	79.2	79.4
Vehicle Noise:	78.3	77.1	73.0	73.1	80.2	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	286	616	1,327	2,858
CNEL:	296	637	1,372	2,957

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Haven Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,006 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,769 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	87.31%
Medium Trucks:	82.2%	3.5%	14.3%	2.28%
Heavy Trucks:	70.8%	6.2%	23.0%	10.41%

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:	70.20	1.54	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.29	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.70	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:	71.1	69.8	68.1	65.0	72.5	72.9
Medium Trucks:	66.1	65.5	57.8	59.2	66.9	67.1
Heavy Trucks:	77.1	75.8	71.3	72.2	79.2	79.4
Vehicle Noise:	78.3	77.1	73.1	73.1	80.2	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	288	620	1,337	2,879
CNEL:	298	642	1,383	2,980

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Milliken Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,308 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	736 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	70.20	-4.25	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-19.79	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.19	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:	65.3	64.1	62.3	59.2	66.7	67.1
Medium Trucks:	60.6	60.0	52.3	53.7	61.4	61.6
Heavy Trucks:	71.6	70.3	65.8	66.7	73.7	73.9
Vehicle Noise:	72.8	71.6	67.5	67.6	74.7	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	123	265	571	1,230
CNEL:	127	274	590	1,272

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Milliken Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,275 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,287 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	92.30%
Medium Trucks:	82.2%	3.5%	14.3%	1.38%
Heavy Trucks:	70.8%	6.2%	23.0%	6.32%

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:	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:	70.20	-1.55	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-19.79	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.19	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	66.8	65.0	61.9	69.4	69.8
Medium Trucks:	60.6	60.0	52.3	53.7	61.4	61.6
Heavy Trucks:	71.6	70.3	65.8	66.7	73.7	73.9
Vehicle Noise:	73.4	72.2	68.5	68.1	75.2	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	289	622	1,339
CNEL:	139	300	645	1,390

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Milliken Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,501 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,068 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	70.20	-2.64	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-18.17	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.58	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:	66.9	65.7	63.9	60.9	68.3	68.7
Medium Trucks:	62.2	61.6	53.9	55.3	63.1	63.2
Heavy Trucks:	73.2	71.9	67.4	68.3	75.3	75.5
Vehicle Noise:	74.4	73.2	69.1	69.2	76.3	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	158	339	731	1,576
CNEL:	163	351	757	1,630

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Milliken Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,468 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,619 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	91.12%
Medium Trucks:	82.2%	3.5%	14.3%	1.60%
Heavy Trucks:	70.8%	6.2%	23.0%	7.29%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	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:	70.20	-0.61	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-18.17	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.58	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:	69.0	67.7	65.9	62.9	70.3	70.7
Medium Trucks:	62.2	61.6	53.9	55.3	63.1	63.2
Heavy Trucks:	73.2	71.9	67.4	68.3	75.3	75.5
Vehicle Noise:	74.8	73.6	69.9	69.6	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	167	360	777	1,673
CNEL:	174	374	805	1,735

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Milliken Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,188 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,862 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	70.20	1.64	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-13.89	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.30	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:	71.2	70.0	68.2	65.1	72.6	73.0
Medium Trucks:	66.5	65.9	58.2	59.6	67.3	67.5
Heavy Trucks:	77.5	76.2	71.7	72.6	79.6	79.8
Vehicle Noise:	78.7	77.5	73.4	73.5	80.6	80.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	304	655	1,411	3,040
CNEL:	314	678	1,460	3,145

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Riverside Dr. | Job Number: 14822
Road Segment: w/o Milliken Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,155 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,414 vehicles
Vehicle Speed:	50 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:	70.7%	11.8%	17.5%	88.71%
Medium Trucks:	82.2%	3.5%	14.3%	2.03%
Heavy Trucks:	70.8%	6.2%	23.0%	9.26%

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:	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:	70.20	2.52	0.58	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-13.89	0.61	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.30	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:	72.1	70.8	69.1	66.0	73.4	73.8
Medium Trucks:	66.5	65.9	58.2	59.6	67.3	67.5
Heavy Trucks:	77.5	76.2	71.7	72.6	79.6	79.8
Vehicle Noise:	78.9	77.6	73.7	73.6	80.7	80.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	311	670	1,444	3,111
CNEL:	322	694	1,495	3,221

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Chino Av. | Job Number: 14822
Road Segment: e/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,409 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	428 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.875
Medium Trucks:	43.673
Heavy Trucks:	43.692

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.64	0.75	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-21.17	0.78	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-14.58	0.78	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.4	59.1	57.4	54.3	61.7	62.2
Medium Trucks:	56.1	55.5	47.8	49.2	56.9	57.1
Heavy Trucks:	68.0	66.7	62.2	63.1	70.1	70.3
Vehicle Noise:	68.9	67.7	63.5	63.8	70.8	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	233	501
CNEL:	52	112	240	518

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Chino Av. | Job Number: 14822
Road Segment: e/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,054 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	637 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	90.95%
Medium Trucks:	82.2%	3.5%	14.3%	1.63%
Heavy Trucks:	70.8%	6.2%	23.0%	7.42%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.875
Medium Trucks:	43.673
Heavy Trucks:	43.692

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.70	0.75	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-21.17	0.78	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-14.58	0.78	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.4	61.1	59.3	56.3	63.7	64.1
Medium Trucks:	56.1	55.5	47.8	49.2	56.9	57.1
Heavy Trucks:	68.0	66.7	62.2	63.1	70.1	70.3
Vehicle Noise:	69.3	68.0	64.1	64.0	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	113	243	524
CNEL:	54	117	252	542

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Chino Av. | Job Number: 14822
Road Segment: e/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,529 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	754 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.875
Medium Trucks:	43.673
Heavy Trucks:	43.692

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.18	0.75	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-18.72	0.78	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-12.12	0.78	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	61.6	59.8	56.8	64.2	64.6
Medium Trucks:	58.6	58.0	50.2	51.6	59.4	59.5
Heavy Trucks:	70.4	69.2	64.6	65.5	72.5	72.7
Vehicle Noise:	71.4	70.1	66.0	66.2	73.3	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	339	731
CNEL:	76	163	350	755

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Chino Av. | Job Number: 14822
Road Segment: e/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,173 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	963 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	89.46%
Medium Trucks:	82.2%	3.5%	14.3%	1.89%
Heavy Trucks:	70.8%	6.2%	23.0%	8.65%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.875
Medium Trucks:	43.673
Heavy Trucks:	43.692

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.97	0.75	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-18.72	0.78	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-12.12	0.78	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.8	61.0	58.0	65.4	65.8
Medium Trucks:	58.6	58.0	50.2	51.6	59.4	59.5
Heavy Trucks:	70.4	69.2	64.6	65.5	72.5	72.7
Vehicle Noise:	71.6	70.3	66.3	66.4	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	162	348	750
CNEL:	78	167	360	776

Friday, October 14, 2022

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Chino Av. | Job Number: 14822
Road Segment: e/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,003 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	870 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.875
Medium Trucks:	43.673
Heavy Trucks:	43.692

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.56	0.75	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-18.09	0.78	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-11.50	0.78	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	62.2	60.5	57.4	64.8	65.2
Medium Trucks:	59.2	58.6	50.9	52.2	60.0	60.2
Heavy Trucks:	71.1	69.8	65.3	66.2	73.2	73.3
Vehicle Noise:	72.0	70.8	66.6	66.9	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	173	373	804
CNEL:	83	179	386	831

Friday, October 14, 2022

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Chino Av. | Job Number: 14822
Road Segment: e/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,647 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,080 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.7%	11.8%	17.5%	89.14%
Medium Trucks:	82.2%	3.5%	14.3%	1.95%
Heavy Trucks:	70.8%	6.2%	23.0%	8.91%

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:	43.875
Medium Trucks:	43.673
Heavy Trucks:	43.692

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.49	0.75	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-18.09	0.78	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-11.50	0.78	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	63.3	61.5	58.5	65.9	66.3
Medium Trucks:	59.2	58.6	50.9	52.2	60.0	60.2
Heavy Trucks:	71.1	69.8	65.3	66.2	73.2	73.3
Vehicle Noise:	72.2	70.9	66.9	67.0	74.1	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	177	382	823
CNEL:	85	183	395	851

Friday, October 14, 2022

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

Scenario: E
Road Name: Ontario Ranch Rd.
Road Segment: w/o Archibald Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,582 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,074 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-3.03	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-18.56	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.97	2.47	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.7	66.9	63.9	71.3	71.7
Medium Trucks:	65.1	64.5	56.8	58.1	65.9	66.1
Heavy Trucks:	75.7	74.4	69.9	70.8	77.8	78.0
Vehicle Noise:	77.0	75.8	71.8	71.8	78.9	79.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	329	708	1,525	3,286
CNEL:	340	733	1,578	3,401

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

Scenario: E+P
Road Name: Ontario Ranch Rd.
Road Segment: w/o Archibald Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,888 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,652 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	90.42%
Medium Trucks:	82.2%	3.5%	14.3%	1.70%
Heavy Trucks:	70.8%	6.2%	23.0%	7.87%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.97	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-18.21	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.57	2.47	-1.20	-5.21	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	70.8	69.0	65.9	73.4	73.8
Medium Trucks:	65.5	64.8	57.1	58.5	66.3	66.4
Heavy Trucks:	76.1	74.8	70.3	71.2	78.2	78.4
Vehicle Noise:	77.8	76.6	72.8	72.5	79.6	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	368	792	1,707	3,678
CNEL:	382	822	1,771	3,815

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

Scenario: OY
Road Name: Ontario Ranch Rd.
Road Segment: w/o Archibald Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,875 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,335 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.08	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-17.62	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.02	2.47	-1.20	-5.21	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	69.6	67.9	64.8	72.2	72.7
Medium Trucks:	66.1	65.4	57.7	59.1	66.9	67.0
Heavy Trucks:	76.6	75.4	70.8	71.7	78.7	78.9
Vehicle Noise:	78.0	76.7	72.7	72.7	79.8	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	380	818	1,763	3,797
CNEL:	393	847	1,824	3,930

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

Scenario: OY+P
Road Name: Ontario Ranch Rd.
Road Segment: w/o Archibald Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,182 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,913 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	89.89%
Medium Trucks:	82.2%	3.5%	14.3%	1.80%
Heavy Trucks:	70.8%	6.2%	23.0%	8.31%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.36	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-17.33	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.70	2.47	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	71.4	69.6	66.6	74.0	74.4
Medium Trucks:	66.3	65.7	58.0	59.4	67.2	67.3
Heavy Trucks:	77.0	75.7	71.2	72.0	79.0	79.2
Vehicle Noise:	78.6	77.4	73.6	73.3	80.4	80.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	416	897	1,933	4,165
CNEL:	432	930	2,004	4,318

