



Arroyo Vista

NOISE IMPACT ANALYSIS

COUNTY OF RIVERSIDE

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
NR	Noise Reduction
Project	Arroyo Vista
REMEL	Reference Energy Mean Emission Level
STC	Sound Transmission Class

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise abatement measures for the proposed residential development Arroyo Vista ("Project"). The Project site is located on the northwest corner of Chicago Avenue and Iris Avenue in the Woodcrest area of unincorporated County of Riverside. This analysis conservatively assesses the development of 233 single-family residential dwelling units, while the Project proposes a slightly smaller development of 231 single-family dwelling units. This noise impact analysis was prepared to satisfy the County of Riverside noise level standards and ensure that adequate noise abatement measures are incorporated into the Project's development. In addition, recommendations for exterior and interior noise abatement are identified based on the latest Project site and grading plans.

EXTERIOR NOISE ABATEMENT

According to the County of Riverside 65 dBA CNEL exterior noise level standard for residential land uses, the on-site unmitigated exterior noise levels are considered normally acceptable for the proposed dwelling units. The on-site traffic noise level impacts indicate that the outdoor living areas adjacent to Chicago Avenue and Iris Avenue will experience unshielded exterior noise levels ranging from 61.3 to 64.2 dBA CNEL. Therefore, no mitigation would be required, and exterior noise impacts would be *less than significant*.

INTERIOR NOISE ABATEMENT

The interior noise level analysis shows that this interior areas would require a 16.3 to 20.9 dBA CNEL reduction to comply with the County of Riverside 45 dBA CNEL standard, which is greater than the minimum 12 dBA reduction with windows open and will require a windows-closed condition and mechanical ventilation (e.g., air conditioning). The Project intends to provide each unit in the development with mechanical ventilation, thus the windows can be kept in a closed position as required. Based on standard construction techniques, interior noise standards can be satisfied using standard windows and construction techniques. Therefore, no mitigation would be required to satisfy the County of Riverside 45 dBA CNEL interior noise level standards, and interior noise impacts would be *less than significant*.

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on twenty-three roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Arroyo Vista Traffic Impact Analysis*. (21) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing and Existing Plus Project, Opening Year (2027) Project Buildout, and Horizon Year (2045) traffic conditions.

The Existing without Project exterior noise levels are expected to range from 41.0 to 76.6 dBA CNEL. The Existing plus Project conditions will range from 41.0 to 76.6 dBA CNEL. The Project off-site traffic noise level increases will range from 0.0 to 8.2 dBA CNEL. Land uses adjacent to the study area roadway segment 8 (Gamble Avenue s/o Iris Avenue) would experience *significant* noise level increases due to unmitigated Project-related traffic noise levels. However, the overall noise level would be less than 53 dBA CNEL. Based on the existing measured noise level in the vicinity of Gamble Avenue, the ambient noise level is approximately 55-56 dBA CNEL, thus the Project traffic increase would be less than 1 dBA. In addition, the existing plus project condition would not actually occur since the Project would not generate traffic until the opening year 2027. Therefore, traffic noise increases would be *less than significant*.

The EAP Year 2027 without Project exterior noise levels are expected to range from 41.5 to 77.0 dBA CNEL. The EAPC Year 2027 with Project conditions will range from 41.0 to 77.8 dBA CNEL. Under this scenario the Project off-site traffic noise level increases will range from -0.5 to 0.8 dBA CNEL. All noise sensitive land uses adjacent to the study area roadways would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

The Horizon Year 2045 without Project exterior noise levels are expected to range from 41.5 to 78.4 dBA CNEL. The Horizon Year 2045 with Project conditions will range from 41.0 to 78.6 dBA CNEL. The Project off-site traffic noise level increases will range from -0.5 to 6.1 dBA CNEL. Land uses adjacent to the study area roadway segment 8 (Gamble Avenue s/o Iris Avenue) would experience *significant* noise level increases due to unmitigated Project-related traffic noise levels. However, the overall noise level would be approximately 53 dBA CNEL. Based on the existing measured noise level in the vicinity of Gamble Avenue, the ambient noise level is approximately 55-56 dBA CNEL, thus the Project traffic increase would be less than 1 dBA. Therefore, traffic noise increases would be *less than significant*.

Therefore, the analysis shows that the Project-related traffic noise level increases would be less than significant.

OPERATIONAL NOISE ANALYSIS

The Arroyo Vista residential development is not expected to include any specific type of operational noise levels beyond the typical noise sources associated with similar residential land uses in the Project study area, such as people and children, parking lot activity, garage doors, small air conditioners, and trash collection, and is considered a noise-sensitive receiving land use. However, there is the potential for operational noise impacts due to ground mounted air conditioners (HVAC) at adjacent residential land uses.

To assess the noise impacts of potential air conditioners, Urban Crossroads modeled typical 1- to 5-ton air conditioners on each lot at the approximate location of the units. Based on modeling, the daytime hourly noise levels at the off-site receiver locations are expected to range from 29.6 to 35.5 dBA L_{eq} . The nighttime hourly noise levels at the off-site receiver locations are expected to range from 26.8 to 32.8 dBA L_{eq} . The operational noise levels associated with Arroyo Vista Project will not exceed the County of Riverside 55 dBA L_{ed} daytime and 45 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Additionally, the Project will

generate a daytime and nighttime operational noise level increases ranging from 0.0 to 04 dBA L_{eq} at the nearest receiver locations. Therefore, operational noise impacts of the Project are considered *less than significant*.

CONSTRUCTION AND ROCK CRUSHING NOISE ANALYSIS

Using sample reference noise levels to represent the planned construction and rock crushing activities at the Arroyo Vista site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the County of Riverside General Plan and County Code of Ordinances do not identify specific construction noise level thresholds, an hourly average L_{eq} threshold is identified based on the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* for noise sensitive residential use. The Project-related construction and rock crushing activities noise levels are expected to range from 56.4 to 61.3 dBA L_{eq} and will satisfy the 80 dBA L_{eq} construction noise level threshold at all receiver locations. Additionally, construction activities are planned to typically occur between 7:00 a.m. and 5:00 p.m. and would comply with the County of Riverside limitation on allowable hours of construction per Section 9.52.020. Therefore, based on the results of this analysis, all nearby sensitive receiver locations will experience *less than significant* impacts due to Project construction noise levels.

CONSTRUCTION AND ROCK CRUSHING VIBRATION

Construction and rock crushing activities can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). At the nearest receivers Project construction vibration velocity levels are estimated to reach up to 0.02 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.04 PPV (in/sec), the typical Project construction vibration levels will not exceed the County of Riverside thresholds at properties located adjacent to the Project site and vibration impacts would be *less than significant*.

BLASTING NOISE ANALYSIS

Blasting associated with Project construction would occur on-site and near residential homes. While some blasting noise will be noticeable by nearby residents, the recommended construction noise and vibration recommendations identified in this report will reduce the worst-case noise levels calculated using RCNM. RCNM reference noise level for explosive blasting equipment is 94 dBA L_{max} at a distance of 50 feet. (1) Since the County of Riverside General Plan and County Code of Ordinances do not identify specific construction noise level limits for blasting activities, the Office of Surface Mining Reclamation and Enforcement (OSMRE) and the Code of Federal Regulations (CFR) Airblast Limits (30 CFR 816.67(b)) (2) are used to represent an appropriate threshold for determining potential impacts due to blasting-related noise levels. The noise levels at the individual receiver locations, will approach 70.2 dBA L_{max} and will not exceed the CFR

maximum noise level of 129 dBA $L_{\max}$ noise level threshold and blasting noise impacts would be *less than significant*.

BLASTING VIBRATION ANALYSIS

Blasting operations can have unacceptable noise and vibration impacts if not conducted correctly. Excessive levels of structural vibration due to ground vibration from blasting can cause substantial damage to structures. Therefore, Noise-1 is required to mitigate potential vibration impacts. With the implementation of the identified controls vibration levels from blasting activities at sensitive receivers would be *less than significant*.

CONSTRUCTION BLASTING NOISE AND VIBRATION ABATEMENT MEASURES

Though blasting noise and vibration is temporary, intermittent and of short duration, and will not present any long-term impacts, the following practices would reduce any noise and vibration level increases produced by blasting activities to the nearby noise-sensitive residential land uses:

The following practices would reduce any noise and vibration level impacts produced by the proposed blasting activities at the nearby noise-sensitive residential land uses:

MM Noise-1: Blasting Limitations.

Prior to approval of any grading permits that require blasting activities and a blasting permit, the Project Applicant shall prepare and submit for County review and approval of a Blasting Noise and Vibration Monitoring and Abatement Plan ("Noise and Vibration Abatement Plan"). The required Noise and Vibration Abatement Plan shall include the name and qualifications of the person(s) responsible for monitoring and reporting blast vibrations. In addition, the Noise and Vibration Abatement Plan shall require a minimum of three seismographs for monitoring peak ground vibration and air-overpressure. The Noise and Vibration Abatement Plan also shall require that equipment and its use shall conform fully to the standards developed by the Vibration Section of the International Society of Explosive Engineers (ISEE). For all blasts, the Noise and Vibration Abatement Plan shall require monitoring of ground motion and air-overpressure at the nearest residential properties or other structure of concern. The Noise and Vibration Abatement Plan also shall specify a minimum trigger level for monitoring of 0.05 in/s for ground motion and 120 dB for air-overpressure. Additionally, the Noise and Vibration Abatement Plan shall require regular reporting of blasting and measurements to Riverside County, and shall include a copy of the instrument/software-generated blast monitoring report at each instrument location that includes measured peak particle velocity in inches per second, peak air-overpressure in linear-scale decibels, and vibration and air-overpressure event plots, with date and time of event recording. In addition, the Noise and Vibration Abatement Plan shall include the following requirements:

- Prior to commencement of any blasting, a pre-blast survey of the conditions of all existing property and aboveground utilities located within 300 feet of any potential blasting areas shall be conducted. The pre-blast survey shall include a photographic record of all visible and accessible structures, facilities, utilities, or other improvements. The survey shall document the interior and exterior conditions of all residential property and associated structures located within 500 feet of

blasting areas. If property owners refuse surveys, provide copies of certified-mail letters documenting attempts to provide the survey by a third-party professional survey company. The required surveys shall include a description of the interior and exterior condition of the various structures examined. Descriptions shall include the locations of any cracks, damage, or other existing defects and shall include information needed to identify and describe the defect, if any, and to evaluate the construction operations on the defect. Survey records shall include photos of all cracks and other damaged, weathered, or otherwise deteriorated structural conditions. If necessary, macro lenses and flash illumination shall be used to ensure defects are shown clearly in the photographs. Photos shall contain an accurate date stamp. No blasting shall occur prior to completion of surveys of surrounding residential properties. Surveys also shall be repeated at facilities or properties where damage concerns have been expressed by individual residents, property owners, or other concerned parties. Details of any observed changes to surveyed structures and documenting photos shall be reported and submitted to Riverside County.

- Blasting only shall be allowed Monday through Friday only between the hours of 8:00 a.m. and 5:00 p.m.
- No blasting shall occur closer than 100 feet from residential structures. In the event that non-rippable materials are encountered within 100 feet from any residential structure, alternative methods shall be employed to reduce blasting-related noise and vibration impacts. Alternative rock blasting within 100 feet of residential homes may include methods such as the drilling of holes in the largest area of rock, inserting expansive grout or small charges into each whole to fragment the rock into smaller pieces, and then crushing the pieces for transport or other use.
- No more than a total of 2,000 pounds of explosive shall be detonated each day, excluding detonators.
- All blasts located within 500 feet of any structures or above ground utilities shall be covered with woven steel cable or steel-cable and rubber-tire blasting mats with a minimum weight of 30 pounds per square foot. Woven polypropylene or similar weed-barrier fabric, covered with at least 6 inches of soil or sand shall be placed over blast areas to protect initiators before mats are placed. Mats shall be overlapped at least 3 feet and shall completely cover the blast area and extend at least three feet beyond the blast area in all directions. If any flyrock or blasted material is thrown more than 10 feet or half the distance to the nearest structure, whichever is less, blasting shall be suspended until the County's has approved a revised blasting plan showing revisions to assure adequate ground movement control.
- Before blasts are covered, all loose soils above the blast shall be removed where feasible. Remaining ground located within 20 feet of the blast shall be thoroughly wetted with water to suppress airborne dust. Sand or soils placed over weed-barrier fabric shall be similarly wetted before placing blast mats.
- If specified vibration limits are exceeded, blasting operations shall cease immediately and a revised blasting plan shall be submitted to the County. Blasting shall not resume until a revised blasting plan has been reviewed and the Contractor has expressed in writing the conditions that will be applied to further blasting work.

Project grading and blasting contractors shall be required to ensure compliance with the Noise and Vibration Abatement Plan requirements and shall permit periodic inspection of the construction site by County of Riverside staff or its designee to confirm compliance. The requirements of the Noise and Vibration Abatement Plan also shall be specified in bid documents issued to prospective construction contractors. Riverside County shall review all monitoring

reports to ensure compliance with the Noise and Vibration Abatement Plan and shall have the authority to stop all blasting activities on site if it is determined that blasting activities are not being conducted in conformance with Noise and Vibration Abatement Plan and/or the above-listed requirements.

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Arroyo Vista Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (3). 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
On-Site Traffic Noise	7	<i>Less Than Significant</i>	-
Off-Site Traffic Noise	8	<i>Less Than Significant</i>	-
Operational Noise	10	<i>Less Than Significant</i>	-
Construction & Rock Crushing Noise	11	<i>Less Than Significant</i>	-
Construction & Rock Crushing Vibration		<i>Less Than Significant</i>	-
Blasting Noise		<i>Less Than Significant</i>	-
Blasting Vibration		<i>Significant</i>	<i>Less Than Significant</i>

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Arroyo Vista ("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 noise analysis, evaluates the potential noise impacts from operation and construction of the Project, and as necessary, identifies mitigation measures to reduce impacts.

1.1 SITE LOCATION

The Project site is located on the northwest corner of Chicago Avenue and Iris Avenue in the Woodcrest area of unincorporated County of Riverside, as shown on Exhibit 1-A. The closest major airport is the Riverside Municipal Airport located roughly 9.8 miles northwest of the Project site.

1.2 PROJECT DESCRIPTION

The Project consists of the development of 231 single family detached residential dwelling units and associated improvements. The Project is anticipated to be developed in two phases with a Project buildout in 2027, as shown on Exhibit 1-B. This analysis conservatively assesses the development of 233 single-family residential dwelling units.

EXHIBIT 1-A: LOCATION MAP

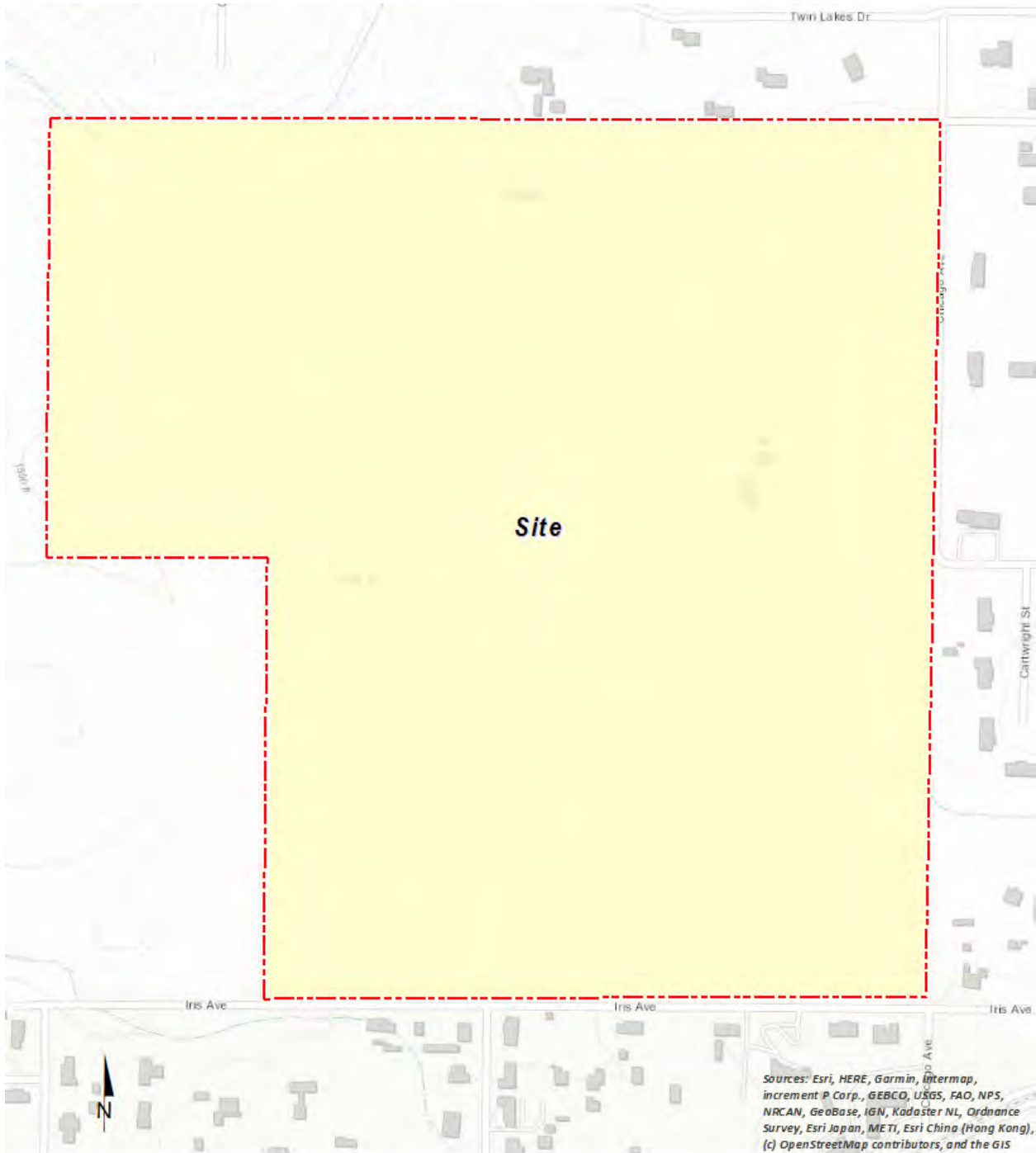
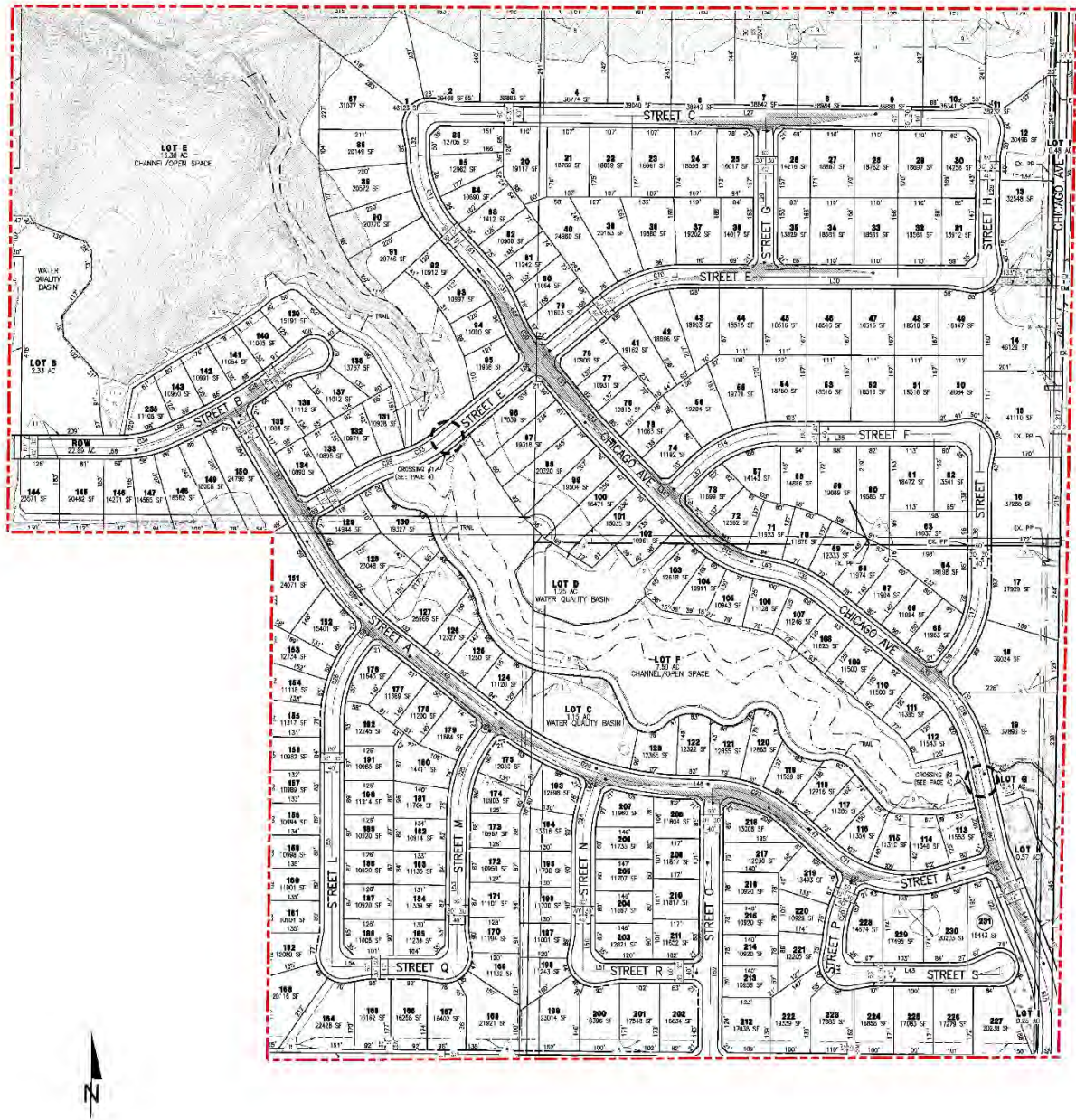


EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise has been 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 (4). 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	SPEECH INTERFERENCE	
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	LOUD		SLEEP DISTURBANCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70			
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60	MODERATE		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50			
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40	FAINT	NO EFFECT	
QUIET SUBURBAN NIGHTTIME	LIBRARY	30			
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20	VERY FAINT		
	BROADCAST/RECORDING STUDIO	10			
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. (5) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (6) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50} , L_{25} , L_8 and L_2 , are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent, and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. While the L_{50} describes the median noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour. Therefore, the L_{eq} noise descriptor is generally 1-2 dBA higher than the L_{50} noise level.

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

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor 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 receptor, 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 receptor 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. (7)

2.3.3 ATMOSPHERIC EFFECTS

Receptors 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. (5)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. 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 resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (7)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor 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 receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (7)

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. (8)

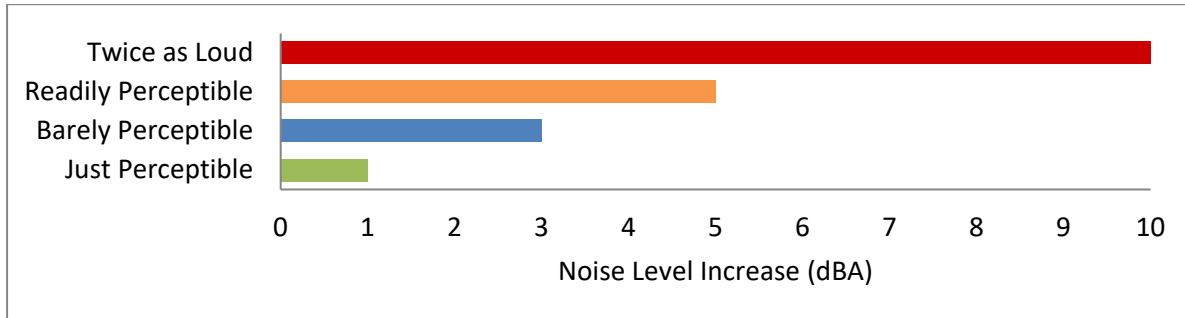
2.8 COMMUNITY RESPONSE TO NOISE

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

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (9) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (9)

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. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA is considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (10)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION

2.9 VIBRATION

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

Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (3). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (3). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structures reduce vibration levels due to the coupling of the building to the soil.