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

Scenario: HY | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,501 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,463 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.68	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-17.22	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.62	2.47	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	70.0	68.3	65.2	72.6	73.1
Medium Trucks:	66.5	65.8	58.1	59.5	67.3	67.4
Heavy Trucks:	77.0	75.8	71.2	72.1	79.1	79.3
Vehicle Noise:	78.4	77.1	73.1	73.1	80.2	80.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	404	870	1,874	4,037
CNEL:	418	900	1,940	4,179

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

Scenario: HY+P | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,808 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,041 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	89.68%
Medium Trucks:	82.2%	3.5%	14.3%	1.84%
Heavy Trucks:	70.8%	6.2%	23.0%	8.48%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.08	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-16.96	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.33	2.47	-1.20	-5.21	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:	72.9	71.6	69.9	66.8	74.2	74.7
Medium Trucks:	66.7	66.1	58.4	59.7	67.5	67.7
Heavy Trucks:	77.3	76.1	71.5	72.4	79.4	79.6
Vehicle Noise:	78.9	77.7	73.9	73.7	80.8	81.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	439	947	2,040	4,394
CNEL:	456	982	2,115	4,556

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: e/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,280 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,288 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.24	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-17.77	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.18	2.47	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	69.5	67.7	64.7	72.1	72.5
Medium Trucks:	65.9	65.3	57.6	58.9	66.7	66.9
Heavy Trucks:	76.5	75.2	70.7	71.6	78.6	78.8
Vehicle Noise:	77.8	76.6	72.6	72.6	79.7	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	371	799	1,721	3,708
CNEL:	384	827	1,781	3,837

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: e/o Archibald Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,653 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,662 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	92.98%
Medium Trucks:	82.2%	3.5%	14.3%	1.25%
Heavy Trucks:	70.8%	6.2%	23.0%	5.77%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.23	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-17.48	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.84	2.47	-1.20	-5.21	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:	74.2	73.0	71.2	68.1	75.6	76.0
Medium Trucks:	66.2	65.6	57.9	59.2	67.0	67.1
Heavy Trucks:	76.8	75.5	71.0	71.9	78.9	79.1
Vehicle Noise:	79.0	77.7	74.2	73.6	80.7	81.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	437	941	2,027	4,368
CNEL:	454	978	2,108	4,541

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

Scenario: OY
Road Name: Ontario Ranch Rd.
Road Segment: e/o Archibald Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,855	vehicles
Peak Hour Percentage:	7.91%	
Peak Hour Volume:	1,570	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	154	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.38	2.42	-1.20	*-4.75*	0.000	0.000
Medium Trucks:	82.40	-16.91	2.47	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-10.32	2.47	-1.20	*-5.21*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.6	70.3	68.6	65.5	72.9	73.4
Medium Trucks:	66.8	66.1	58.4	59.8	67.6	67.7
Heavy Trucks:	77.3	76.1	71.5	72.4	79.4	79.6
Vehicle Noise:	78.7	77.4	73.5	73.4	80.5	80.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	423	912	1,964	4,232
CNEL:	438	944	2,033	4,380

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

Scenario: OY+P
Road Name: Ontario Ranch Rd.
Road Segment: e/o Archibald Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,228	vehicles
Peak Hour Percentage:	7.91%	
Peak Hour Volume:	2,945	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	154	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	92.36%
Medium Trucks:	82.2%	3.5%	14.3%	1.36%
Heavy Trucks:	70.8%	6.2%	23.0%	6.28%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.64	2.42	-1.20	*-4.75*	0.000	0.000
Medium Trucks:	82.40	-16.67	2.47	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-10.04	2.47	-1.20	*-5.21*	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:	74.6	73.4	71.6	68.5	76.0	76.4
Medium Trucks:	67.0	66.4	58.7	60.0	67.8	68.0
Heavy Trucks:	77.6	76.4	71.8	72.7	79.7	79.9
Vehicle Noise:	79.6	78.4	74.8	74.3	81.4	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	485	1,046	2,253	4,854
CNEL:	504	1,087	2,341	5,044

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

Scenario: HY
Road Name: Ontario Ranch Rd.
Road Segment: e/o Archibald Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,774	vehicles
Peak Hour Percentage:	7.91%	
Peak Hour Volume:	1,564	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	154	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.39	2.42	-1.20	*-4.75*	0.000	0.000
Medium Trucks:	82.40	-16.93	2.47	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-10.33	2.47	-1.20	*-5.21*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.6	70.3	68.6	65.5	72.9	73.3
Medium Trucks:	66.7	66.1	58.4	59.8	67.6	67.7
Heavy Trucks:	77.3	76.1	71.5	72.4	79.4	79.6
Vehicle Noise:	78.6	77.4	73.4	73.4	80.5	80.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	422	909	1,959	4,221
CNEL:	437	941	2,028	4,368

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

Scenario: HY+P
Road Name: Ontario Ranch Rd.
Road Segment: e/o Archibald Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,147	vehicles
Peak Hour Percentage:	7.91%	
Peak Hour Volume:	2,938	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	154	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	92.37%
Medium Trucks:	82.2%	3.5%	14.3%	1.36%
Heavy Trucks:	70.8%	6.2%	23.0%	6.27%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.63	2.42	-1.20	*-4.75*	0.000	0.000
Medium Trucks:	82.40	-16.69	2.47	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-10.06	2.47	-1.20	*-5.21*	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:	74.6	73.4	71.6	68.5	76.0	76.4
Medium Trucks:	67.0	66.4	58.7	60.0	67.8	67.9
Heavy Trucks:	77.6	76.3	71.8	72.7	79.7	79.9
Vehicle Noise:	79.6	78.4	74.8	74.3	81.4	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	484	1,044	2,248	4,844
CNEL:	503	1,084	2,336	5,032

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Haven Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,294 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,447 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.73	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-17.27	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.67	2.47	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	70.0	68.2	65.2	72.6	73.0
Medium Trucks:	66.4	65.8	58.1	59.4	67.2	67.4
Heavy Trucks:	77.0	75.7	71.2	72.1	79.1	79.3
Vehicle Noise:	78.3	77.1	73.1	73.1	80.2	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	401	863	1,860	4,007
CNEL:	415	894	1,925	4,148

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Haven Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,277 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,107 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	93.29%
Medium Trucks:	82.2%	3.5%	14.3%	1.20%
Heavy Trucks:	70.8%	6.2%	23.0%	5.51%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.91	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-17.00	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.37	2.47	-1.20	-5.21	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:	74.9	73.6	71.9	68.8	76.2	76.6
Medium Trucks:	66.7	66.0	58.3	59.7	67.5	67.6
Heavy Trucks:	77.3	76.0	71.5	72.4	79.4	79.6
Vehicle Noise:	79.5	78.3	74.8	74.1	81.3	81.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	474	1,022	2,202	4,743
CNEL:	493	1,063	2,290	4,933

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Haven Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,078 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,746 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.92	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-16.45	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.86	2.47	-1.20	-5.21	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:	72.1	70.8	69.0	66.0	73.4	73.8
Medium Trucks:	67.2	66.6	58.9	60.3	68.0	68.2
Heavy Trucks:	77.8	76.5	72.0	72.9	79.9	80.1
Vehicle Noise:	79.1	77.9	73.9	73.9	81.0	81.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	454	979	2,108	4,542
CNEL:	470	1,013	2,182	4,701

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Haven Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,061 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,406 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	92.70%
Medium Trucks:	82.2%	3.5%	14.3%	1.30%
Heavy Trucks:	70.8%	6.2%	23.0%	6.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.28	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-16.23	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.61	2.47	-1.20	-5.21	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:	75.3	74.0	72.2	69.2	76.6	77.0
Medium Trucks:	67.4	66.8	59.1	60.5	68.3	68.4
Heavy Trucks:	78.1	76.8	72.2	73.1	80.1	80.3
Vehicle Noise:	80.1	78.9	75.4	74.8	81.9	82.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	524	1,129	2,431	5,238
CNEL:	544	1,173	2,527	5,444

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

Scenario: HY
Road Name: Ontario Ranch Rd.
Road Segment: w/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	52,058 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,118 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.81	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.72	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.13	2.47	-1.20	-5.21	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:	75.8	74.5	72.8	69.7	77.1	77.5
Medium Trucks:	71.0	70.3	62.6	64.0	71.8	71.9
Heavy Trucks:	81.5	80.3	75.7	76.6	83.6	83.8
Vehicle Noise:	82.9	81.6	77.6	77.6	84.7	84.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	805	1,734	3,735	8,047
CNEL:	833	1,794	3,866	8,329

Friday, October 14, 2022

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

Scenario: HY+P
Road Name: Ontario Ranch Rd.
Road Segment: w/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	73,041 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	5,778 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	90.17%
Medium Trucks:	82.2%	3.5%	14.3%	1.76%
Heavy Trucks:	70.8%	6.2%	23.0%	8.07%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.46	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.63	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.02	2.47	-1.20	-5.21	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:	77.5	76.2	74.4	71.4	78.8	79.2
Medium Trucks:	71.0	70.4	62.7	64.1	71.9	72.0
Heavy Trucks:	81.6	80.4	75.8	76.7	83.7	83.9
Vehicle Noise:	83.3	82.1	78.3	78.0	85.1	85.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	858	1,849	3,983	8,581
CNEL:	890	1,917	4,130	8,899

Friday, October 14, 2022

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

Scenario: E
Road Name: Ontario Ranch Rd.
Road Segment: e/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,755 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,879 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.60	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-16.13	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.54	2.47	-1.20	-5.21	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	71.1	69.4	66.3	73.7	74.1
Medium Trucks:	67.5	66.9	59.2	60.6	68.4	68.5
Heavy Trucks:	78.1	76.9	72.3	73.2	80.2	80.4
Vehicle Noise:	79.4	78.2	74.2	74.2	81.3	81.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	477	1,028	2,214	4,770
CNEL:	494	1,064	2,291	4,937

Friday, October 14, 2022

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

Scenario: E+P
Road Name: Ontario Ranch Rd.
Road Segment: e/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,864 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,944 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	93.24%
Medium Trucks:	82.2%	3.5%	14.3%	1.21%
Heavy Trucks:	70.8%	6.2%	23.0%	5.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.95	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.93	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.30	2.47	-1.20	-5.21	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:	75.9	74.7	72.9	69.9	77.3	77.7
Medium Trucks:	67.7	67.1	59.4	60.8	68.6	68.7
Heavy Trucks:	78.4	77.1	72.5	73.4	80.4	80.6
Vehicle Noise:	80.6	79.3	75.8	75.2	82.3	82.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	558	1,202	2,590	5,579
CNEL:	580	1,250	2,693	5,802

Friday, October 14, 2022

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

Scenario: OY
Road Name: Ontario Ranch Rd.
Road Segment: e/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,304 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,160 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.01	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.53	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.93	2.47	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.0	71.7	70.0	66.9	74.3	74.7
Medium Trucks:	68.1	67.5	59.8	61.2	69.0	69.1
Heavy Trucks:	78.7	77.5	72.9	73.8	80.8	81.0
Vehicle Noise:	80.0	78.8	74.8	74.8	81.9	82.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	523	1,128	2,429	5,234
CNEL:	542	1,167	2,514	5,417

Friday, October 14, 2022

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

Scenario: OY+P
Road Name: Ontario Ranch Rd.
Road Segment: e/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	53,412 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,225 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	92.79%
Medium Trucks:	82.2%	3.5%	14.3%	1.29%
Heavy Trucks:	70.8%	6.2%	23.0%	5.92%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.22	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.35	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.73	2.47	-1.20	-5.21	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:	76.2	74.9	73.2	70.1	77.6	78.0
Medium Trucks:	68.3	67.7	60.0	61.4	69.1	69.3
Heavy Trucks:	78.9	77.7	73.1	74.0	81.0	81.2
Vehicle Noise:	81.0	79.8	76.3	75.7	82.8	83.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	601	1,295	2,790	6,010
CNEL:	625	1,346	2,900	6,247

Friday, October 14, 2022

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

Scenario: HY
Road Name: Ontario Ranch Rd.
Road Segment: e/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,417 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,276 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.82	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.72	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.12	2.47	-1.20	-5.21	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:	74.8	73.5	71.8	68.7	76.1	76.6
Medium Trucks:	70.0	69.3	61.6	63.0	70.8	70.9
Heavy Trucks:	80.5	79.3	74.7	75.6	82.6	82.8
Vehicle Noise:	81.9	80.6	76.6	76.6	83.7	84.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	691	1,489	3,207	6,909
CNEL:	715	1,541	3,319	7,151

Friday, October 14, 2022

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

Scenario: HY+P
Road Name: Ontario Ranch Rd.
Road Segment: e/o Haven Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	67,526 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	5,341 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	91.49%
Medium Trucks:	82.2%	3.5%	14.3%	1.52%
Heavy Trucks:	70.8%	6.2%	23.0%	6.99%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.18	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.60	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.99	2.47	-1.20	-5.21	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:	77.2	75.9	74.1	71.1	78.5	78.9
Medium Trucks:	70.1	69.4	61.7	63.1	70.9	71.0
Heavy Trucks:	80.7	79.4	74.9	75.8	82.8	82.9
Vehicle Noise:	82.5	81.3	77.6	77.2	84.3	84.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	759	1,636	3,524	7,593
CNEL:	788	1,698	3,659	7,883

Friday, October 14, 2022

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

Scenario: E | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Hamner Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,522 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	1,781 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.83	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-16.36	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.77	2.47	-1.20	-5.21	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:	72.2	70.9	69.1	66.1	73.5	73.9
Medium Trucks:	67.3	66.7	59.0	60.3	68.1	68.3
Heavy Trucks:	77.9	76.6	72.1	73.0	80.0	80.2
Vehicle Noise:	79.2	78.0	74.0	74.0	81.1	81.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	460	992	2,137	4,603
CNEL:	476	1,026	2,211	4,764

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

Scenario: E+P | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Hamner Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	54,967 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,348 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	93.13%
Medium Trucks:	82.2%	3.5%	14.3%	1.21%
Heavy Trucks:	70.8%	6.2%	23.0%	5.66%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.36	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.51	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.80	2.47	-1.20	-5.21	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:	76.4	75.1	73.3	70.3	77.7	78.1
Medium Trucks:	68.2	67.5	59.8	61.2	69.0	69.1
Heavy Trucks:	78.9	77.6	73.1	73.9	80.9	81.1
Vehicle Noise:	81.0	79.8	76.3	75.7	82.8	83.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	600	1,293	2,786	6,003
CNEL:	624	1,345	2,897	6,242

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

Scenario: OY | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Hamner Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,350 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,638 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.88	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.66	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.06	2.47	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.9	72.6	70.8	67.8	75.2	75.6
Medium Trucks:	69.0	68.4	60.7	62.0	69.8	70.0
Heavy Trucks:	79.6	78.3	73.8	74.7	81.7	81.9
Vehicle Noise:	80.9	79.7	75.7	75.7	82.8	83.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	598	1,288	2,776	5,980
CNEL:	619	1,333	2,873	6,189

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

Scenario: OY+P | Project Name: Rich Haven Specific Plan
Road Name: Ontario Ranch Rd. | Job Number: 14822
Road Segment: w/o Hamner Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,795 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	5,204 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	92.04%
Medium Trucks:	82.2%	3.5%	14.3%	1.41%
Heavy Trucks:	70.8%	6.2%	23.0%	6.55%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.09	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.06	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.38	2.47	-1.20	-5.21	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:	77.1	75.8	74.1	71.0	78.4	78.8
Medium Trucks:	69.6	69.0	61.3	62.6	70.4	70.6
Heavy Trucks:	80.3	79.0	74.5	75.4	82.4	82.5
Vehicle Noise:	82.2	81.0	77.4	76.9	84.0	84.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	723	1,558	3,358	7,234
CNEL:	751	1,619	3,488	7,514

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

Scenario: HY
Road Name: Ontario Ranch Rd.
Road Segment: w/o Hamner Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,327 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,585 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.21	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.33	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.73	2.47	-1.20	-5.21	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:	75.2	73.9	72.2	69.1	76.5	76.9
Medium Trucks:	70.3	69.7	62.0	63.4	71.2	71.3
Heavy Trucks:	80.9	79.7	75.1	76.0	83.0	83.2
Vehicle Noise:	82.3	81.0	77.0	77.0	84.1	84.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	734	1,581	3,406	7,338
CNEL:	759	1,636	3,525	7,594

Friday, October 14, 2022

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

Scenario: HY+P
Road Name: Ontario Ranch Rd.
Road Segment: w/o Hamner Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	77,772 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	6,152 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	91.20%
Medium Trucks:	82.2%	3.5%	14.3%	1.56%
Heavy Trucks:	70.8%	6.2%	23.0%	7.24%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.78	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.88	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.22	2.47	-1.20	-5.21	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:	77.8	76.5	74.7	71.7	79.1	79.5
Medium Trucks:	70.8	70.2	62.5	63.8	71.6	71.7
Heavy Trucks:	81.4	80.2	75.6	76.5	83.5	83.7
Vehicle Noise:	83.3	82.0	78.3	77.9	85.1	85.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	848	1,828	3,938	8,483
CNEL:	880	1,897	4,087	8,805

Friday, October 14, 2022

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

Scenario: E
Road Name: Ontario Ranch Rd.
Road Segment: e/o Hamner Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,822 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	2,201 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.09	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.45	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.85	2.47	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.1	71.8	70.0	67.0	74.4	74.8
Medium Trucks:	68.2	67.6	59.9	61.3	69.0	69.2
Heavy Trucks:	78.8	77.5	73.0	73.9	80.9	81.1
Vehicle Noise:	80.1	78.9	74.9	74.9	82.0	82.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	530	1,142	2,460	5,300
CNEL:	549	1,182	2,546	5,485

Friday, October 14, 2022

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

Scenario: E+P
Road Name: Ontario Ranch Rd.
Road Segment: e/o Hamner Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,979 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,112 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	91.47%
Medium Trucks:	82.2%	3.5%	14.3%	1.51%
Heavy Trucks:	70.8%	6.2%	23.0%	7.02%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.04	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.79	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.10	2.47	-1.20	-5.21	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:	76.0	74.8	73.0	70.0	77.4	77.8
Medium Trucks:	68.9	68.3	60.6	61.9	69.7	69.8
Heavy Trucks:	79.6	78.3	73.7	74.6	81.6	81.8
Vehicle Noise:	81.4	80.2	76.5	76.1	83.2	83.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	639	1,376	2,965	6,389
CNEL:	663	1,429	3,079	6,632

Friday, October 14, 2022

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

Scenario: OY
Road Name: Ontario Ranch Rd.
Road Segment: e/o Hamner Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,968 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,082 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.55	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.98	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.39	2.47	-1.20	-5.21	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:	74.6	73.3	71.5	68.5	75.9	76.3
Medium Trucks:	69.7	69.1	61.4	62.7	70.5	70.6
Heavy Trucks:	80.3	79.0	74.5	75.4	82.4	82.5
Vehicle Noise:	81.6	80.4	76.4	76.4	83.5	83.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	663	1,429	3,079	6,634
CNEL:	687	1,479	3,187	6,866

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

Scenario: OY+P
Road Name: Ontario Ranch Rd.
Road Segment: e/o Hamner Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	63,124 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	4,993 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	90.60%
Medium Trucks:	82.2%	3.5%	14.3%	1.67%
Heavy Trucks:	70.8%	6.2%	23.0%	7.73%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.85	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.50	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.84	2.47	-1.20	-5.21	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:	76.8	75.6	73.8	70.8	78.2	78.6
Medium Trucks:	70.2	69.5	61.8	63.2	71.0	71.1
Heavy Trucks:	80.8	79.5	75.0	75.9	82.9	83.1
Vehicle Noise:	82.5	81.3	77.6	77.2	84.4	84.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	762	1,642	3,537	7,620
CNEL:	791	1,703	3,669	7,905

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

Scenario: HY
Road Name: Ontario Ranch Rd.
Road Segment: e/o Hamner Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,098 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	3,963 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	86.53%
Medium Trucks:	82.2%	3.5%	14.3%	2.42%
Heavy Trucks:	70.8%	6.2%	23.0%	11.05%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.64	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.89	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.30	2.47	-1.20	-5.21	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:	75.6	74.4	72.6	69.6	77.0	77.4
Medium Trucks:	70.8	70.2	62.5	63.8	71.6	71.7
Heavy Trucks:	81.4	80.1	75.6	76.4	83.4	83.6
Vehicle Noise:	82.7	81.5	77.5	77.4	84.6	84.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	784	1,690	3,641	7,844
CNEL:	812	1,749	3,768	8,118

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

Scenario: HY+P
Road Name: Ontario Ranch Rd.
Road Segment: e/o Hamner Av.
Project Name: Rich Haven Specific Plan
Job Number: 14822

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	74,255 vehicles
Peak Hour Percentage:	7.91%
Peak Hour Volume:	5,874 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	154 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 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:	70.7%	11.8%	17.5%	89.99%
Medium Trucks:	82.2%	3.5%	14.3%	1.78%
Heavy Trucks:	70.8%	6.2%	23.0%	8.23%

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:	33.941
Medium Trucks:	33.679
Heavy Trucks:	33.705