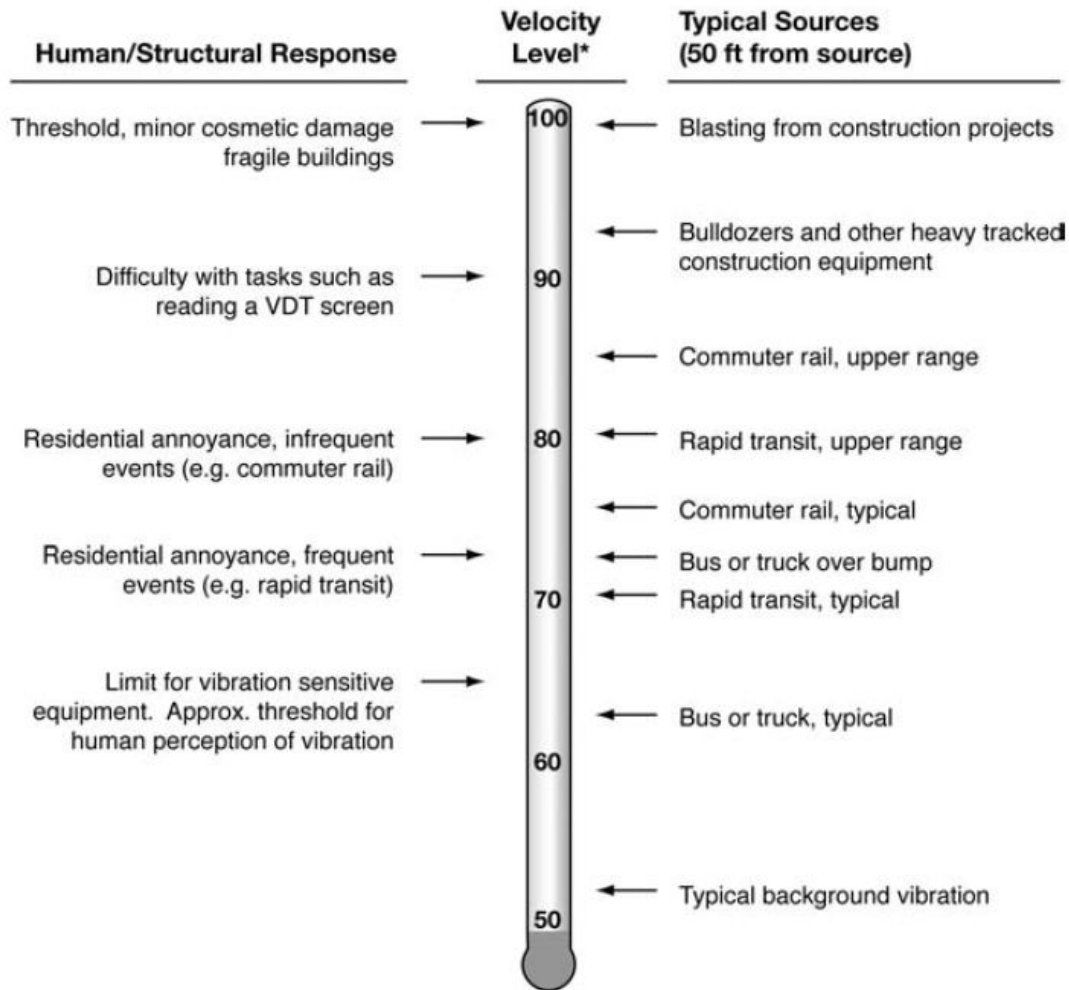
There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal (3). The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human 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 (3). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (11). Thus, either can be used on the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide

a background of common vibration levels and set vibration limits (12). Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

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

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



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

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

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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (13) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards for all residential units are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Chapter 12, Section 1206. These noise standards are applied to new construction that contains dwelling units or sleeping units, such as residential and hotel or motel uses, in California for controlling interior noise levels resulting from exterior noise sources. For new buildings, the acceptable interior noise limit is 45 dBA CNEL in habitable rooms (14).

3.3 COUNTY OF RIVERSIDE GENERAL PLAN NOISE ELEMENT

The County of Riverside has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of the County of Riverside from excessive exposure to noise. (15) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. In addition, the Noise Element identifies several policies to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect County of Riverside residents from excessive noise, the Noise Element contains the following policies related to the Project:

- N 1.1 *Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used.*

- N 1.3 Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 CNEL:*
- *Schools*
 - *Hospitals*
 - *Rest Homes*
 - *Long Term Care Facilities*
 - *Mental Care Facilities*
 - *Residential Uses*
 - *Libraries*
 - *Passive Recreation Uses*
 - *Places of Worship*
- N 1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.*
- N 4.1 Prohibit facility-related noise, received by any sensitive use, from exceeding the following worst-case noise levels:*
- a. *45 dBA 10-minute L_{eq} between 10:00 p.m. and 7:00 a.m.;*
 - b. *65 dBA 10-minute L_{eq} between 7:00 a.m. and 10:00 p.m.*
- N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable standards.*
- N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse impacts on surrounding areas.*
- N 13.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the [County] for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:*
- i. *Temporary noise attenuation fences;*
 - ii. *Preferential location and equipment; and*
 - iii. *Use of current noise suppression technology and equipment.*
- N 14.1 Enforce the California Building Standards that sets standards for building construction to mitigate interior noise levels to the tolerable 45 CNEL limit. These standards are utilized in conjunction with the Uniform Building Code by the County's Building Department to ensure that noise protection is provided to the public. Some design features may include extra-dense insulation, double-paned windows, and dense construction materials.*
- N 16.3 Prohibit exposure of residential dwellings to perceptible ground vibration from passing trains as perceived at the ground or second floor. Perceptible motion shall be presumed to be a motion velocity of 0.01 inches/second over a range of 1 to 100 Hz.*

To ensure noise-sensitive land uses are protected from high levels of noise (N 1.1), Table N-1 of the Noise Element identifies guidelines to evaluate proposed developments based on exterior and interior noise level limits for land uses and requires a noise analysis to determine needed mitigation measures if necessary. The Noise Element identifies residential use as a noise-sensitive land use (N 1.3) and discourages new development in areas with transportation related levels of 65 dBA CNEL or greater existing ambient noise levels. To prevent and mitigate noise impacts for its residents (N 1.5), County of Riverside requires exterior noise attenuation measures

for sensitive land use exposed to transportation related noise levels higher than 65 dBA CNEL. In addition, the County of Riverside had adopted an interior noise level limit of 45 dBA CNEL (N 14.1).

Policy N 4.1 of the Noise Element sets a stationary-source exterior noise limit to not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. To prevent high levels of construction noise from impacting noise-sensitive land uses, policies N 13.1 through 13.3 identify construction noise mitigation requirements for new development located near existing noise-sensitive land uses. Policy 16.3 establishes the vibration perception threshold for rail-related vibration levels, used in this analysis as a threshold for determining potential vibration impacts due to Project construction. (15)

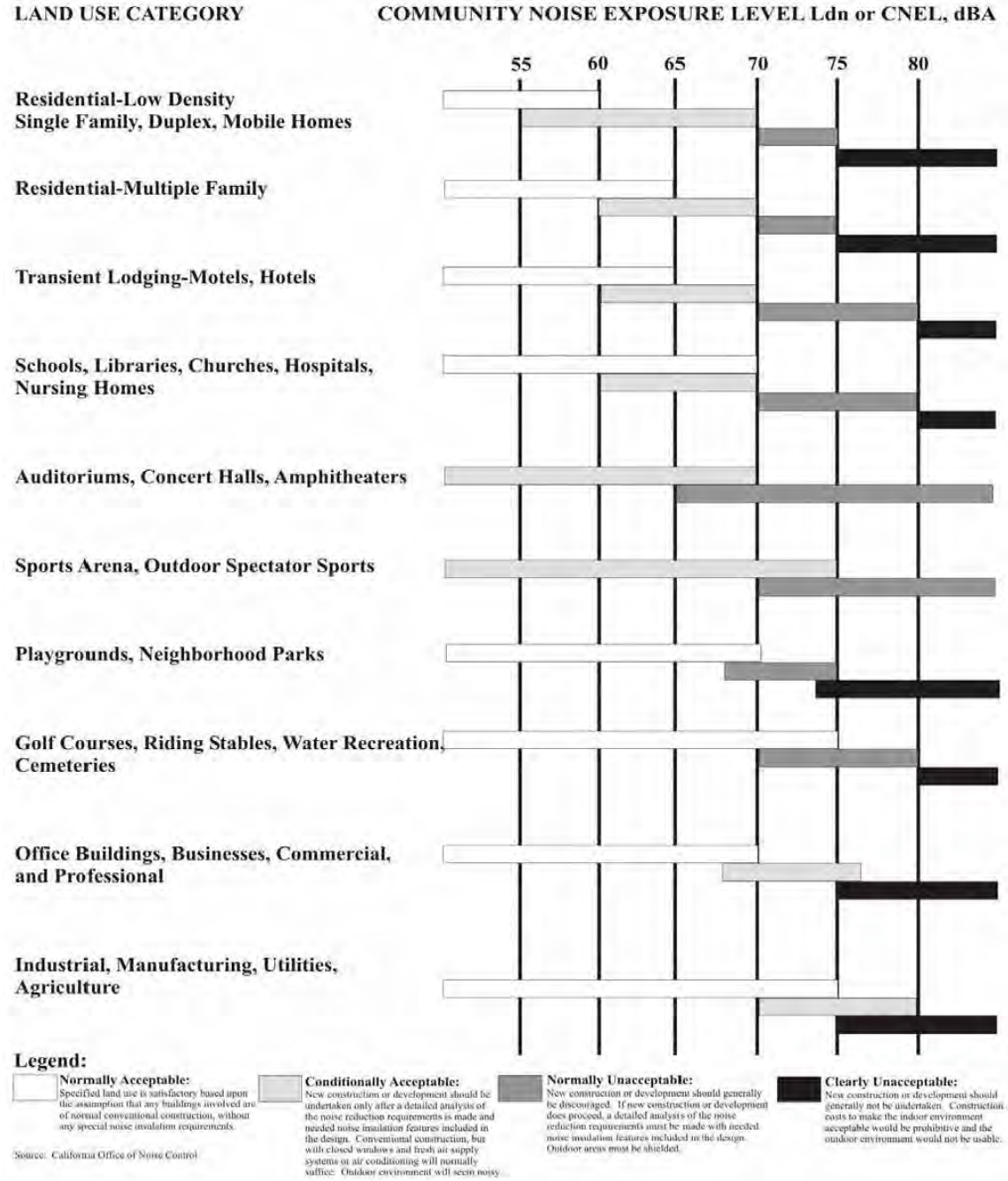
3.2.1 LAND USE COMPATIBILITY GUIDELINES

The noise criteria identified in the County of Riverside Noise Element (Table N-1) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the County with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The *Land Use Compatibility for Community Noise Exposure* matrix describes categories of compatibility and not specific noise standards. The Arroyo Vista land use is considered *normally acceptable* with unmitigated exterior noise levels of less than 60 dBA CNEL. For *conditionally acceptable* exterior noise levels, approaching 70 dBA CNEL for residential land uses, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.* (15)

3.2.2 COUNTY OF RIVERSIDE STATIONARY NOISE STANDARDS

The County of Riverside has set hourly average L_{eq} exterior noise limits to control the stationary-source noise associated with the development of the proposed Arroyo Vista. The County considers noise generated using motor vehicles to be a stationary noise source when operated on private property such as at a loading dock. These facility-related noises, as projected to any portion of any surrounding property containing a *habitable dwelling, hospital, school, library or nursing home*, must not exceed the following worst-case noise levels. Policy N 4.1 of the County of Riverside General Plan Noise Element sets a stationary-source average L_{eq} exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. (15)

EXHIBIT 3-A: LAND USE COMPATIBILITY FOR COMMUNITY NOISE EXPOSURE



Source: County of Riverside General Plan Noise Element, Table N-1.

The County of Riverside County Code of Ordinances Section 9.52.040 *General sound level standards* identify lower, more restrictive exterior noise level standards, which for the purpose of this report, are used to evaluate potential Project-related operational noise level limits instead of the higher General Plan exterior noise level standards previously identified. The County of Riverside County Code of Ordinances identifies exterior noise level limits of 55 dBA L_{eq} during the daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. for noise-sensitive uses. (16) The County of Riverside County Code of Ordinances Noise Ordinance is included in Appendix 3.1.

Based on several discussions with the County of Riverside Department of Environmental Health (DEH), Office of Industrial Hygiene (OIH), it is important to recognize that the County of Riverside County Code of Ordinances noise level standards, incorrectly identify maximum noise level (L_{max}) standards that should instead reflect the maximum hourly average noise levels (L_{eq}). Moreover, the County of Riverside DEH OIH's April 15th, 2015 *Requirements for determining and mitigating, non-transportation noise source impacts to residential properties* also identifies operational (stationary-source) noise level limits using the L_{eq} metric, consistent with the direction of the County of Riverside General Plan guidelines and standards provided in the Noise Element. Therefore, this report has been prepared consistent with direction of the County of Riverside DEH OIH guidelines and standards using the average L_{eq} noise level metric for stationary-source (operational) noise level evaluation.

3.3 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the County of Riverside has established limits to the hours of operation. Section 9.52.020 of the County's Noise Regulation ordinance indicates that noise associated with any private construction activity located within one-quarter of a mile from an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May. (16) Neither the County's General Plan nor County Code of Ordinances establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (17 p. 179)

3.4 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity.

The County of Riverside does not have vibration standards, but the County's General Plan Noise Element does contain the human reaction to typical vibration levels. Typical vibration levels between 10 and 30 Hertz with peak particle velocity of 0.0787 inches per second are considered readily perceptible and above 0.1968 in/sec are considered annoying to people in buildings. Further, County of Riverside General Plan Policy N 16.3 identifies a motion velocity perception threshold for vibration due to passing trains of 0.01 inches per second (in/sec) over the range of one to 100 Hz (15).