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.52	2.42	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.51	2.47	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-5.87	2.47	-1.20	-5.21	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:	77.5	76.2	74.5	71.4	78.8	79.3
Medium Trucks:	71.2	70.5	62.8	64.2	72.0	72.1
Heavy Trucks:	81.8	80.5	76.0	76.9	83.9	84.1
Vehicle Noise:	83.4	82.2	78.4	78.1	85.3	85.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	876	1,887	4,065	8,758
CNEL:	908	1,956	4,215	9,081

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APPENDIX 10.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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14822 - Rich Haven Specific Plan

CadnaA Noise Prediction Model: 14822-02A.cna
Date: 17.10.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	44.9	44.8	51.5	65.0	45.0	0.0				5.00	a	6161938.34	2315328.19	5.00
RECEIVERS		R2	44.8	44.7	51.4	65.0	45.0	0.0				5.00	a	6162735.95	2314875.32	5.00
RECEIVERS		R3	45.9	44.5	51.2	65.0	45.0	0.0				5.00	a	6163483.69	2310238.26	5.00
RECEIVERS		R4	42.8	42.5	49.2	65.0	45.0	0.0				5.00	a	6162048.86	2308936.45	5.00
RECEIVERS		R5	43.0	42.4	49.1	65.0	45.0	0.0				5.00	a	6161471.50	2310774.52	5.00
RECEIVERS		R6	40.0	39.4	46.1	65.0	45.0	0.0				5.00	a	6159739.11	2311421.01	5.00
RECEIVERS		R7	37.3	35.5	42.4	65.0	45.0	0.0				5.00	a	6159775.06	2314442.86	5.00
RECEIVERS		R8	33.4	33.0	39.7	65.0	45.0	0.0				5.00	a	6160277.95	2317097.00	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		TRASH26	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6161900.94	2312817.25	5.00
POINTSOURCE		TRASH25	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6161896.66	2312112.21	5.00
POINTSOURCE		TRASH24	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6161930.85	2313706.03	5.00
POINTSOURCE		TRASH23	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6161922.30	2313139.86	5.00
POINTSOURCE		TRASH22	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6161967.45	2310918.08	5.00
POINTSOURCE		TRASH21	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6162681.62	2310733.34	5.00
POINTSOURCE		TRASH20	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6162993.21	2310719.55	5.00
POINTSOURCE		TRASH19	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6162698.16	2310603.74	5.00
POINTSOURCE		TRASH18	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6163166.92	2310476.90	5.00
POINTSOURCE		TRASH17	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6163588.81	2310716.79	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		TRASH16	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6163610.87	2310474.14	5.00
POINTSOURCE		TRASH15	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6163892.12	2310722.31	5.00
POINTSOURCE		TRASH14	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164272.65	2310711.28	5.00
POINTSOURCE		TRASH13	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6163914.18	2310482.41	5.00
POINTSOURCE		TRASH12	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164366.40	2310446.57	5.00
POINTSOURCE		TRASH11	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164462.91	2310443.81	5.00
POINTSOURCE		TRASH10	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164713.83	2310540.32	5.00
POINTSOURCE		TRASH09	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164815.86	2310554.10	5.00
POINTSOURCE		TRASH08	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164771.74	2310708.52	5.00
POINTSOURCE		TRASH07	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164664.20	2310766.43	5.00
POINTSOURCE		TRASH06	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6163062.14	2310782.97	5.00
POINTSOURCE		TRASH05	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6163208.28	2311610.20	5.00
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164735.89	2311590.89	5.00
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6163842.22	2309695.88	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164810.66	2309683.88	5.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6164678.13	2309626.45	5.00
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163164.50	2311175.81	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163289.94	2311386.92	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163418.44	2311172.76	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163577.53	2311365.50	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163693.79	2311175.81	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163816.16	2311356.32	50.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163938.54	2311160.52	50.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164060.92	2311356.32	50.00
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164186.36	2311157.46	50.00
POINTSOURCE		AC10	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164317.91	2311368.56	50.00
POINTSOURCE		AC11	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164446.41	2311166.64	50.00
POINTSOURCE		AC12	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164565.73	2311368.56	50.00
POINTSOURCE		AC13	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164703.40	2311175.81	50.00
POINTSOURCE		AC14	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164584.08	2310976.95	50.00
POINTSOURCE		AC15	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164317.91	2310980.01	50.00
POINTSOURCE		AC16	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164051.74	2310980.01	50.00
POINTSOURCE		AC17	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163819.22	2310983.07	50.00
POINTSOURCE		AC18	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163565.29	2310989.19	50.00
POINTSOURCE		AC19	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163277.70	2310998.37	50.00
POINTSOURCE		AC20	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161720.45	2310921.88	50.00
POINTSOURCE		AC21	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161732.69	2311148.28	50.00
POINTSOURCE		AC22	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6162001.92	2311163.58	50.00
POINTSOURCE		AC23	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161864.24	2311282.89	50.00
POINTSOURCE		AC24	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161732.69	2311405.27	50.00
POINTSOURCE		AC25	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161588.89	2312142.60	50.00
POINTSOURCE		AC26	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161695.97	2312271.09	50.00
POINTSOURCE		AC27	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161579.71	2312387.35	50.00
POINTSOURCE		AC28	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161683.73	2312567.86	50.00
POINTSOURCE		AC29	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161552.18	2312708.59	50.00
POINTSOURCE		AC30	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161503.23	2313678.44	50.00
POINTSOURCE		AC31	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161503.23	2313225.64	50.00
POINTSOURCE		AC32	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161356.37	2313302.12	50.00
POINTSOURCE		AC33	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161643.96	2313323.54	50.00
POINTSOURCE		AC34	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161490.99	2313433.68	50.00
POINTSOURCE		AC35	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161350.26	2313559.12	50.00
POINTSOURCE		AC36	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161643.96	2313565.24	50.00
POINTSOURCE		AC37	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164757.93	2309454.12	30.00
POINTSOURCE		AC38	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164760.47	2309572.12	30.00
POINTSOURCE		AC39	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164794.17	2310054.17	30.00
POINTSOURCE		AC40	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164786.67	2309796.32	30.00
POINTSOURCE		AC41	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164620.27	2309794.82	30.00
POINTSOURCE		AC42	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164378.91	2309800.81	30.00
POINTSOURCE		AC43	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164121.06	2309803.81	30.00
POINTSOURCE		AC44	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163881.20	2309814.31	30.00
POINTSOURCE		AC45	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163872.21	2310088.65	30.00
POINTSOURCE		AC46	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164942.70	2310526.53	30.00
POINTSOURCE		AC47	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164835.16	2310463.11	30.00
POINTSOURCE		AC48	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164716.59	2310460.35	30.00
POINTSOURCE		AC49	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164545.63	2310493.44	30.00
POINTSOURCE		AC50	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164658.69	2310678.19	30.00
POINTSOURCE		AC51	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164245.07	2310463.11	30.00
POINTSOURCE		AC52	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164189.92	2310595.47	30.00
POINTSOURCE		AC53	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164013.45	2310498.96	30.00
POINTSOURCE		AC54	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163820.43	2310689.22	30.00
POINTSOURCE		AC55	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163710.13	2310689.22	30.00
POINTSOURCE		AC56	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163519.87	2310474.14	30.00
POINTSOURCE		AC57	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163279.98	2310490.68	30.00
POINTSOURCE		AC58	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163081.44	2310680.95	30.00
POINTSOURCE		AC59	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6162896.70	2310658.89	30.00
POINTSOURCE		AC60	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6162731.25	2310487.93	30.00
POINTSOURCE		AC61	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6162579.59	2310620.28	30.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC62	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164807.59	2310970.47	50.00
POINTSOURCE		AC63	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6164804.83	2311397.87	50.00
POINTSOURCE		AC64	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6162998.72	2311006.32	50.00
POINTSOURCE		AC65	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6163106.26	2311397.87	50.00
POINTSOURCE		AC66	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161711.01	2310725.06	50.00
POINTSOURCE		AC67	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161981.23	2311428.21	50.00
POINTSOURCE		AC68	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161717.20	2312022.48	50.00
POINTSOURCE		AC69	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161548.42	2312020.34	50.00
POINTSOURCE		AC70	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161693.70	2312806.57	50.00
POINTSOURCE		AC71	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161428.78	2312819.39	50.00
POINTSOURCE		AC72	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161345.45	2313116.36	50.00
POINTSOURCE		AC73	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161648.83	2313118.49	50.00
POINTSOURCE		AC74	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161668.06	2313782.94	50.00
POINTSOURCE		AC75	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6161341.18	2313789.35	50.00
POINTSOURCE		CAR00	81.1	81.1	81.1	Lw	81.1					5.00	a	6164757.95	2310543.07	5.00
POINTSOURCE		CAR01	81.1	81.1	81.1	Lw	81.1					5.00	a	6164854.46	2310543.07	5.00
POINTSOURCE		CAR01	81.1	81.1	81.1	Lw	81.1					5.00	a	6164899.69	2309600.13	5.00
POINTSOURCE		CAR02	81.1	81.1	81.1	Lw	81.1					5.00	a	6164818.62	2310661.64	5.00
POINTSOURCE		CAR02	81.1	81.1	81.1	Lw	81.1					5.00	a	6164841.97	2309560.23	5.00
POINTSOURCE		CAR03	81.1	81.1	81.1	Lw	81.1					5.00	a	6164895.82	2310667.16	5.00
POINTSOURCE		CAR03	81.1	81.1	81.1	Lw	81.1					5.00	a	6164892.05	2309518.64	5.00
POINTSOURCE		CAR04	81.1	81.1	81.1	Lw	81.1					5.00	a	6164950.97	2310951.17	5.00
POINTSOURCE		CAR04	81.1	81.1	81.1	Lw	81.1					5.00	a	6164847.91	2309454.12	5.00
POINTSOURCE		CAR05	81.1	81.1	81.1	Lw	81.1					5.00	a	6164953.73	2311066.98	5.00
POINTSOURCE		CAR05	81.1	81.1	81.1	Lw	81.1					5.00	a	6164880.17	2309383.66	5.00
POINTSOURCE		CAR06	81.1	81.1	81.1	Lw	81.1					5.00	a	6164956.49	2311199.34	5.00
POINTSOURCE		CAR06	81.1	81.1	81.1	Lw	81.1					5.00	a	6164791.04	2309381.12	5.00
POINTSOURCE		CAR07	81.1	81.1	81.1	Lw	81.1					5.00	a	6164953.73	2311339.97	5.00
POINTSOURCE		CAR07	81.1	81.1	81.1	Lw	81.1					5.00	a	6164679.83	2309399.79	5.00
POINTSOURCE		CAR08	81.1	81.1	81.1	Lw	81.1					5.00	a	6162882.91	2310959.44	5.00
POINTSOURCE		CAR08	81.1	81.1	81.1	Lw	81.1					5.00	a	6164677.28	2309493.17	5.00
POINTSOURCE		CAR09	81.1	81.1	81.1	Lw	81.1					5.00	a	6162758.82	2310953.93	5.00
POINTSOURCE		CAR09	81.1	81.1	81.1	Lw	81.1					5.00	a	6164678.13	2309575.51	5.00
POINTSOURCE		CAR10	81.1	81.1	81.1	Lw	81.1					5.00	a	6162827.76	2311039.41	5.00
POINTSOURCE		CAR10	81.1	81.1	81.1	Lw	81.1					5.00	a	6164893.11	2310111.13	5.00
POINTSOURCE		CAR11	81.1	81.1	81.1	Lw	81.1					5.00	a	6162893.94	2311124.89	5.00
POINTSOURCE		CAR11	81.1	81.1	81.1	Lw	81.1					5.00	a	6164890.11	2309974.71	5.00
POINTSOURCE		CAR12	81.1	81.1	81.1	Lw	81.1					5.00	a	6162472.05	2311237.94	5.00
POINTSOURCE		CAR12	81.1	81.1	81.1	Lw	81.1					5.00	a	6164887.11	2309842.79	5.00
POINTSOURCE		CAR13	81.1	81.1	81.1	Lw	81.1					5.00	a	6162455.51	2311339.97	5.00
POINTSOURCE		CAR13	81.1	81.1	81.1	Lw	81.1					5.00	a	6164872.12	2309700.37	5.00
POINTSOURCE		CAR14	81.1	81.1	81.1	Lw	81.1					5.00	a	6162436.21	2311464.05	5.00
POINTSOURCE		CAR14	81.1	81.1	81.1	Lw	81.1					5.00	a	6164735.70	2309704.87	5.00
POINTSOURCE		CAR15	81.1	81.1	81.1	Lw	81.1					5.00	a	6162571.32	2311466.81	5.00
POINTSOURCE		CAR15	81.1	81.1	81.1	Lw	81.1					5.00	a	6164582.79	2309709.37	5.00
POINTSOURCE		CAR16	81.1	81.1	81.1	Lw	81.1					5.00	a	6162640.26	2311160.74	5.00
POINTSOURCE		CAR16	81.1	81.1	81.1	Lw	81.1					5.00	a	6164444.87	2309710.87	5.00
POINTSOURCE		CAR17	81.1	81.1	81.1	Lw	81.1					5.00	a	6162670.59	2311279.31	5.00
POINTSOURCE		CAR17	81.1	81.1	81.1	Lw	81.1					5.00	a	6164302.45	2309709.37	5.00
POINTSOURCE		CAR18	81.1	81.1	81.1	Lw	81.1					5.00	a	6162725.74	2311386.84	5.00
POINTSOURCE		CAR18	81.1	81.1	81.1	Lw	81.1					5.00	a	6164181.03	2309710.87	5.00
POINTSOURCE		CAR19	81.1	81.1	81.1	Lw	81.1					5.00	a	6162797.43	2311475.08	5.00
POINTSOURCE		CAR19	81.1	81.1	81.1	Lw	81.1					5.00	a	6164035.61	2309715.37	5.00
POINTSOURCE		CAR20	81.1	81.1	81.1	Lw	81.1					5.00	a	6162778.13	2311251.73	5.00
POINTSOURCE		CAR20	81.1	81.1	81.1	Lw	81.1					5.00	a	6163891.70	2309713.87	5.00
POINTSOURCE		CAR21	81.1	81.1	81.1	Lw	81.1					5.00	a	6162858.09	2311356.51	5.00
POINTSOURCE		CAR21	81.1	81.1	81.1	Lw	81.1					5.00	a	6163773.27	2309727.36	5.00
POINTSOURCE		CAR22	81.1	81.1	81.1	Lw	81.1					5.00	a	6162935.30	2311464.05	5.00
POINTSOURCE		CAR22	81.1	81.1	81.1	Lw	81.1					5.00	a	6163770.27	2309851.78	5.00
POINTSOURCE		CAR23	81.1	81.1	81.1	Lw	81.1					5.00	a	6163051.11	2311599.17	5.00
POINTSOURCE		CAR23	81.1	81.1	81.1	Lw	81.1					5.00	a	6163770.27	2309967.22	5.00
POINTSOURCE		CAR24	81.1	81.1	81.1	Lw	81.1					5.00	a	6162904.97	2311596.41	5.00
POINTSOURCE		CAR24	81.1	81.1	81.1	Lw	81.1					5.00	a	6163773.27	2310090.15	5.00
POINTSOURCE		CAR25	81.1	81.1	81.1	Lw	81.1					5.00	a	6162598.89	2311604.68	5.00
POINTSOURCE		CAR25	81.1	81.1	81.1	Lw	81.1					5.00	a	6164791.17	2310148.61	5.00
POINTSOURCE		CAR26	81.1	81.1	81.1	Lw	81.1					5.00	a	6161923.33	2310595.47	5.00
POINTSOURCE		CAR26	81.1	81.1	81.1	Lw	81.1					5.00	a	6163893.19	2310159.10	5.00
POINTSOURCE		CAR27	81.1	81.1	81.1	Lw	81.1					5.00	a	6162229.40	2311102.83	5.00
POINTSOURCE		CAR27	81.1	81.1	81.1	Lw	81.1					5.00	a	6164113.57	2310154.61	5.00
POINTSOURCE		CAR28	81.1	81.1	81.1	Lw	81.1					5.00	a	6162212.86	2311304.12	5.00
POINTSOURCE		CAR28	81.1	81.1	81.1	Lw	81.1					5.00	a	6164294.96	2310157.61	5.00
POINTSOURCE		CAR29	81.1	81.1	81.1	Lw	81.1					5.00	a	6162113.59	2311574.35	5.00
POINTSOURCE		CAR29	81.1	81.1	81.1	Lw	81.1					5.00	a	6164480.85	2310151.61	5.00
POINTSOURCE		CAR30	81.1	81.1	81.1	Lw	81.1					5.00	a	6161826.82	2311568.83	5.00
POINTSOURCE		CAR30	81.1	81.1	81.1	Lw	81.1					5.00	a	6164635.26	2310156.11	5.00
POINTSOURCE		CAR31	81.1	81.1	81.1	Lw	81.1					5.00	a	6161575.89	2311577.11	5.00
POINTSOURCE		CAR31	81.1	81.1	81.1	Lw	81.1					5.00	a	6164630.76	2310007.69	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		CAR32	81.1	81.1	81.1	Lw	81.1					5.00	a	6161584.16	2311331.70	5.00
POINTSOURCE		CAR32	81.1	81.1	81.1	Lw	81.1					5.00	a	6164569.30	2310079.65	5.00
POINTSOURCE		CAR33	81.1	81.1	81.1	Lw	81.1					5.00	a	6161584.16	2311072.50	5.00
POINTSOURCE		CAR33	81.1	81.1	81.1	Lw	81.1					5.00	a	6164573.80	2309907.25	5.00
POINTSOURCE		CAR34	81.1	81.1	81.1	Lw	81.1					5.00	a	6161581.41	2310788.49	5.00
POINTSOURCE		CAR34	81.1	81.1	81.1	Lw	81.1					5.00	a	6164393.90	2309908.75	5.00
POINTSOURCE		CAR35	81.1	81.1	81.1	Lw	81.1					5.00	a	6161575.89	2310548.59	5.00
POINTSOURCE		CAR35	81.1	81.1	81.1	Lw	81.1					5.00	a	6164462.86	2309995.70	5.00
POINTSOURCE		CAR36	81.1	81.1	81.1	Lw	81.1					5.00	a	6162041.95	2312159.21	5.00
POINTSOURCE		CAR36	81.1	81.1	81.1	Lw	81.1					5.00	a	6164387.90	2310084.15	5.00
POINTSOURCE		CAR37	81.1	81.1	81.1	Lw	81.1					5.00	a	6162146.63	2312261.77	5.00
POINTSOURCE		CAR37	81.1	81.1	81.1	Lw	81.1					5.00	a	6164294.96	2309994.20	5.00
POINTSOURCE		CAR38	81.1	81.1	81.1	Lw	81.1					5.00	a	6162071.86	2312372.86	5.00
POINTSOURCE		CAR38	81.1	81.1	81.1	Lw	81.1					5.00	a	6164208.01	2309904.25	5.00
POINTSOURCE		CAR39	81.1	81.1	81.1	Lw	81.1					5.00	a	6162035.54	2312518.14	5.00
POINTSOURCE		CAR39	81.1	81.1	81.1	Lw	81.1					5.00	a	6164206.51	2310087.15	5.00
POINTSOURCE		CAR40	81.1	81.1	81.1	Lw	81.1					5.00	a	6162172.27	2312573.69	5.00
POINTSOURCE		CAR40	81.1	81.1	81.1	Lw	81.1					5.00	a	6164112.07	2309994.20	5.00
POINTSOURCE		CAR41	81.1	81.1	81.1	Lw	81.1					5.00	a	6162080.40	2312716.84	5.00
POINTSOURCE		CAR41	81.1	81.1	81.1	Lw	81.1					5.00	a	6164014.62	2309902.76	5.00
POINTSOURCE		CAR42	81.1	81.1	81.1	Lw	81.1					5.00	a	6162195.77	2312838.62	5.00
POINTSOURCE		CAR42	81.1	81.1	81.1	Lw	81.1					5.00	a	6164013.12	2310102.14	5.00
POINTSOURCE		CAR43	81.1	81.1	81.1	Lw	81.1					5.00	a	6162007.76	2312874.94	5.00
POINTSOURCE		CAR43	81.1	81.1	81.1	Lw	81.1					5.00	a	6162040.42	2310723.02	5.00
POINTSOURCE		CAR44	81.1	81.1	81.1	Lw	81.1					5.00	a	6162114.59	2313056.54	5.00
POINTSOURCE		CAR44	81.1	81.1	81.1	Lw	81.1					5.00	a	6162095.53	2310808.74	5.00
POINTSOURCE		CAR45	81.1	81.1	81.1	Lw	81.1					5.00	a	6162266.28	2313182.59	5.00
POINTSOURCE		CAR45	81.1	81.1	81.1	Lw	81.1					5.00	a	6162169.01	2310911.30	5.00
POINTSOURCE		CAR46	81.1	81.1	81.1	Lw	81.1					5.00	a	6162101.77	2313206.09	5.00
POINTSOURCE		CAR46	81.1	81.1	81.1	Lw	81.1					5.00	a	6162193.50	2310989.37	5.00
POINTSOURCE		CAR47	81.1	81.1	81.1	Lw	81.1					5.00	a	6162123.13	2313342.82	5.00
POINTSOURCE		CAR47	81.1	81.1	81.1	Lw	81.1					5.00	a	6162169.01	2311148.57	5.00
POINTSOURCE		CAR48	81.1	81.1	81.1	Lw	81.1					5.00	a	6162157.32	2313532.97	5.00
POINTSOURCE		CAR48	81.1	81.1	81.1	Lw	81.1					5.00	a	6162173.60	2311402.67	5.00
POINTSOURCE		CAR49	81.1	81.1	81.1	Lw	81.1					5.00	a	6162146.63	2313735.94	5.00
POINTSOURCE		CAR49	81.1	81.1	81.1	Lw	81.1					5.00	a	6162221.05	2311194.49	5.00
POINTSOURCE		CAR50	81.1	81.1	81.1	Lw	81.1					5.00	a	6162189.36	2312114.35	5.00
POINTSOURCE		CAR50	81.1	81.1	81.1	Lw	81.1					5.00	a	6162098.59	2311505.23	5.00
POINTSOURCE		CAR51	81.1	81.1	81.1	Lw	81.1					5.00	a	6162272.69	2312248.95	5.00
POINTSOURCE		CAR51	81.1	81.1	81.1	Lw	81.1					5.00	a	6161970.01	2311564.93	5.00
POINTSOURCE		CAR52	81.1	81.1	81.1	Lw	81.1					5.00	a	6162229.96	2312428.41	5.00
POINTSOURCE		CAR52	81.1	81.1	81.1	Lw	81.1					5.00	a	6161706.72	2311567.99	5.00
POINTSOURCE		CAR53	81.1	81.1	81.1	Lw	81.1					5.00	a	6162334.64	2312567.28	5.00
POINTSOURCE		CAR53	81.1	81.1	81.1	Lw	81.1					5.00	a	6161584.26	2311459.31	5.00
POINTSOURCE		CAR54	81.1	81.1	81.1	Lw	81.1					5.00	a	6162264.14	2312727.52	5.00
POINTSOURCE		CAR54	81.1	81.1	81.1	Lw	81.1					5.00	a	6161585.79	2311199.08	5.00
POINTSOURCE		CAR55	81.1	81.1	81.1	Lw	81.1					5.00	a	6161674.47	2313020.22	5.00
POINTSOURCE		CAR55	81.1	81.1	81.1	Lw	81.1					5.00	a	6161587.32	2310920.49	5.00
POINTSOURCE		CAR56	81.1	81.1	81.1	Lw	81.1					5.00	a	6161546.28	2312917.66	5.00
POINTSOURCE		CAR56	81.1	81.1	81.1	Lw	81.1					5.00	a	6161582.73	2310660.26	5.00
POINTSOURCE		CAR57	81.1	81.1	81.1	Lw	81.1					5.00	a	6161433.05	2313024.49	5.00
POINTSOURCE		CAR57	81.1	81.1	81.1	Lw	81.1					5.00	a	6161686.82	2310599.03	5.00
POINTSOURCE		CAR58	81.1	81.1	81.1	Lw	81.1					5.00	a	6162368.83	2312849.30	5.00
POINTSOURCE		CAR58	81.1	81.1	81.1	Lw	81.1					5.00	a	6161697.54	2310505.65	5.00
POINTSOURCE		CAR59	81.1	81.1	81.1	Lw	81.1					5.00	a	6162212.86	2311958.39	5.00
POINTSOURCE		CAR59	81.1	81.1	81.1	Lw	81.1					5.00	a	6161764.89	2310608.21	5.00
POINTSOURCE		CAR60	81.1	81.1	81.1	Lw	81.1					5.00	a	6162024.85	2311969.07	5.00
POINTSOURCE		CAR60	81.1	81.1	81.1	Lw	81.1					5.00	a	6162002.15	2310608.21	5.00
POINTSOURCE		CAR61	81.1	81.1	81.1	Lw	81.1					5.00	a	6161819.75	2311973.34	5.00
POINTSOURCE		CAR61	81.1	81.1	81.1	Lw	81.1					5.00	a	6161963.89	2310677.10	5.00
POINTSOURCE		CAR62	81.1	81.1	81.1	Lw	81.1					5.00	a	6161409.55	2311996.84	5.00
POINTSOURCE		CAR62	81.1	81.1	81.1	Lw	81.1					5.00	a	6161913.37	2310530.15	5.00
POINTSOURCE		CAR63	81.1	81.1	81.1	Lw	81.1					5.00	a	6161490.73	2312154.94	5.00
POINTSOURCE		CAR63	81.1	81.1	81.1	Lw	81.1					5.00	a	6162802.94	2310565.13	5.00
POINTSOURCE		CAR64	81.1	81.1	81.1	Lw	81.1					5.00	a	6161405.27	2312310.90	5.00
POINTSOURCE		CAR64	81.1	81.1	81.1	Lw	81.1					5.00	a	6162689.89	2310565.13	5.00
POINTSOURCE		CAR65	81.1	81.1	81.1	Lw	81.1					5.00	a	6161467.23	2312492.51	5.00
POINTSOURCE		CAR65	81.1	81.1	81.1	Lw	81.1					5.00	a	6162692.65	2310683.70	5.00
POINTSOURCE		CAR66	81.1	81.1	81.1	Lw	81.1					5.00	a	6161309.13	2312545.92	5.00
POINTSOURCE		CAR66	81.1	81.1	81.1	Lw	81.1					5.00	a	6162739.52	2310609.25	5.00
POINTSOURCE		CAR67	81.1	81.1	81.1	Lw	81.1					5.00	a	6161298.45	2312723.25	5.00
POINTSOURCE		CAR67	81.1	81.1	81.1	Lw	81.1					5.00	a	6162789.16	2310667.16	5.00
POINTSOURCE		CAR68	81.1	81.1	81.1	Lw	81.1					5.00	a	6161198.04	2312815.11	5.00
POINTSOURCE		CAR68	81.1	81.1	81.1	Lw	81.1					5.00	a	6162995.96	2310642.34	5.00
POINTSOURCE		CAR69	81.1	81.1	81.1	Lw	81.1					5.00	a	6161277.09	2312909.12	5.00
POINTSOURCE		CAR69	81.1	81.1	81.1	Lw	81.1					5.00	a	6162938.06	2310595.47	5.00
POINTSOURCE		CAR70	81.1	81.1	81.1	Lw	81.1					5.00	a	6162287.64	2313060.81	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		CAR70	81.1	81.1	81.1	Lw	81.1					5.00	a	6162940.81	2310485.17	5.00
POINTSOURCE		CAR71	81.1	81.1	81.1	Lw	81.1					5.00	a	6162373.10	2313223.18	5.00
POINTSOURCE		CAR71	81.1	81.1	81.1	Lw	81.1					5.00	a	6163001.48	2310556.86	5.00