3.7 CONSTRUCTION BLASTING STANDARDS

The construction of the proposed Project will include blasting of hard rock areas, which is a major source of potential noise and vibration impacts to nearby residential receivers. Since the County of Riverside General Plan and County Code of Ordinances do not identify specific construction noise level limits for blasting activities, the Office of Surface Mining Reclamation and Enforcement (OSMRE) and the Code of Federal Regulations (CFR) Airblast Limits (30 CFR 816.67(b)) are used. Section 816.2 of Title 30 of the CFR indicates that the blasting regulations are intended to ensure that all surface mining activities are conducted in a manner which preserves and enhances environmental and other values in accordance with the Act. (2) While the OSMRE regulates mining activities, the blasting activities at the Project site represent surface mining activities which, to satisfy California Environmental Quality Act (CEQA) guidelines, must demonstrate that they do not adversely affect the existing environment. Therefore, the OSMRE blasting regulations are applied to the blasting activities anticipated at the Project site. For mining operations, which require larger blasts than that of the Project, the lowest noise level threshold identified in the CFR is a maximum noise level 129 dBA L_{max} for blasting activity measured at the location of any dwelling, public building, school, church, or community or institutional building outside the permit area. (2) The L_{max} threshold used in the noise analysis is suitable for single-event noise levels, such as blasting activities, since other noise regulations in L_{eq} (energy average), for example, average out a reference noise level over a given time period which reduces the single-event noise level over a longer period of time. The L_{max} , therefore, allows for the shorter-duration single-event noise levels to be evaluated against an appropriate threshold.

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. (18) 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*. (19) 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. The Federal Interagency Committee on Noise (FICON) (20) 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}).

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 (21 p. 9) and Caltrans (10 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of the Project, vibration-generating activities are appropriately evaluated against the thresholds of significance outlined in the County of Riverside General Plan. (15) These guidelines identify a motion velocity perception threshold for vibration due to passing trains of 0.01 inches per second (in/sec) over the range of one to 100 Hz, which is used in this noise study to assess potential impacts due to Project construction vibration levels. As the policy is based on human perception, the 0.01 in/sec limit is assumed to be a root means squared (RMS) value. An RMS value of 0.01 in/sec is equivalent to a PPV value of 0.04 in/sec. For purposes of clarity and to reduce the number of terms used in the analysis of vibration impacts, the vibration analysis uses PPV for all sources and calculation. Thus, the impact threshold would be 0.04 in/sec PPV.

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest major airport is March Air Force Base located roughly 4.2 miles east of the Project site. The noise level contours of March Airforce Base are shown in Exhibit 4-1. As shown, the Project site would be outside the 60 dBA CNEL noise level contour and thus would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant*, and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	Nighttime
On-Site Traffic ¹	Exterior Noise Level Criteria	65 dBA CNEL	
	Interior Noise Level Standard	45 dBA CNEL	
Off-Site Traffic ²	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
	If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
	If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
Operational	Exterior Noise Level Standards ³	55 dBA L _{eq}	45 dBA L _{eq}
	If ambient is < 60 dBA L _{eq} ¹	≥ 5 dBA L _{eq} Project increase	
	If ambient is 60 - 65 dBA L _{eq} ¹	≥ 3 dBA L _{eq} Project increase	
	If ambient is > 65 dBA L _{eq} ¹	≥ 1.5 dBA L _{eq} Project increase	
Construction	Noise Level Threshold ⁴	80 dBA L _{eq}	
	Vibration Level Threshold ⁵	0.04 in/sec PPV	

¹ County of Riverside General Plan Noise Element.

² FICON, 1992.

³ County of Riverside County Code of Ordinances, Section 9.52.040.

⁴ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.

⁵ County of Riverside General Plan Noise Element, Policy N 16.3.

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

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at five locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A shows the Project site and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, March 23, 2022. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

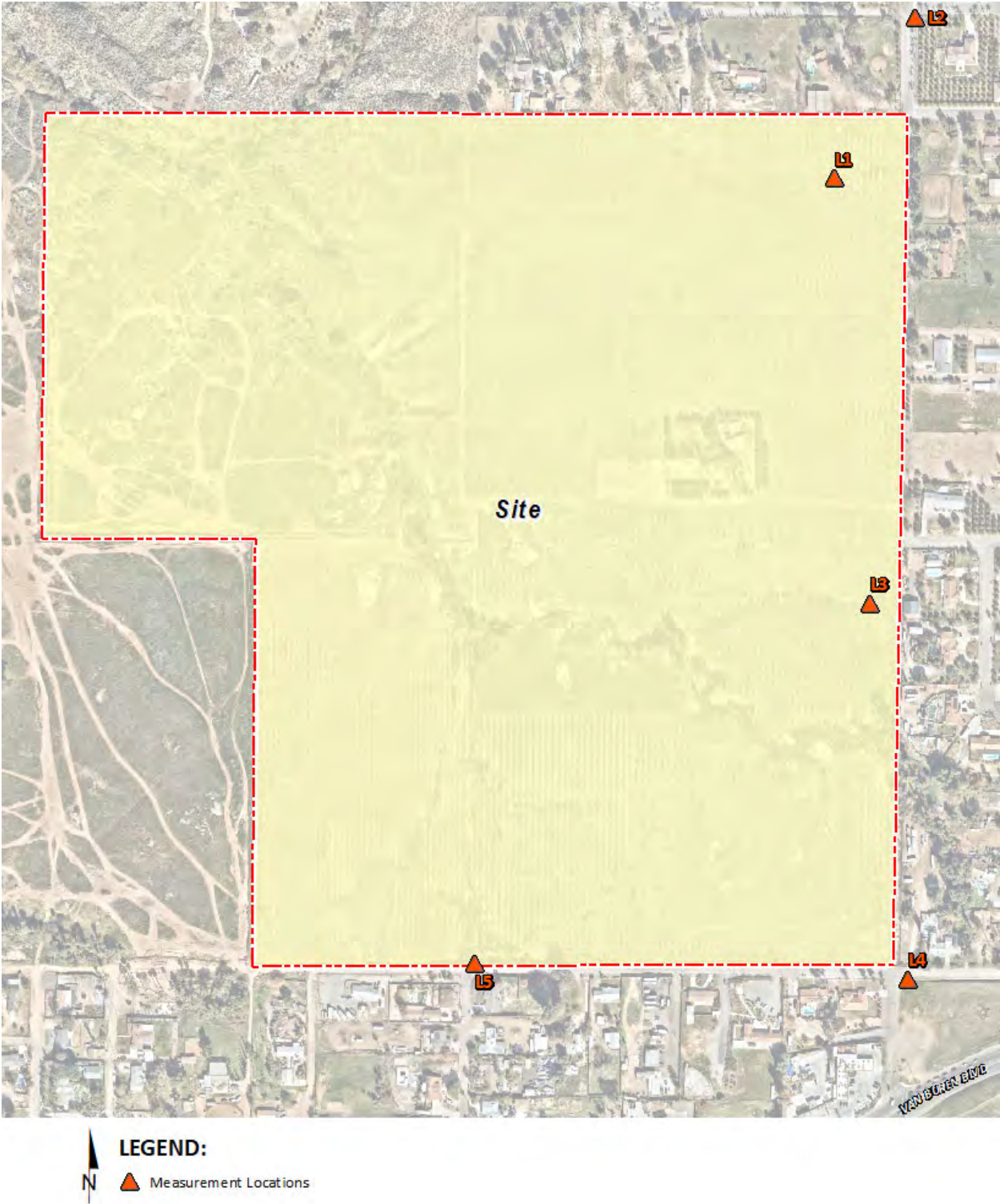
To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. 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. (22)

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.* (5) Further, FTA guidance states, *that 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.* (23)

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. (23) 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

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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. Appendix 5.2 provides a summary of the existing hourly ambient noise levels.

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

Location ¹	Description	Energy Average Noise Level (dBA Leq) ²	
		Daytime	Nighttime
L1	Located northeast on the Project site near existing residence at 17975 Twin Lakes Drive.	61.2	56.1
L2	Located northeast of the Project site near existing residence at 18019 Twin Lakes Drive.	62.7	56.6
L3	Located east on the Project site near existing residence at 15795 Cartwright Street.	53.5	49.6
L4	Located southeast corner of the Project site near existing residence at 18010 Iris Avenue	60.7	59.1
L5	Located south of the Project site near existing residence at 16016 Gamble Avenue	58.9	56.1

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. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with nearby surface streets. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations.

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6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (24) 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. (25) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 6-1. Based on the County of Riverside General Plan Circulation Element Map, Chicago Avenue and Iris Avenue are classified as one (1) lane Collectors. Future average daily traffic volumes, shown on Table 6-1, were obtained from the Arroyo Vista Traffic Analysis prepared by Urban Crossroads on January 30, 2023. (26) Consistent with the County of Riverside Office of Industrial Hygiene noise study requirements, (27) soft site conditions were used to analyze the potential on-site traffic noise impacts for the Project study area.

Table 6-2 presents the time-of-day vehicle splits by vehicle type and roadway classification, and Table 6-3 presents the total traffic flow distributions (vehicle mixes) used for this analysis which were obtained from the County of Riverside Office of Industrial Hygiene noise study requirements. The vehicle mix provides the hourly distribution percentages of automobiles for input into the FHWA Model based on roadway types. The vehicle splits are shown on Tables 6-2 are reported as a percentage of the overall percentage.

TABLE 6-1: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification ¹	Maximum Daily Traffic Volume ²	Posted Speed Limit (mph) ³	Site Conditions
Chicago Av.	2	Collector	8,000	25	Soft
Iris Av.	2	Collector	8,000	30	Soft

¹ County of Riverside Circulation Element Table C-1 July 2020² County of Riverside Circulation Element Figure C-3, 2013³ Posted speed limit.**TABLE 6-2: TIME OF DAY VEHICLE SPLITS (SECONDARY, COLLECTOR)**

Time Period	Vehicle Type		
	Autos	Medium Trucks	Heavy Trucks
Daytime (7am-7pm)	77.5%	84.8%	86.5%
Evening (7pm-10pm)	12.9%	4.9%	2.7%
Nighttime (10pm-7am)	9.6%	10.3%	10.8%
Total:	100.0%	100.0%	100.0%

Source: County of Riverside Office of Industrial Hygiene - Secondary, Collector

TABLE 6-3: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Roadway Classification	Total % Traffic Flow ¹			Total
	Autos	Medium Trucks	Heavy Trucks	
All Roadways	97.42%	1.84%	0.74%	100.00%

¹ Source: County of Riverside Office of Industrial Hygiene - Secondary, Collector

To predict the future noise environment at each lot within the Project site, coordinate information was collected to identify the noise transmission path between the noise source and receiver. The coordinate information is based on the Project site plan showing the plotting of each lot, as shown in Exhibit 1-B. The site plan is used to identify the relationship between the roadway centerline elevation, the pad elevation and the centerline distance to the noise barrier, and the building façade. The first-floor exterior noise level receivers were placed five feet above the pad elevation, or three feet above the pad elevation when the barrier height exceeds six feet per County of Riverside Office of Industrial Hygiene noise study guidelines. Second-floor receivers were placed 14 feet above the pad elevation.

6.3 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-4 identifies the eighteen off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the County of Riverside General Plan Circulation Element, and the posted vehicle speeds. Consistent with the Traffic Analysis prepared by Urban Crossroads, Inc. for the Project, (28) the off-site traffic noise analysis includes the following traffic scenarios.

- Existing Conditions Without Project: This scenario refers to the existing present-day noise conditions (as of May 2022) without the proposed Project.
- Existing plus Project Conditions – Project Buildout: This scenario refers to the existing present-day noise conditions with the proposed Project. It should be noted that this scenario would not actually occur, as full occupancy of Phase 1 of the proposed Project is not expected to occur until November 2025 while the “Existing” conditions evaluated in the NIA reflects existing traffic as of May 2022, when traffic count data was collected.
- Existing plus Ambient Growth plus Cumulative (EAC) 2027 Conditions Without Project: This scenario includes near-term noise conditions from ambient growth and cumulative developments without traffic from the proposed Project.
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2027) Conditions – Project Buildout: This scenario includes Project-related traffic, ambient growth, and all cumulative projects identified in the Project’s traffic analysis.
- Horizon Year (2045) Conditions Without Project: This scenario refers to cumulative horizon year noise conditions without traffic from the proposed Project.
- Horizon Year (2045) Conditions With Project: This scenario includes all horizon year noise conditions including traffic from the proposed Project.

The average daily traffic (ADT) volumes used for this study are presented on Table 6-5. Table 6-2 and Table 6-3 provide the time of day (daytime, evening, and nighttime) vehicle splits used for calculating CNEL values.

TABLE 6-4: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use ¹	Classification ²	Right Of Way	Vehicle Speed (mph)
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	Urban Arterial	152'	45
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	Urban Arterial	152'	55
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	Secondary	100'	55
4	Washington St.	n/o Van Buren Bl.	Sensitive	Arterial	88'	45
5	Washington St.	s/o Van Buren Bl.	Sensitive	Arterial	88'	35
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	Local	60'	25
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	Local	60'	25
8	Gamble Av.	s/o Iris Av.	Sensitive	Local	60'	25
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	Secondary	100'	40
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	Secondary	100'	40
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	Secondary	100'	50
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	Secondary	100'	50
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	Collector	74'	45
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	Collector	74'	40
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	Urban Arterial	152'	50
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	Urban Arterial	152'	50
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	Urban Arterial	152'	50
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	Urban Arterial	152'	50
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	Urban Arterial	152'	50
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	Urban Arterial	152'	50
21	Iris Av.	w/o Gamble Av.	Sensitive	Local	60'	30
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	Local	60'	30
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	Local	60'	30

¹ Based on a review of existing aerial imagery.