POINTSOURCE		CAR72	81.1	81.1	81.1	Lw	81.1					5.00	a	6162272.69	2313351.37	5.00
POINTSOURCE		CAR72	81.1	81.1	81.1	Lw	81.1					5.00	a	6163006.99	2310487.93	5.00
POINTSOURCE		CAR73	81.1	81.1	81.1	Lw	81.1					5.00	a	6162368.83	2313515.88	5.00
POINTSOURCE		CAR73	81.1	81.1	81.1	Lw	81.1					5.00	a	6163084.20	2310562.38	5.00
POINTSOURCE		CAR74	81.1	81.1	81.1	Lw	81.1					5.00	a	6162274.82	2313644.07	5.00
POINTSOURCE		CAR74	81.1	81.1	81.1	Lw	81.1					5.00	a	6163097.99	2310479.65	5.00
POINTSOURCE		CAR75	81.1	81.1	81.1	Lw	81.1					5.00	a	6162366.69	2313755.16	5.00
POINTSOURCE		CAR75	81.1	81.1	81.1	Lw	81.1					5.00	a	6163153.14	2310534.80	5.00
POINTSOURCE		CAR76	81.1	81.1	81.1	Lw	81.1					5.00	a	6162240.64	2313894.04	5.00
POINTSOURCE		CAR76	81.1	81.1	81.1	Lw	81.1					5.00	a	6163279.98	2310576.16	5.00
POINTSOURCE		CAR77	81.1	81.1	81.1	Lw	81.1					5.00	a	6162071.86	2313894.04	5.00
POINTSOURCE		CAR77	81.1	81.1	81.1	Lw	81.1					5.00	a	6163200.01	2310609.25	5.00
POINTSOURCE		CAR78	81.1	81.1	81.1	Lw	81.1					5.00	a	6161926.58	2313921.81	5.00
POINTSOURCE		CAR78	81.1	81.1	81.1	Lw	81.1					5.00	a	6163202.77	2310703.01	5.00
POINTSOURCE		CAR79	81.1	81.1	81.1	Lw	81.1					5.00	a	6161791.98	2313853.44	5.00
POINTSOURCE		CAR79	81.1	81.1	81.1	Lw	81.1					5.00	a	6163266.19	2310647.86	5.00
POINTSOURCE		CAR80	81.1	81.1	81.1	Lw	81.1					5.00	a	6161638.15	2313930.36	5.00
POINTSOURCE		CAR80	81.1	81.1	81.1	Lw	81.1					5.00	a	6163340.64	2310603.74	5.00
POINTSOURCE		CAR81	81.1	81.1	81.1	Lw	81.1					5.00	a	6161488.60	2313874.81	5.00
POINTSOURCE		CAR81	81.1	81.1	81.1	Lw	81.1					5.00	a	6163337.88	2310700.25	5.00
POINTSOURCE		CAR82	81.1	81.1	81.1	Lw	81.1					5.00	a	6161339.04	2313926.08	5.00
POINTSOURCE		CAR82	81.1	81.1	81.1	Lw	81.1					5.00	a	6163580.54	2310565.13	5.00
POINTSOURCE		CAR83	81.1	81.1	81.1	Lw	81.1					5.00	a	6161195.90	2313054.40	5.00
POINTSOURCE		CAR83	81.1	81.1	81.1	Lw	81.1					5.00	a	6163492.30	2310573.41	5.00
POINTSOURCE		CAR84	81.1	81.1	81.1	Lw	81.1					5.00	a	6161264.27	2313201.82	5.00
POINTSOURCE		CAR84	81.1	81.1	81.1	Lw	81.1					5.00	a	6163511.60	2310675.43	5.00
POINTSOURCE		CAR85	81.1	81.1	81.1	Lw	81.1					5.00	a	6161193.76	2313312.91	5.00
POINTSOURCE		CAR85	81.1	81.1	81.1	Lw	81.1					5.00	a	6163599.84	2310672.67	5.00
POINTSOURCE		CAR86	81.1	81.1	81.1	Lw	81.1					5.00	a	6161259.99	2313481.70	5.00
POINTSOURCE		CAR86	81.1	81.1	81.1	Lw	81.1					5.00	a	6163677.04	2310512.74	5.00
POINTSOURCE		CAR87	81.1	81.1	81.1	Lw	81.1					5.00	a	6161200.17	2313622.70	5.00
POINTSOURCE		CAR87	81.1	81.1	81.1	Lw	81.1					5.00	a	6163754.25	2310570.65	5.00
POINTSOURCE		CAR88	81.1	81.1	81.1	Lw	81.1					5.00	a	6161255.72	2313757.30	5.00
POINTSOURCE		CAR88	81.1	81.1	81.1	Lw	81.1					5.00	a	6163759.77	2310493.44	5.00
POINTSOURCE		CAR89	81.1	81.1	81.1	Lw	81.1					5.00	a	6161206.58	2313896.17	5.00
POINTSOURCE		CAR89	81.1	81.1	81.1	Lw	81.1					5.00	a	6163831.46	2310567.89	5.00
POINTSOURCE		CAR90	81.1	81.1	81.1	Lw	81.1					5.00	a	6163853.52	2310485.17	5.00
POINTSOURCE		CAR91	81.1	81.1	81.1	Lw	81.1					5.00	a	6163922.45	2310548.59	5.00
POINTSOURCE		CAR92	81.1	81.1	81.1	Lw	81.1					5.00	a	6163916.94	2310689.22	5.00
POINTSOURCE		CAR93	81.1	81.1	81.1	Lw	81.1					5.00	a	6164018.96	2310691.98	5.00
POINTSOURCE		CAR94	81.1	81.1	81.1	Lw	81.1					5.00	a	6164432.58	2310592.71	5.00
POINTSOURCE		CAR95	81.1	81.1	81.1	Lw	81.1					5.00	a	6164314.01	2310548.59	5.00
POINTSOURCE		CAR96	81.1	81.1	81.1	Lw	81.1					5.00	a	6164443.61	2310507.23	5.00
POINTSOURCE		CAR97	81.1	81.1	81.1	Lw	81.1					5.00	a	6164327.80	2310667.16	5.00
POINTSOURCE		CAR98	81.1	81.1	81.1	Lw	81.1					5.00	a	6164418.79	2310669.92	5.00
POINTSOURCE		CAR99	81.1	81.1	81.1	Lw	81.1					5.00	a	6164515.30	2310669.92	5.00
POINTSOURCE		DOCK01	103.4	103.4	103.4	Lw	103.4					8.00	a	6161950.11	2310830.17	8.00
POINTSOURCE		DOCK02	103.4	103.4	103.4	Lw	103.4					8.00	a	6161996.03	2311076.62	8.00
POINTSOURCE		DOCK03	103.4	103.4	103.4	Lw	103.4					8.00	a	6161928.68	2310977.13	8.00
POINTSOURCE		DOCK04	103.4	103.4	103.4	Lw	103.4					8.00	a	6161847.55	2310948.04	8.00
POINTSOURCE		DOCK13	103.4	103.4	103.4	Lw	103.4					8.00	a	6164570.45	2311585.38	8.00
POINTSOURCE		DOCK14	103.4	103.4	103.4	Lw	103.4					8.00	a	6164336.07	2311590.89	8.00
POINTSOURCE		DOCK15	103.4	103.4	103.4	Lw	103.4					8.00	a	6164093.41	2311590.89	8.00
POINTSOURCE		DOCK16	103.4	103.4	103.4	Lw	103.4					8.00	a	6163892.12	2311593.65	8.00
POINTSOURCE		DOCK17	103.4	103.4	103.4	Lw	103.4					8.00	a	6163682.56	2311599.17	8.00
POINTSOURCE		DOCK18	103.4	103.4	103.4	Lw	103.4					8.00	a	6163478.51	2311596.41	8.00
POINTSOURCE		DOCK19	103.4	103.4	103.4	Lw	103.4					8.00	a	6163285.49	2311596.41	8.00
POINTSOURCE		DOCK30	103.4	103.4	103.4	Lw	103.4					8.00	a	6164666.96	2311466.81	8.00
POINTSOURCE		DOCK31	103.4	103.4	103.4	Lw	103.4					8.00	a	6164435.33	2311475.08	8.00
POINTSOURCE		DOCK32	103.4	103.4	103.4	Lw	103.4					8.00	a	6164209.23	2311472.32	8.00
POINTSOURCE		DOCK33	103.4	103.4	103.4	Lw	103.4					8.00	a	6163980.36	2311477.84	8.00
POINTSOURCE		DOCK34	103.4	103.4	103.4	Lw	103.4					8.00	a	6163776.31	2311483.35	8.00
POINTSOURCE		DOCK35	103.4	103.4	103.4	Lw	103.4					8.00	a	6163577.78	2311483.35	8.00
POINTSOURCE		DOCK36	103.4	103.4	103.4	Lw	103.4					8.00	a	6163393.03	2311491.63	8.00
POINTSOURCE		DOCK38	103.4	103.4	103.4	Lw	103.4					8.00	a	6161870.94	2310876.72	8.00
POINTSOURCE		DOCK39	103.4	103.4	103.4	Lw	103.4					8.00	a	6162006.05	2311011.84	8.00
POINTSOURCE		DOCK40	103.4	103.4	103.4	Lw	103.4					8.00	a	6161887.48	2311053.20	8.00
POINTSOURCE		DOCK41	103.4	103.4	103.4	Lw	103.4					8.00	a	6161937.26	2312148.53	8.00
POINTSOURCE		DOCK42	103.4	103.4	103.4	Lw	103.4					8.00	a	6161787.70	2312206.22	8.00
POINTSOURCE		DOCK43	103.4	103.4	103.4	Lw	103.4					8.00	a	6161937.26	2312298.09	8.00
POINTSOURCE		DOCK44	103.4	103.4	103.4	Lw	103.4					8.00	a	6161785.57	2312389.95	8.00
POINTSOURCE		DOCK45	103.4	103.4	103.4	Lw	103.4					8.00	a	6161939.39	2312481.82	8.00
POINTSOURCE		DOCK46	103.4	103.4	103.4	Lw	103.4					8.00	a	6161783.43	2312558.74	8.00
POINTSOURCE		DOCK47	103.4	103.4	103.4	Lw	103.4					8.00	a	6161939.39	2312676.24	8.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		DOCK48	103.4	103.4	103.4	Lw	103.4					8.00	a	6161779.16	2312742.47	8.00
POINTSOURCE		DOCK55	103.4	103.4	103.4	Lw	103.4					8.00	a	6161802.66	2313122.77	8.00
POINTSOURCE		DOCK56	103.4	103.4	103.4	Lw	103.4					8.00	a	6161740.70	2313214.64	8.00
POINTSOURCE		DOCK57	103.4	103.4	103.4	Lw	103.4					8.00	a	6161811.21	2313355.64	8.00
POINTSOURCE		DOCK58	103.4	103.4	103.4	Lw	103.4					8.00	a	6161749.25	2313468.88	8.00
POINTSOURCE		DOCK59	103.4	103.4	103.4	Lw	103.4					8.00	a	6161811.21	2313603.47	8.00
POINTSOURCE		DOCK60	103.4	103.4	103.4	Lw	103.4					8.00	a	6161762.07	2313742.35	8.00
POINTSOURCE		PARK01	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6163785.18	2309430.76	5.00
POINTSOURCE		PARK02	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6163649.65	2309423.98	5.00
POINTSOURCE		PARK03	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6163724.19	2309539.19	5.00
POINTSOURCE		PARK04	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160661.03	2309823.82	5.00
POINTSOURCE		PARK05	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160694.91	2309722.17	5.00
POINTSOURCE		PARK06	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160566.15	2309762.83	5.00
POINTSOURCE		PARK07	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160722.02	2311158.87	5.00
POINTSOURCE		PARK08	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160708.47	2311043.66	5.00
POINTSOURCE		PARK09	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160606.81	2311145.32	5.00
POINTSOURCE		PARK10	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6161054.09	2312466.82	5.00
POINTSOURCE		PARK11	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160986.32	2312358.39	5.00
POINTSOURCE		PARK12	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160935.18	2312478.06	5.00
POINTSOURCE		PARK13	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160467.36	2313605.61	5.00
POINTSOURCE		PARK14	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160465.22	2313276.59	5.00
POINTSOURCE		PARK15	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160674.60	2313225.32	5.00
POINTSOURCE		PARK16	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160460.95	2313424.01	5.00
POINTSOURCE		PARK17	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160646.82	2313609.88	5.00
POINTSOURCE		PARK18	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160283.62	2313631.25	5.00
POINTSOURCE		PARK19	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160247.30	2313270.18	5.00
POINTSOURCE		PARK20	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160832.70	2313601.34	5.00
POINTSOURCE		PARK21	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160695.96	2313398.37	5.00
POINTSOURCE		PARK22	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160841.24	2313206.09	5.00
POINTSOURCE		PARK23	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160762.19	2313037.31	5.00
POINTSOURCE		PARK24	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160516.50	2313114.22	5.00
POINTSOURCE		PARK25	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160326.35	2313030.90	5.00
POINTSOURCE		PARK26	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160012.29	2313020.22	5.00
POINTSOURCE		PARK27	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160155.43	2313101.40	5.00
POINTSOURCE		PARK28	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160012.29	2313272.32	5.00
POINTSOURCE		PARK29	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160166.12	2313473.15	5.00
POINTSOURCE		PARK30	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160022.97	2313622.70	5.00
POINTSOURCE		PARK31	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160768.60	2313789.35	5.00
POINTSOURCE		PARK32	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160610.50	2313908.99	5.00
POINTSOURCE		PARK33	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160441.72	2313793.62	5.00
POINTSOURCE		PARK34	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160319.94	2313923.95	5.00
POINTSOURCE		PARK35	81.4	81.4	81.4	Lw	81.4		900.00	0.00	0.00	5.00	a	6160166.12	2313802.17	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRUCK01	93.2	93.2	93.2	63.8	63.8	63.8	Lw	93.2									8	a
LINESOURCE		TRUCK02	93.2	93.2	93.2	70.6	70.6	70.6	Lw	93.2									8	a
LINESOURCE		TRUCK03	93.2	93.2	93.2	64.1	64.1	64.1	Lw	93.2									8	a
LINESOURCE		TRUCK04	93.2	93.2	93.2	64.2	64.2	64.2	Lw	93.2									8	a
LINESOURCE		TRUCK05	93.2	93.2	93.2	75.8	75.8	75.8	Lw	93.2									8	a
LINESOURCE		TRUCK06	93.2	93.2	93.2	67.9	67.9	67.9	Lw	93.2									8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	8.00	a			6162426.51	2313832.08	8.00	0.00
					6161851.80	2313838.49	8.00	0.00
					6161817.62	2312031.03	8.00	0.00
					6162276.96	2312022.48	8.00	0.00
LINESOURCE	8.00	a			6161835.47	2312975.17	8.00	0.00
					6162426.51	2312964.67	8.00	0.00
LINESOURCE	8.00	a			6162372.79	2311524.72	8.00	0.00
					6165032.50	2311519.05	8.00	0.00
LINESOURCE	8.00	a			6165027.47	2310818.74	8.00	0.00
					6162441.72	2310843.63	8.00	0.00
LINESOURCE	8.00	a			6161829.58	2310452.08	8.00	0.00
					6161840.60	2310631.31	8.00	0.00
LINESOURCE	8.00	a			6162287.31	2311530.23	8.00	0.00
					6162119.10	2311439.24	8.00	0.00
					6162108.07	2310901.54	8.00	0.00
					6161840.60	2310631.31	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
			103.4	103.4	103.4	59.4	59.4	59.4	Lw	103.4					0	r

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
	0.00	r		6163052.42	2310942.36	0.00	0.00
				6163048.57	2310782.69	0.00	0.00
				6164706.79	2310755.76	0.00	0.00
				6164710.64	2310919.28	0.00	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)
BARRIERPLANNED		0						14.00	a		6163036.39	2310814.91	14.00	0.00
											6163036.39	2310755.51	14.00	0.00
											6164725.56	2310743.63	14.00	0.00
											6164725.56	2310774.52	14.00	0.00
BARRIERPLANNED		0						14.00	a		6162071.52	2313792.99	14.00	0.00
											6162063.63	2313087.96	14.00	0.00
BARRIERPLANNED		0						14.00	a		6161996.13	2312835.26	14.00	0.00
											6161987.52	2312101.61	14.00	0.00
BARRIERPLANNED		0						14.00	a		6162055.58	2311097.23	14.00	0.00
											6162049.44	2310900.62	14.00	0.00
											6161876.18	2310727.36	14.00	0.00
BARRIERPLANNED		0						14.00	a		6163235.14	2311631.71	14.00	0.00
											6164719.26	2311616.25	14.00	0.00
BARRIERPLANNED		0						14.00	a		6162074.07	2313797.59	14.00	0.00
											6161912.18	2313799.97	14.00	0.00
BARRIERPLANNED		0						14.00	a		6161715.77	2313808.30	14.00	0.00
											6161800.29	2313805.92	14.00	0.00
BARRIERPLANNED		0						6.00	a		6161504.62	2311329.71	6.00	0.00
											6161503.10	2310491.48	6.00	0.00
BARRIERPLANNED		0						6.00	a		6162652.85	2310290.23	6.00	0.00
											6164170.64	2310284.46	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		45.00	a	6161356.14	2312883.48	45.00	0.00
								6161753.52	2312879.21	45.00	0.00
								6161747.11	2311969.07	45.00	0.00
								6161520.64	2311975.48	45.00	0.00
								6161522.78	2312471.14	45.00	0.00
								6161356.14	2312708.29	45.00	0.00
BUILDING		BUILDING00002	x	0		45.00	a	6161279.22	2313855.58	45.00	0.00
								6161715.06	2313851.31	45.00	0.00
								6161700.11	2313067.22	45.00	0.00
								6161268.54	2313062.95	45.00	0.00
BUILDING		BUILDING00003	x	0		45.00	a	6161664.13	2311491.63	45.00	0.00
								6162050.25	2311485.75	45.00	0.00
								6162044.65	2311122.13	45.00	0.00
								6161799.24	2311127.65	45.00	0.00
								6161788.16	2310660.74	45.00	0.00
								6161642.07	2310658.89	45.00	0.00
BUILDING		BUILDING00004	x	0		45.00	a	6162960.12	2311287.58	45.00	0.00
								6163081.44	2311453.02	45.00	0.00
								6164871.01	2311436.48	45.00	0.00
								6164854.46	2310929.11	45.00	0.00
								6162957.36	2310953.93	45.00	0.00
BUILDING		BUILDING00005	x	0		25.00	a	6162557.53	2310703.01	25.00	0.00
								6162620.95	2310700.25	25.00	0.00
								6162615.44	2310543.07	25.00	0.00
								6162552.02	2310551.35	25.00	0.00
BUILDING		BUILDING00006	x	0		25.00	a	6162631.98	2310518.26	25.00	0.00
								6162825.00	2310512.74	25.00	0.00
								6162825.00	2310463.11	25.00	0.00
								6162629.23	2310465.87	25.00	0.00
BUILDING		BUILDING00007	x	0		25.00	a	6162830.52	2310686.46	25.00	0.00
								6162957.36	2310689.22	25.00	0.00
								6162954.60	2310631.31	25.00	0.00
								6162838.79	2310631.31	25.00	0.00
BUILDING		BUILDING00008	x	0		25.00	a	6163026.29	2310736.09	25.00	0.00
								6163122.80	2310741.61	25.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
								6163117.29	2310636.83	25.00	0.00
								6163026.29	2310636.83	25.00	0.00
BUILDING		BUILDING00009	x	0		25.00	a	6163244.13	2310512.74	25.00	0.00
								6163326.85	2310509.99	25.00	0.00
								6163329.61	2310463.11	25.00	0.00
								6163235.86	2310465.87	25.00	0.00
BUILDING		BUILDING00010	x	0		25.00	a	6163453.69	2310501.71	25.00	0.00
								6163583.29	2310509.99	25.00	0.00
								6163583.29	2310449.32	25.00	0.00
								6163448.18	2310452.08	25.00	0.00
BUILDING		BUILDING00011	x	0		25.00	a	6163652.23	2310725.06	25.00	0.00
								6163859.03	2310730.58	25.00	0.00
								6163861.79	2310639.58	25.00	0.00
								6163652.23	2310642.34	25.00	0.00
BUILDING		BUILDING00012	x	0		25.00	a	6163980.36	2310543.07	25.00	0.00
								6164027.24	2310540.32	25.00	0.00
								6164027.24	2310454.84	25.00	0.00
								6163991.39	2310452.08	25.00	0.00
BUILDING		BUILDING00013	x	0		25.00	a	6164165.11	2310664.40	25.00	0.00
								6164220.26	2310656.13	25.00	0.00
								6164217.50	2310532.05	25.00	0.00
								6164165.11	2310537.56	25.00	0.00
BUILDING		BUILDING00014	x	0		25.00	a	6164187.17	2310487.93	25.00	0.00
								6164300.22	2310493.44	25.00	0.00
								6164300.22	2310438.29	25.00	0.00
								6164178.89	2310441.05	25.00	0.00
BUILDING		BUILDING00015	x	0		25.00	a	6164595.26	2310719.55	25.00	0.00
								6164722.11	2310716.79	25.00	0.00
								6164716.59	2310634.07	25.00	0.00
								6164598.02	2310639.58	25.00	0.00
BUILDING		BUILDING00016	x	0		25.00	a	6164512.54	2310529.29	25.00	0.00
								6164567.69	2310540.32	25.00	0.00
								6164567.69	2310449.32	25.00	0.00
								6164520.81	2310452.08	25.00	0.00
BUILDING		BUILDING00017	x	0		25.00	a	6164669.71	2310493.44	25.00	0.00
								6164749.68	2310487.93	25.00	0.00
								6164749.68	2310435.54	25.00	0.00
								6164672.47	2310432.78	25.00	0.00
BUILDING		BUILDING00018	x	0		25.00	a	6164791.04	2310487.93	25.00	0.00
								6164882.04	2310479.65	25.00	0.00
								6164882.04	2310430.02	25.00	0.00
								6164780.01	2310427.26	25.00	0.00
BUILDING		BUILDING00019	x	0		25.00	a	6164915.13	2310548.59	25.00	0.00
								6164967.52	2310548.59	25.00	0.00
								6164967.52	2310487.93	25.00	0.00
								6164909.61	2310498.96	25.00	0.00
BUILDING		BUILDING00020	x	0		25.00	a	6163810.74	2310118.63	25.00	0.00
								6163939.67	2310118.63	25.00	0.00
								6163938.17	2309863.78	25.00	0.00
								6164696.72	2309857.78	25.00	0.00
								6164699.72	2310102.14	25.00	0.00
								6164860.13	2310097.64	25.00	0.00
								6164846.64	2309736.35	25.00	0.00
								6163807.74	2309755.84	25.00	0.00
BUILDING		BUILDING00021	x	0		25.00	a	6164710.39	2309609.47	25.00	0.00
								6164808.86	2309606.92	25.00	0.00
								6164807.16	2309401.49	25.00	0.00
								6164706.15	2309404.04	25.00	0.00