TABLE 6-5: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes ¹					
			Existing		EACP (2027)		Horizon (2045)	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Van Buren Bl.	n/o Victoria Av.	30,281	30,787	33,838	34,344	41,126	41,632
2	Van Buren Bl.	s/o Victoria Av.	39,758	40,484	47,454	48,180	51,843	52,569
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	26,488	27,236	32,803	33,551	35,727	36,475
4	Washington St.	n/o Van Buren Bl.	15,725	15,879	20,811	20,965	24,184	25,338
5	Washington St.	s/o Van Buren Bl.	9,192	9,280	11,032	11,120	12,047	12,135
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	1,122	2,662	1,122	2,662	1,363	2,903
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	2,835	2,945	3,131	3,241	3,444	3,554
8	Gamble Av.	s/o Iris Av.	117	777	196	856	215	875
9	Wood Rd.	n/o Van Buren Bl.	9,239	9,349	9,239	9,349	12,618	12,728
10	Wood Rd.	s/o Van Buren Bl.	12,370	12,590	13,657	13,877	17,833	18,053
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	19,588	19,764	19,588	19,764	28,156	28,332
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	12,051	12,117	13,305	13,371	17,456	17,522
13	Victoria Av.	w/o Van Buren Bl.	10,090	10,200	10,090	10,200	12,254	12,364
14	Victoria Av.	e/o Van Buren Bl.	5,757	5,867	5,757	5,867	6,992	7,102
15	Van Buren Bl.	w/o Washington St.	28,697	29,445	32,255	33,003	38,410	39,158
16	Van Buren Bl.	e/o Washington St.	35,562	36,552	40,485	41,475	48,133	49,103
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	35,550	35,880	35,550	35,880	43,175	43,505
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	33,813	34,913	33,813	34,913	41,066	42,166
19	Van Buren Bl.	e/o Wood Rd.	31,982	32,752	31,982	32,752	40,274	41,044
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	29,513	30,041	29,513	30,041	35,843	36,371
21	Iris Av.	w/o Gamble Av.	35	35	35	35	43	43
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	177	397	177	397	215	435
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	154	154	154	154	187	187

¹ Arroyo Vista Traffic Analysis, Urban Crossroads, Inc.

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7 ON-SITE TRAFFIC NOISE IMPACTS

This on-site exterior noise impact analysis has been completed to determine the traffic noise exposure and to identify potential necessary noise abatement measures for the Project. The primary source of noise impacts to the Project site will be traffic noise from Chicago Avenue and Iris Avenue. The Project will also experience some background traffic noise from the Project's internal local streets, however, due to low traffic volume/speed, traffic noise from these roads will not make a significant contribution to the noise environment.

7.1 ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model and the parameters outlined in Tables 6-1 to 6-4, the expected future exterior noise levels for individual lots were calculated. Table 7-1 presents a summary of future exterior noise levels in the outdoor living areas (backyards) within the Project site. The on-site traffic noise level impacts indicate that the outdoor living areas adjacent to Chicago Avenue and Iris Avenue will experience unshielded exterior noise levels ranging from 61.3 to 64.2 dBA CNEL. This noise analysis shows that the Project will satisfy the County of Riverside 65 dBA CNEL exterior noise level standards for residential land uses. The on-site traffic noise analysis calculations are provided in Appendix 7.1.

7.2 ON-SITE INTERIOR NOISE ANALYSIS

Since exterior noise levels will exceed 60 dBA CNEL, the Project is considered "conditionally acceptable", which requires new construction or development to conduct a detailed analysis of the noise reduction requirements and include the needed noise insulation features in the Project design. According to the County of Riverside, conventional construction, with closed windows and fresh air supply systems or air conditioning will normally suffice to reduce exterior noise levels up to 70 dBA CNEL to comply with the 45 dBA CNEL interior standard. Therefore, to verify the future interior noise levels will comply, the exterior noise levels were calculated at the first - and second-floor building façades and the interior noise levels were calculated based on standard construction techniques with windows closed.

7.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (29) (30) However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: [1] weather-stripped solid core exterior doors; [2] upgraded dual glazed windows; [3] mechanical ventilation/air conditioning; and [4] exterior wall/roof assemblies free of cut outs or openings.

TABLE 7-1: FUTURE EXTERIOR NOISE LEVELS (CNEL)

Lot	Roadway	Unmitigated Exterior Noise Level (dBA CNEL) ¹			
		1st Floor	2nd Floor	3rd Floor	4th Floor
11	Chicago Av.	61.3	62.3	61.9	61.3
227	Iris Avenue	64.2	64.0	63.6	63.0
200		64.2	64.1	63.7	63.2
165		62.9	62.7	62.3	61.9

¹ Exterior noise level calculations are included Appendix 5.1.

7.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Tables 7-2 and 7-3 show that the lots facing Chicago Avenue and Iris Avenue, will experience future unmitigated noise levels ranging from 63.2 to 65.9 dBA CNEL at the first-floor building façade, and 61.3 to 64.2 dBA CNEL at the second-floor building façade. The interior noise level analysis shows that the interior noise areas would require a 16.3 to 20.9 dBA CNEL reduction to comply with the County of Riverside 45 dBA CNEL interior noise level standard, which is greater than the minimum 12 dBA reduction with windows open and will require a windows-closed condition and mechanical ventilation (e.g., air conditioning). The Project Applicant intends to provide each unit in the development with mechanical ventilation, thus the windows can be kept in a closed position. Based on standard construction techniques, interior noise standards can be satisfied using standard windows and construction techniques. Therefore, the Project will satisfy the County of Riverside 45 dBA CNEL interior noise level standards for residential development.

TABLE 7-2: FIRST FLOOR INTERIOR NOISE IMPACTS (CNEL)

Building	Noise Level at Façade ¹	Required Interior Noise Reduction ²	Interior Noise Reduction ³	Upgraded Windows ⁴	Interior Noise Level ⁵	Threshold	Threshold Exceeded?
11	63.2	18.2	25.0	No	38.2	45	No
227	65.9	20.9	25.0	No	40.9	45	No
200	65.9	20.9	25.0	No	40.9	45	No
165	64.2	19.2	25.0	No	39.2	45	No

¹ Exterior noise level at the façade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).

² Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.

³ Minimum interior noise reduction based upon 25 dBA CNEL reduction from standard construction.

⁴ Does the required interior noise reduction trigger upgraded windows?

⁵ Estimated interior noise level with standard construction.

TABLE 7-3: SECOND FLOOR INTERIOR NOISE IMPACTS (CNEL)

Building	Noise Level at Façade ¹	Required Interior Noise Reduction ²	Interior Noise Reduction ³	Upgraded Windows ⁴	Interior Noise Level ⁵	Threshold	Threshold Exceeded?
11	61.3	16.3	25.0	No	36.3	45	No
227	64.2	19.2	25.0	No	39.2	45	No
200	64.2	19.2	25.0	No	39.2	45	No
165	62.9	17.9	25.0	No	37.9	45	No

¹ Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).

² Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.

³ Minimum interior noise reduction based upon 25 dBA CNEL reduction from standard construction.

⁴ Does the required interior noise reduction trigger upgraded windows?

⁵ Estimated interior noise level with standard construction.

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8 OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with the proposed Project, noise contours were developed based on the *Arroyo Vista Traffic Analysis* (28). Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Conditions Without Project: This scenario refers to the existing present-day noise conditions (as of May 2022) without the proposed Project.
- Existing plus Project Conditions – Project Buildout: This scenario refers to the existing present-day noise conditions with the proposed Project. It should be noted that this scenario would not actually occur, as full occupancy of Phase 1 of the proposed Project is not expected to occur until November 2025 while the “Existing” conditions evaluated in the NIA reflects existing traffic as of May 2022, when traffic count data was collected.
- Existing plus Ambient Growth plus Cumulative (EAC) 2027 Conditions Without Project: This scenario includes near-term noise conditions from ambient growth and cumulative developments without traffic from the proposed Project.
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2027) Conditions – Project Buildout: This scenario includes Project-related traffic, ambient growth, and all cumulative projects identified in the Project’s traffic analysis.
- Horizon Year (2045) Conditions Without Project: This scenario refers to cumulative horizon year noise conditions without traffic from the proposed Project.
- Horizon Year (2045) Conditions With Project: This scenario includes all horizon year noise conditions including traffic from the proposed Project.

8.1 TRAFFIC NOISE CONTOURS

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

Tables 8-1 through 8-4 present a summary of the exterior dBA CNEL traffic noise levels. Roadway segments are analyzed in each of the following timeframes: Existing without and with Project conditions, Cumulative 2027 without and with Project conditions, and Horizon Year 2045 without and with Project conditions. Appendix 8.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

TABLE 8-1: EXISTING WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use ¹	CNEL at Nearest Receiving Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	71.0	RW	190	410
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	74.2	RW	312	671
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	74.8	104	223	481
4	Washington St.	n/o Van Buren Bl.	Sensitive	76.6	120	260	559
5	Washington St.	s/o Van Buren Bl.	Sensitive	72.3	RW	135	292
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	54.2	RW	RW	RW
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	58.2	RW	RW	RW
8	Gamble Av.	s/o Iris Av.	Sensitive	44.4	RW	RW	RW
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	67.4	RW	RW	156
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	68.7	RW	RW	189
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	72.9	RW	167	361
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	70.8	RW	121	261
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	70.5	RW	86	186
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	66.9	RW	RW	107
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	71.8	RW	216	465
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	72.7	RW	249	537
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	72.7	RW	249	537
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	72.5	RW	241	519
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	72.3	RW	232	500
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	71.9	RW	220	474
21	Iris Av.	w/o Gamble Av.	Sensitive	41.0	RW	RW	RW
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	48.0	RW	RW	RW
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	47.4	RW	RW	RW

¹ Based on a review of existing aerial imagery.² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.

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

TABLE 8-2: EXISTING WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use ¹	CNEL at Nearest Receiving Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	71.1	RW	193	415
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	74.3	RW	315	679
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	74.9	106	228	490
4	Washington St.	n/o Van Buren Bl.	Sensitive	76.6	121	261	563
5	Washington St.	s/o Van Buren Bl.	Sensitive	72.4	RW	136	293
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	58.0	RW	RW	RW
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	58.4	RW	RW	RW
8	Gamble Av.	s/o Iris Av.	Sensitive	52.6	RW	RW	RW
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	67.4	RW	RW	157
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	68.7	RW	RW	191
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	72.9	RW	168	363
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	70.8	RW	122	262
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	70.6	RW	87	187
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	67.0	RW	RW	108
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	71.9	RW	220	473
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	72.9	RW	254	547
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	72.8	RW	251	540
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	72.7	RW	246	530
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	72.4	RW	236	508
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	72.0	RW	223	480
21	Iris Av.	w/o Gamble Av.	Sensitive	41.0	RW	RW	RW
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	51.6	RW	RW	RW
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	47.4	RW	RW	RW

¹ Based on a review of existing aerial imagery.² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.

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

TABLE 8-3: EAPC (2027) WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use ¹	CNEL at Nearest Receiving Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	71.5	RW	205	443
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	74.7	156	336	725
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	75.3	113	243	523
4	Washington St.	n/o Van Buren Bl.	Sensitive	77.0	129	279	601
5	Washington St.	s/o Van Buren Bl.	Sensitive	72.8	RW	145	313
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	58.1	RW	RW	RW
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	58.8	RW	RW	RW
8	Gamble Av.	s/o Iris Av.	Sensitive	53.0	RW	RW	RW
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	67.9	RW	RW	167
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	69.2	RW	RW	204
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	73.3	RW	180	387
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	71.2	RW	130	280
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	71.0	RW	93	200
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	67.4	RW	RW	115
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	72.3	RW	234	505
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	73.3	RW	271	583
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	73.2	RW	268	577
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	73.1	RW	265	570
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	72.8	RW	252	542
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	72.4	RW	238	512
21	Iris Av.	w/o Gamble Av.	Sensitive	41.5	RW	RW	RW
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	51.8	RW	RW	RW
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	47.9	RW	RW	RW

¹ Based on a review of existing aerial imagery.² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.

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

TABLE 8-4: EAPC (2027) WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use ¹	CNEL at Nearest Receiving Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	71.5	RW	207	446
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	75.0	164	354	763
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	75.8	121	262	563
4	Washington St.	n/o Van Buren Bl.	Sensitive	77.8	146	314	677
5	Washington St.	s/o Van Buren Bl.	Sensitive	73.1	RW	154	331
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	58.0	RW	RW	RW
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	58.8	RW	RW	RW
8	Gamble Av.	s/o Iris Av.	Sensitive	53.0	RW	RW	RW
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	67.4	RW	RW	157
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	69.2	RW	RW	204
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	72.9	RW	168	363
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	71.2	RW	130	280
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	70.6	RW	87	187
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	67.0	RW	RW	108
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	72.4	RW	237	511
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	73.4	RW	276	595
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	72.8	RW	251	540
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	72.7	RW	246	530
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	72.4	RW	236	508
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	72.0	RW	223	480
21	Iris Av.	w/o Gamble Av.	Sensitive	41.0	RW	RW	RW
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	51.6	RW	RW	RW
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	47.4	RW	RW	RW

¹ Based on a review of existing aerial imagery.² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.

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

TABLE 8-5: HORIZON (2045) WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use ¹	CNEL at Nearest Receiving Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	72.3	RW	233	503
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	75.3	173	372	801
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	76.1	127	273	588
4	Washington St.	n/o Van Buren Bl.	Sensitive	78.4	161	346	745
5	Washington St.	s/o Van Buren Bl.	Sensitive	73.5	RW	162	349
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	55.1	RW	RW	RW
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	59.1	RW	RW	RW
8	Gamble Av.	s/o Iris Av.	Sensitive	47.0	RW	RW	RW
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	68.7	RW	RW	191
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	70.2	RW	112	241
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	74.4	RW	213	459
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	72.4	RW	155	334
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	71.4	RW	98	212
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	67.8	RW	RW	122
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	73.1	RW	262	565
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	74.1	RW	305	657
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	73.6	RW	284	611
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	73.4	RW	274	591
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	73.3	RW	271	583
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	72.8	RW	251	540
21	Iris Av.	w/o Gamble Av.	Sensitive	41.9	RW	RW	RW
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	48.9	RW	RW	RW
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	48.3	RW	RW	RW

¹ Based on a review of existing aerial imagery.² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.

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

TABLE 8-6: HORIZON (2045) WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use ¹	CNEL at Nearest Receiving Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	72.4	RW	235	507
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	75.4	174	375	809
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	76.1	128	276	596
4	Washington St.	n/o Van Buren Bl.	Sensitive	78.6	166	357	769
5	Washington St.	s/o Van Buren Bl.	Sensitive	73.5	RW	163	351
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	58.3	RW	RW	RW
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	59.2	RW	RW	RW
8	Gamble Av.	s/o Iris Av.	Sensitive	53.1	RW	RW	RW
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	68.8	RW	RW	193
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	70.3	RW	113	243
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	74.5	RW	214	461
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	72.4	RW	155	335
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	71.4	RW	99	213
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	67.8	RW	RW	123
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	73.2	RW	266	573
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	74.1	RW	309	666
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	73.6	RW	285	614
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	73.5	RW	279	602
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	73.4	RW	274	591
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	72.8	RW	253	545
21	Iris Av.	w/o Gamble Av.	Sensitive	41.9	RW	RW	RW
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	51.9	RW	RW	RW
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	48.3	RW	RW	RW

¹ Based on a review of existing aerial imagery.² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.

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

8.2 EXISTING TRAFFIC NOISE LEVEL INCREASES

Table 8-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 41.0 to 76.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-2 shows the Existing plus Project conditions will range from 41.0 to 76.6 dBA CNEL. Table 8-7 shows that the Project off-site traffic noise level increases will range from 0.0 to 8.2 dBA CNEL.

Based on the significance criteria for off-site traffic noise presented in subsection 4.2, land uses adjacent to the roadway segment of Gamble Avenue south of Iris Avenue would experience significant noise level increases due to unmitigated Project-related traffic noise levels. However, the data presented in Table 8-2 shows that with the addition of Project traffic, sensitive receptors along this roadway segment only would be exposed to traffic-related noise of 52.6 dBA. As indicated in Table N-1 of the General Plan Noise Element, residential uses are considered “Normally Acceptable” at noise levels up to 60 dBA CNEL; thus, the Project’s traffic-related noise increases along this segment of Gamble Avenue would not expose nearby sensitive receptors to a substantial permanent increase in noise levels. In addition, it should be noted that the “No Project” noise levels presented in Table 8-1 show lower noise levels along Gamble Avenue than the noise measurements that were collected by Urban Crossroads. As previously shown in Table 5-1, the existing noise measurements collected by Urban Crossroads near the intersection of Iris Avenue and Gamble Avenue (Location L5) shows an existing ambient noise level of 58.9 dBA Leq during daytime hours and 56.1 dBA Leq during nighttime hours, whereas the data presented in Table 8-1 shows that traffic-related noise along this segment of Gamble without the addition of Project traffic would be 44.4 dBA. Thus, if the analysis were to assume the actual measured ambient noise levels in estimating Project-related traffic noise increases, noise increases due to Project traffic along this roadway segment would be less than 1 dBA, which would be below the significance criteria. Furthermore, the scenario in which Project traffic is added to existing traffic volumes would not actually occur, as Phase 1 of the Project would not be fully constructed and operated until November 2025, while the “Existing” conditions evaluated in the NIA reflects existing traffic as of May 2022, when traffic count data was collected. Thus, this scenario is provided for information purposes only in order to fully analyze all of the traffic scenarios identified in the Project’s Traffic Study. Finally, and as shown in Table 8-8 and discussed below, under EAPC 2027 conditions the Project would not result in any noise increases along this segment of Gamble Avenue. Accordingly, and for the reasons noted above, Project-related traffic increases under Existing plus Project conditions would be *less than significant*.

8.3 EAPC (2027) TRAFFIC NOISE LEVEL INCREASES

Table 8-3 presents the EAPC Year 2027 without Project conditions CNEL noise levels. The EAPC Year 2027 without Project exterior noise levels are expected to range from 41.5 to 77.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-4 shows the EAPC Year 2027 with Project conditions will range from 41.0 to 77.8 dBA CNEL. Table 8-8 shows that the Project off-site traffic noise level increases will range from -0.5 to 0.8 dBA CNEL. The decreases in noise levels shown in Table 8-3 are due to other projects and improvements redirecting project and regional traffic. Based on the significance criteria for off-

site traffic noise presented in Section 4.2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

8.4 HORIZON (2045) TRAFFIC NOISE LEVEL INCREASES

Table 8-5 presents the Horizon Year 2045 without Project conditions CNEL noise levels. The Horizon Year 2045 without Project exterior noise levels are expected to range from 41.5 to 78.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-6 shows the Horizon Year 2045 with Project conditions will range from 41.0 to 78.6 dBA CNEL. Table 8-9 shows that the Project off-site traffic noise level increases will range from -0.5 to 6.1 dBA CNEL.

Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway of Gamble Avenue south of Iris Avenue (Segment #8) would experience significant noise level increases due to unmitigated Project-related traffic noise level increases. Traffic noise increases along all other segments would be less than significant. Although Project-related traffic noise increases would exceed the identified threshold of significance, the data presented in Table 8-6 shows that with the addition of Project traffic, sensitive receptors along this roadway segment only would be exposed to traffic-related noise of 53.1 dBA. As indicated in Table N-1 of the General Plan Noise Element, residential uses are considered “Normally Acceptable” at noise levels up to 60 dBA CNEL; thus, the Project’s traffic-related noise increases along this segment of Gamble Avenue would not expose nearby sensitive receptors to a substantial permanent increase in noise levels. In addition, it should be noted that the “No Project” noise levels presented in Table 8-5 show lower noise levels along Gamble Avenue than the noise measurements that were collected by Urban Crossroads. As previously shown in Table 5-1, the existing noise measurements collected by Urban Crossroads near the intersection of Iris Avenue and Gamble Avenue (Location L5) shows an existing ambient noise level of 58.9 dBA L_{eq} during daytime hours and 56.1 dBA L_{eq} during nighttime hours, whereas the data presented in Table 8-5 shows that traffic-related noise along this segment of Gamble without the addition of Project traffic only would be 47.0 dBA. Thus, if the analysis were to assume the actual measured ambient noise levels in estimating Project-related traffic noise increases, noise increases due to Project traffic along this roadway segment would be less than 1 dBA, which would be below the significance criteria. Therefore, Project-related traffic noise increases under Horizon Year 2045 conditions would be *less than significant*. (Urban Crossroads, 2023d, p. 50)

TABLE 8-7: EXISTING WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use ¹	CNEL at Receiving Land Use (dBA) ²			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold ³	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	71.0	71.1	0.1	Yes	1.5	No
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	74.2	74.3	0.1	Yes	1.5	No
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	74.8	74.9	0.1	Yes	1.5	No
4	Washington St.	n/o Van Buren Bl.	Sensitive	76.6	76.6	0.0	Yes	1.5	No
5	Washington St.	s/o Van Buren Bl.	Sensitive	72.3	72.4	0.0	Yes	1.5	No
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	54.2	58.0	3.8	Yes	5.0	No
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	58.2	58.4	0.2	Yes	5.0	No
8	Gamble Av.	s/o Iris Av.	Sensitive	44.4	52.6	8.2	Yes	5.0	Yes
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	67.4	67.4	0.1	Yes	1.5	No
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	68.7	68.7	0.1	Yes	1.5	No
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	72.9	72.9	0.0	Yes	1.5	No
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	70.8	70.8	0.0	Yes	1.5	No
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	70.5	70.6	0.0	Yes	1.5	No
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	66.9	67.0	0.1	Yes	1.5	No
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	71.8	71.9	0.1	Yes	1.5	No
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	72.7	72.9	0.1	Yes	1.5	No
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	72.7	72.8	0.0	Yes	1.5	No
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	72.5	72.7	0.1	Yes	1.5	No
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	72.3	72.4	0.1	Yes	1.5	No
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	71.9	72.0	0.1	Yes	1.5	No
21	Iris Av.	w/o Gamble Av.	Sensitive	41.0	41.0	0.0	Yes	5.0	No
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	48.0	51.6	3.5	Yes	5.0	No
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	47.4	47.4	0.0	Yes	5.0	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)?

TABLE 8-8: EAPC 2027 WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use ¹	CNEL at Receiving Land Use (dBA) ²			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold ³	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	71.5	71.5	0.0	Yes	1.5	No
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	74.7	75.0	0.3	Yes	1.5	No
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	75.3	75.8	0.5	Yes	1.5	No
4	Washington St.	n/o Van Buren Bl.	Sensitive	77.0	77.8	0.8	Yes	1.5	No
5	Washington St.	s/o Van Buren Bl.	Sensitive	72.8	73.1	0.3	Yes	1.5	No
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	58.1	58.0	-0.1	Yes	5.0	No
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	58.8	58.8	0.0	Yes	5.0	No
8	Gamble Av.	s/o Iris Av.	Sensitive	53.0	53.0	0.0	Yes	5.0	No
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	67.9	67.4	-0.5	Yes	1.5	No
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	69.2	69.2	0.0	Yes	1.5	No
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	73.3	72.9	-0.4	Yes	1.5	No
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	71.2	71.2	0.0	Yes	1.5	No
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	71.0	70.6	-0.4	Yes	1.5	No
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	67.4	67.0	-0.4	No	n/a	No
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	72.3	72.4	0.1	No	3.0	No
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	73.3	73.4	0.1	No	3.0	No
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	73.2	72.8	-0.4	Yes	1.5	No
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	73.1	72.7	-0.4	Yes	1.5	No
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	72.8	72.4	-0.4	No	3.0	No
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	72.4	72.0	-0.4	Yes	1.5	No
21	Iris Av.	w/o Gamble Av.	Sensitive	41.5	41.0	-0.5	Yes	5.0	No
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	51.8	51.6	-0.2	Yes	5.0	No
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	47.9	47.4	-0.5	Yes	5.0	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)?