Ground Absorption(s)

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
GROUND		0	0.5	6160145.98	2315191.14
				6162423.03	2315191.14
				6162416.25	2314005.18
				6160071.44	2314059.39
GROUND		0	0.5	6162599.22	2314818.41
				6163127.82	2314791.30
				6163107.49	2314188.15
				6164164.69	2314167.82
				6164130.81	2311714.58
				6162538.23	2311707.80

APPENDIX 11.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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14822 - Rich Haven Specific Plan

CadnaA Noise Prediction Model: 14822-02_Construction.cna
Date: 17.10.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	56.0	-51.0	53.0	65.0	45.0	0.0				5.00	a	6161938.34	2315328.19	5.00
RECEIVERS		R2	53.3	-53.6	50.3	65.0	45.0	0.0				5.00	a	6162735.95	2314875.32	5.00
RECEIVERS		R3	63.7	-43.3	60.7	65.0	45.0	0.0				5.00	a	6163483.69	2310238.26	5.00
RECEIVERS		R4	55.8	-51.1	52.8	65.0	45.0	0.0				5.00	a	6162048.86	2308936.45	5.00
RECEIVERS		R5	63.8	-43.2	60.8	65.0	45.0	0.0				5.00	a	6161471.50	2310774.52	5.00
RECEIVERS		R6	55.1	-51.9	52.1	65.0	45.0	0.0				5.00	a	6159739.11	2311421.01	5.00
RECEIVERS		R7	54.8	-52.2	51.8	65.0	45.0	0.0				5.00	a	6159775.06	2314442.86	5.00
RECEIVERS		R8	52.5	-54.5	49.5	65.0	45.0	0.0				5.00	a	6160277.95	2317097.00	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSRUCTION	122.0	15.0	15.0	58.3	-48.6	-48.6	PWL-Pt	115					8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a			6159965.00	2316909.01	8.00	0.00
					6161260.25	2316906.76	8.00	0.00
					6161230.46	2315263.96	8.00	0.00
					6162521.69	2315243.59	8.00	0.00
					6162473.69	2311651.45	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6165033.26	2311624.61	8.00	0.00
			6165014.25	2308981.07	8.00	0.00
			6159855.93	2309066.93	8.00	0.00