TABLE 8-9: HORIZON 2045 WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use ¹	CNEL at Receiving Land Use (dBA) ²			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold ³	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Van Buren Bl.	n/o Victoria Av.	Sensitive	72.3	72.4	0.1	Yes	1.5	No
2	Van Buren Bl.	s/o Victoria Av.	Sensitive	75.3	75.4	0.1	Yes	1.5	No
3	Mockingbird Canyon Rd.	s/o Van Buren Bl.	Sensitive	76.1	76.1	0.0	Yes	1.5	No
4	Washington St.	n/o Van Buren Bl.	Sensitive	78.4	78.6	0.2	Yes	1.5	No
5	Washington St.	s/o Van Buren Bl.	Sensitive	73.5	73.5	0.0	Yes	1.5	No
6	Chicago Av./Alta Cresta Av.	n/o Van Buren Bl.	Sensitive	55.1	58.3	3.2	Yes	5.0	No
7	Chicago Av./Alta Cresta Av.	s/o Van Buren Bl.	Sensitive	59.1	59.2	0.1	Yes	5.0	No
8	Gamble Av.	s/o Iris Av.	Sensitive	47.0	53.1	6.1	Yes	5.0	Yes
9	Wood Rd.	n/o Van Buren Bl.	Sensitive	67.9	67.4	-0.5	Yes	1.5	No
10	Wood Rd.	s/o Van Buren Bl.	Sensitive	69.2	69.2	0.0	Yes	1.5	No
11	Trautwein Rd./Cole Av.	n/o Van Buren Bl.	Sensitive	73.3	72.9	-0.4	Yes	1.5	No
12	Trautwein Rd./Cole Av.	s/o Van Buren Bl.	Sensitive	71.2	71.2	0.0	Yes	1.5	No
13	Victoria Av.	w/o Van Buren Bl.	Sensitive	71.0	70.6	-0.4	Yes	1.5	No
14	Victoria Av.	e/o Van Buren Bl.	Non-Sensitive	67.4	67.0	-0.4	No	n/a	No
15	Van Buren Bl.	w/o Washington St.	Non-Sensitive	72.3	72.4	0.1	No	3.0	No
16	Van Buren Bl.	e/o Washington St.	Non-Sensitive	73.3	73.4	0.1	No	3.0	No
17	Van Buren Bl.	w/o Chicago Av./Alta Cresta Av.	Sensitive	73.2	72.8	-0.4	Yes	1.5	No
18	Van Buren Bl.	e/o Chicago Av./Alta Cresta Av.	Sensitive	73.1	72.7	-0.4	Yes	1.5	No
19	Van Buren Bl.	e/o Wood Rd.	Non-Sensitive	72.8	72.4	-0.4	No	3.0	No
20	Van Buren Bl.	e/o Trautwein Rd./Cole Av.	Sensitive	72.4	72.0	-0.4	Yes	1.5	No
21	Iris Av.	w/o Gamble Av.	Sensitive	41.5	41.0	-0.5	Yes	5.0	No
22	Iris Av.	w/o Chicago Av./Alta Cresta Av.	Sensitive	51.8	51.6	-0.2	Yes	5.0	No
23	Iris Av.	e/o Chicago Av./Alta Cresta Av.	Sensitive	47.9	47.4	-0.5	Yes	5.0	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)?

9 SENSITIVE RECEIVER LOCATIONS

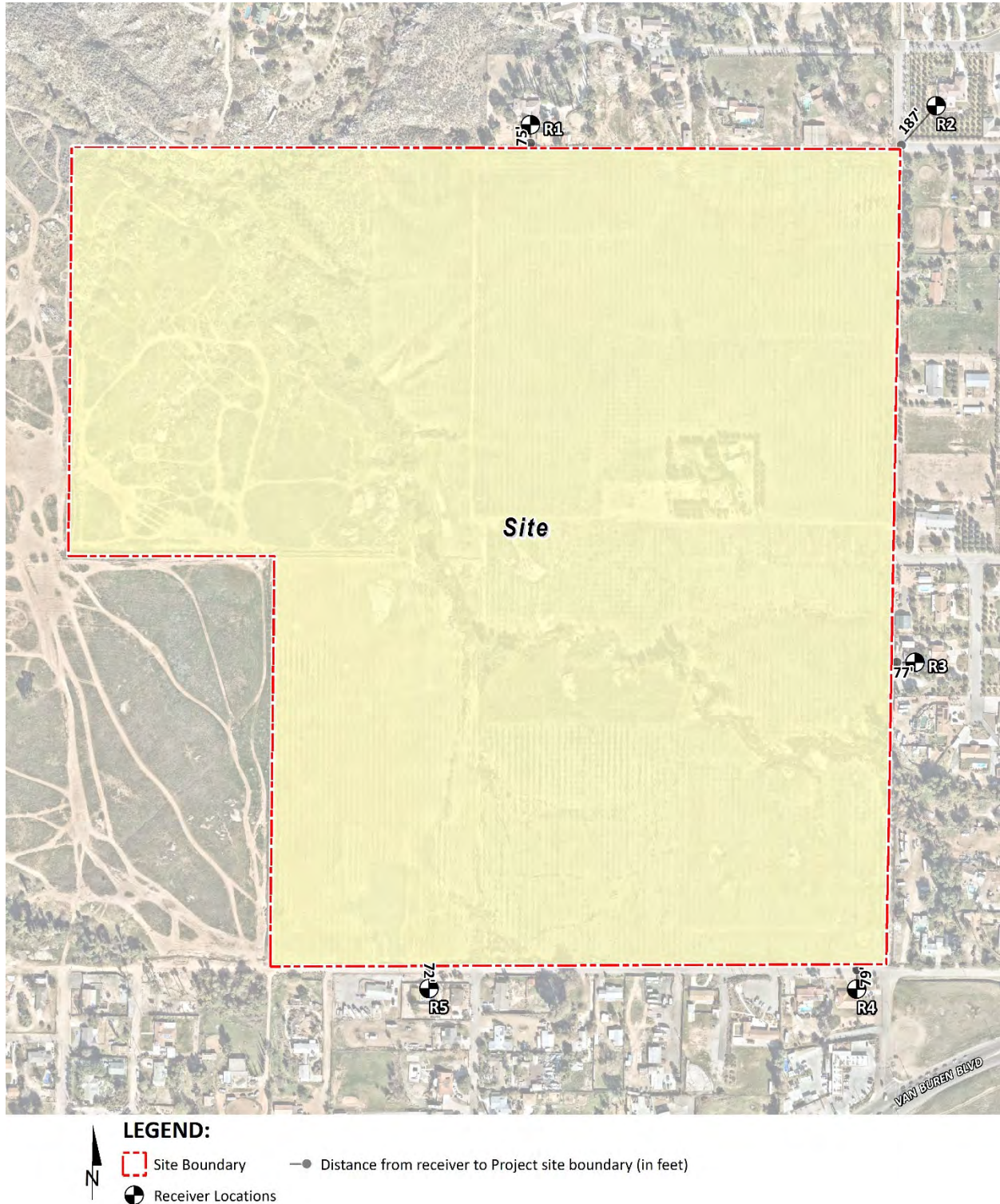
To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where 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, outpatient 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, five receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the Project boundary to each receiver location.

- R1: Location R1 represents existing noise sensitive residence at 17795 Twin Lakes Drive., approximately 75 feet north of the Project site. Receiver R1 is placed in the private outdoor living area (backyard) facing the project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R2: Location R2 represents the existing noise sensitive residence at 18019 Twin Lakes Drive, approximately 187 feet northeast of the Project site. Receiver R1 is placed in the private outdoor living area (backyard) facing the project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.
- R3: Location R3 represents the existing noise sensitive residence at 15795 Cartwright Street, approximately 77 feet east of the Project site. Receiver R3 is placed in the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.
- R4: Location R4 represents the existing noise sensitive residence at 17975 Iris Avenue, approximately 79 feet south of the Project site. Receiver R4 is placed in the private outdoor living area (front yard) facing the Project site. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.
- R5: Location R5 represents the existing noise sensitive residence at 16015 Gamble Avenue, approximately 72 feet west of the Project site. Receiver R5 is placed in the private

outdoor living area (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

EXHIBIT 9-A: RECEIVER LOCATIONS



10 OPERATIONAL NOISE IMPACTS

The Project has not been designed beyond lot lines at this stage of Project development. The proposed development is considered a noise-sensitive receiving land use and is not expected to include any specific type of operational noise levels beyond those typically associated with residential land uses in the Project study area, such as people and children, parking lot activity, garage doors, small air conditioners, and trash collection, and is considered a noise-sensitive receiving land use. However, to be conservative, this section analyzes the potential operational noise impacts resulting from the operation of air conditioning units associated with the Project, as shown on Exhibit 10-A.

10.1 OPERATIONAL NOISE SOURCES

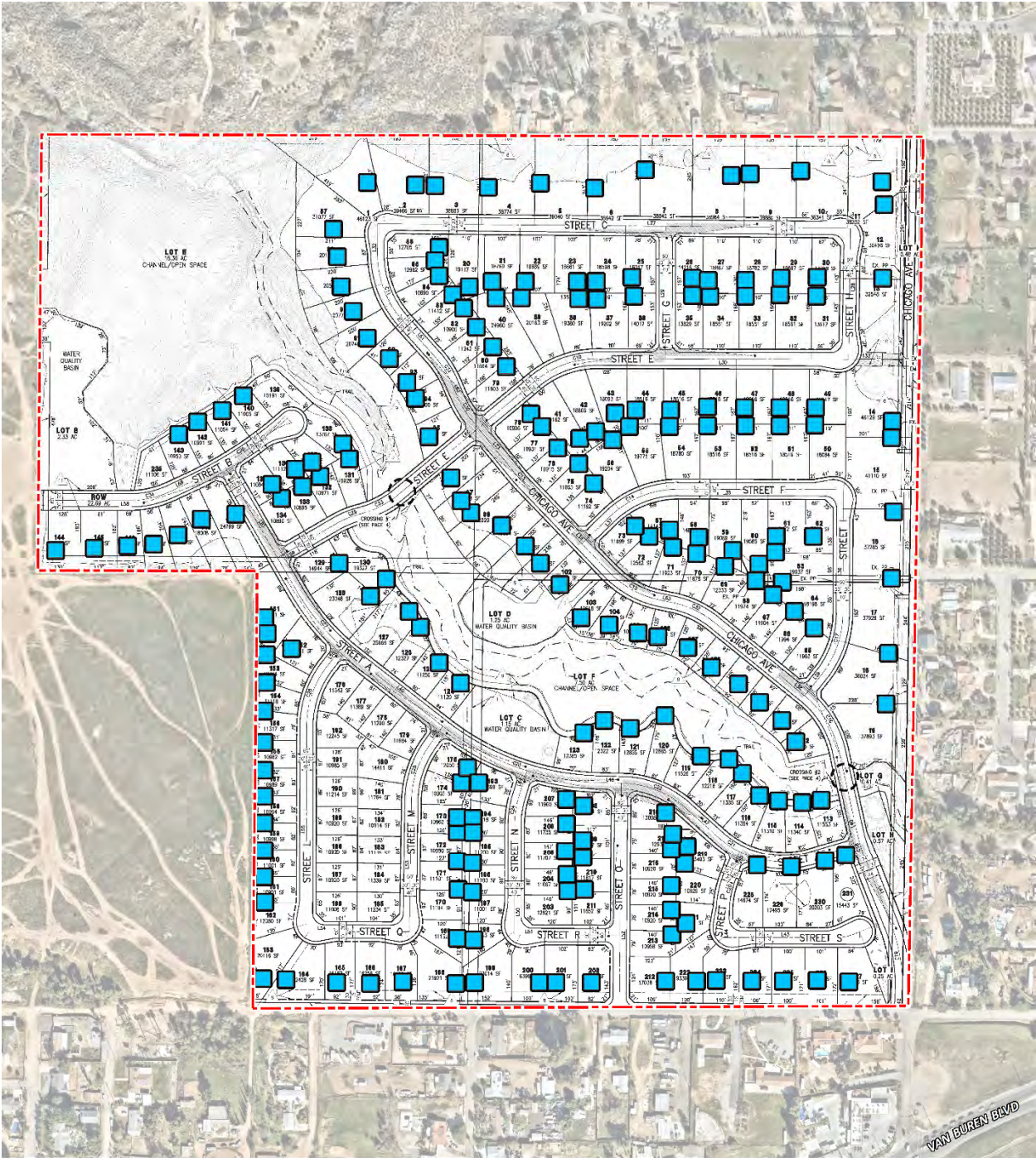
The County of Riverside has set stationary-source hourly average L_{eq} exterior noise limits to control air conditioning units associated with the development of the proposed Arroyo Vista. These air conditioning-related noises, as projected to any portion of any surrounding property containing a *habitable dwelling, hospital, school, library or nursing home*, must not exceed the following worst-case noise levels.

Policy N 4.1 of the County of Riverside General Plan Noise Element sets a stationary-source average L_{eq} exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. (15)

The County of Riverside County Code Section 9.52.040 *General sound level standards* (included in Appendix 3.1) identify lower, more restrictive exterior noise level standards, which for the purpose of this report, are used to evaluate potential Project-related operational noise level limits instead of the higher the General Plan exterior noise level standards previously identified. The County of Riverside County Code identifies exterior noise level limits of 55 dBA L_{eq} during the daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. for most noise-sensitive uses. (16)

Based on several discussions with the County of Riverside Department of Environmental Health (DEH), Office of Industrial Hygiene (OIH), it is important to recognize that the County of Riverside County Code noise level standards, incorrectly identify maximum noise level (L_{max}) standards that should instead reflect the average L_{eq} noise levels. Moreover, the County of Riverside DEH OIH's April 15th, 2015, *Requirements for determining and mitigating, non-transportation noise source impacts to residential properties* also identifies operational (stationary-source) noise level limits using the L_{eq} metric, consistent with the direction of the County of Riverside General Plan guidelines and standards provided in the Noise Element. Therefore, this report has been prepared consistent with direction of the County of Riverside DEH OIH guidelines and standards using the average L_{eq} noise level metric for stationary-source (operational) noise level evaluation.

EXHIBIT 10-A: STATIONARY NOISE SOURCE LOCATIONS



LEGEND:

- Site Boundary
- Roof-Top Air Conditioning Unit

10.2 REFERENCE NOISE LEVELS

To assess the noise levels created by the air conditioning units, reference noise levels from a Carrier model 25HBC5 were used as representative of the air conditioning units that could be used on the Project and have a range of capacity from 1.5 tons to 5 tons. According to the product data sheet a Carrier model 25HBC5, which produces a maximum sound power level of 76 dBA, see Appendix 10.1, as shown in Table 10-1.

While operating at full power air conditioners operate approximately 15-30 minutes out of an hour in multiple cycles during the nighttime as compared to the daytime where the units typically operate 20-40 minutes in multiple cycles, depending on the ambient temperature. For purposes of this analysis, it was assumed the air conditioners would operate 45 minutes out of an hour during the day and 30 minutes out of an hour at night. The acoustic center of each unit will be located three feet above ground elevation. As the final location of air conditioning units has not been finalized, the units were placed generally located in the side yard of each lot.

TABLE 10-1: REFERENCE NOISE LEVELS

Noise Source	Noise Source Height (Feet)	Min./Hour ²		Reference Noise Level (dBA L_{eq})		Sound Power Level (dBA) ⁶
		Day	Night	@ Ref. Dist.	@ 50 Feet	
Air Conditioning Units ¹	3'	45	30	77.2	44.4	76.0

¹ Carrier 25HBC5 air conditioning unit, Appendix 10.1.

² Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site.

"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

10.3 CADNA A NOISE PREDICTION MODEL

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

Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account

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

10.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include air condition units, 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 7:01 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 29.6 to 35.5 dBA L_{eq} .

TABLE 10-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source ¹	Operational Noise Levels by Receiver Location (dBA L_{eq})				
	R1	R2	R3	R4	R5
Air Conditioning Units	33.7	29.6	34.5	32.9	35.5
Total (All Noise Sources)	33.7	29.6	34.5	32.9	35.5

¹ See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.2.

Table 10-3 shows the Project operational noise levels during the nighttime hours of 10:01 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 26.8 to 32.8 dBA L_{eq} .

TABLE 10-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source ¹	Operational Noise Levels by Receiver Location (dBA L_{eq})				
	R1	R2	R3	R4	R5
Air Conditioning Units	31.0	26.8	31.8	30.2	32.8
Total (All Noise Sources)	31.0	26.8	31.8	30.2	32.8

¹ See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.2.

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 County of Riverside exterior noise level standards at nearby noise-sensitive receiver locations. Table 10-4 shows the operational noise levels associated with Arroyo Vista Project will not exceed the County of Riverside 55 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 10-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location ¹	Project Operational Noise Levels (dBA L _{eq}) ²		Exterior Noise Level Standards (dBA L _{eq}) ³		Noise Level Standards Exceeded? ⁴	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	33.7	31.0	55	45	No	No
R2	29.6	26.8	55	45	No	No
R3	34.5	31.8	55	45	No	No
R4	32.9	30.2	55	45	No	No
R5	35.5	32.8	55	45	No	No

¹ See Exhibit 9-A for the receiver locations.² Proposed Project operational noise levels as shown on Tables 10-2 and 10-3.³ Exterior noise level standard for residential land use as shown on Table 4-1.⁴ Do the estimated Project operational noise source activities exceed the noise level standards?⁵ Non-residential land use with no expected nighttime occupancy.

"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 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. (5) Instead, they must be logarithmically added using the following base equation:

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 10-5 and 10-6, respectively. As indicated on Table 10-5, the Project will generate a daytime operational noise level increases ranging from 0.0 to 0.4 dBA L_{eq} at the nearest receiver locations. Table 10-6 shows that the Project will generate a nighttime operational noise level increases ranging from 0.0 to 0.4 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented in Table 4-1, and the increases at the sensitive receiver locations will be *less than significant*.

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	33.7	L1	46.3	46.5	0.2	5	No
R2	29.6	L2	51.0	51.0	0.0	5	No
R3	34.5	L3	44.6	45.0	0.4	5	No
R4	32.9	L4	55.0	55.0	0.0	5	No
R5	35.5	L5	55.0	55.0	0.0	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 10-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	31.0	L1	42.4	42.7	0.3	5	No
R2	26.8	L2	46.8	46.8	0.0	5	No
R3	31.8	L3	42.3	42.7	0.4	5	No
R4	30.2	L4	53.0	53.0	0.0	5	No
R5	32.8	L5	48.2	48.3	0.1	5	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 10-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.

11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibits 11-A (General Construction), 11-B (Rock Crushing), and 11-C (Blasting) show the noise source locations in relation to the nearest sensitive receiver locations previously described in Section 9.

Section 9.52.020 of the County of Riverside Code, states that construction activities are exempted from the noise ordinance if located $\frac{1}{4}$ mile or greater from inhabited dwelling units; or if within a quarter mile, it occurs between the hours of 6:00 a.m. to 6:00 p.m. Monday through Friday from June 1st to September 30th, 7:00 a.m. to 6:00 p.m. Monday through Friday from October 1st to May 30th. In addition, since the County of Riverside has not established a 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 Leq as a reasonable threshold for noise sensitive residential land use. (17 p. 179)

11.1 CONSTRUCTION NOISE LEVELS

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

- Site Preparation
- Grading
- Rock Crushing
- 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. (1) 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. The reference noise level summary shown in Table 11-1 describes construction activity noise levels with multiple pieces of equipment operating simultaneously. Rock crushing and includes source noise levels for a hoe ram or breaker representing a percussion hammer fitted to an excavator for breaking rock and a rock crushing activity including jaw crushers, a cone crusher, screens, and a conveyor system (31).

EXHIBIT 11-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS

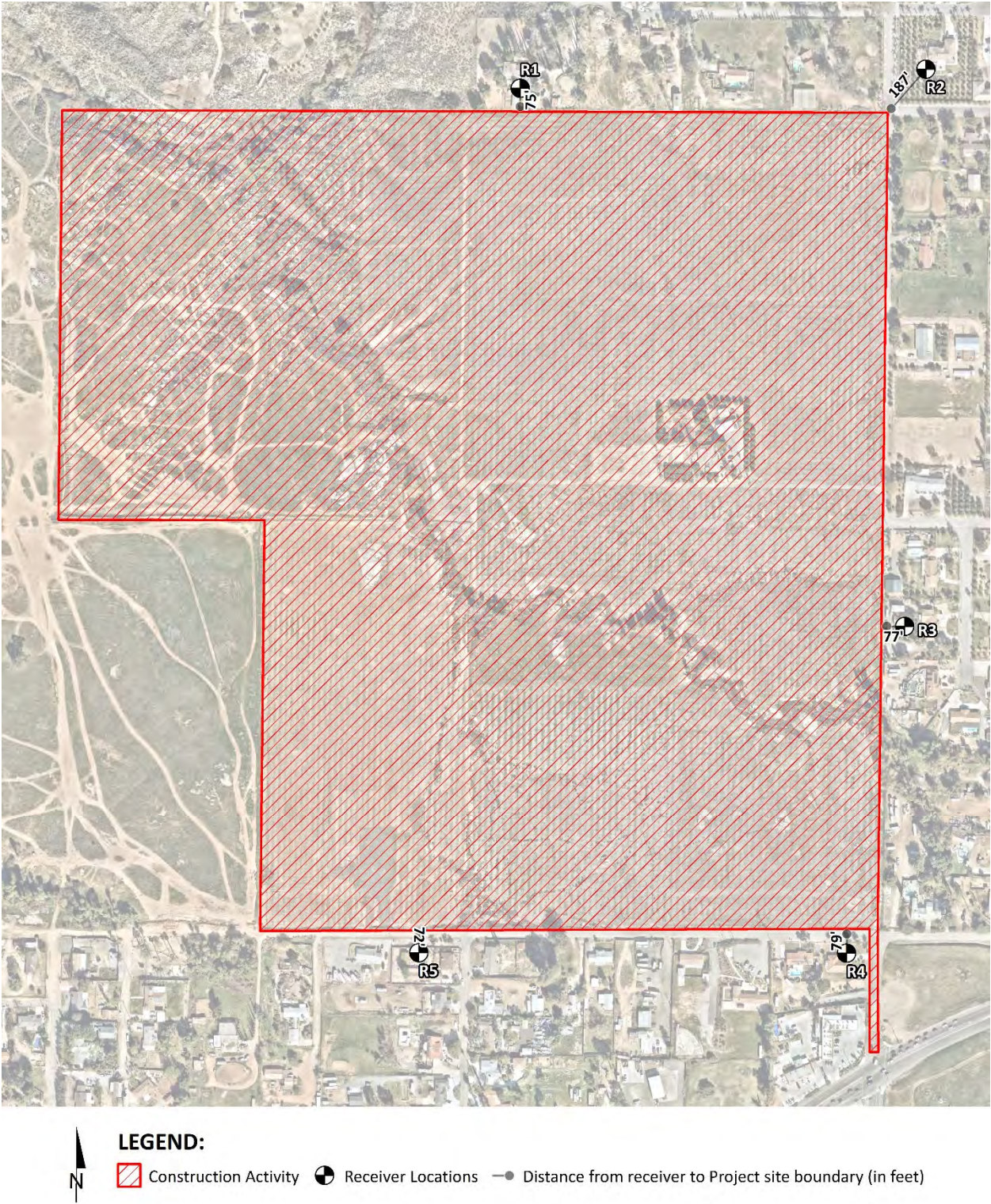


EXHIBIT 11-B: ROCK CRUSHING ACTIVITY AND RECEIVER LOCATIONS

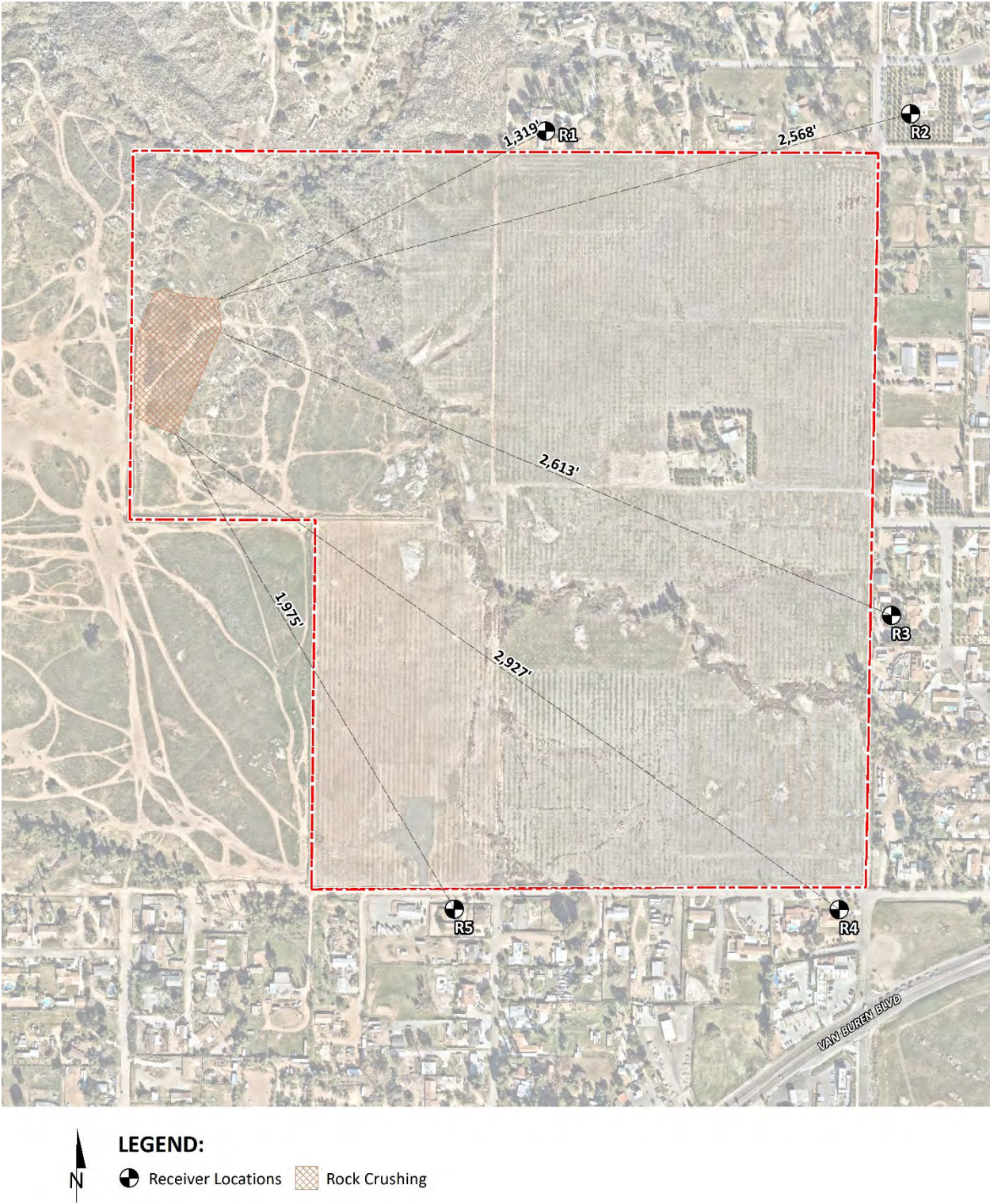
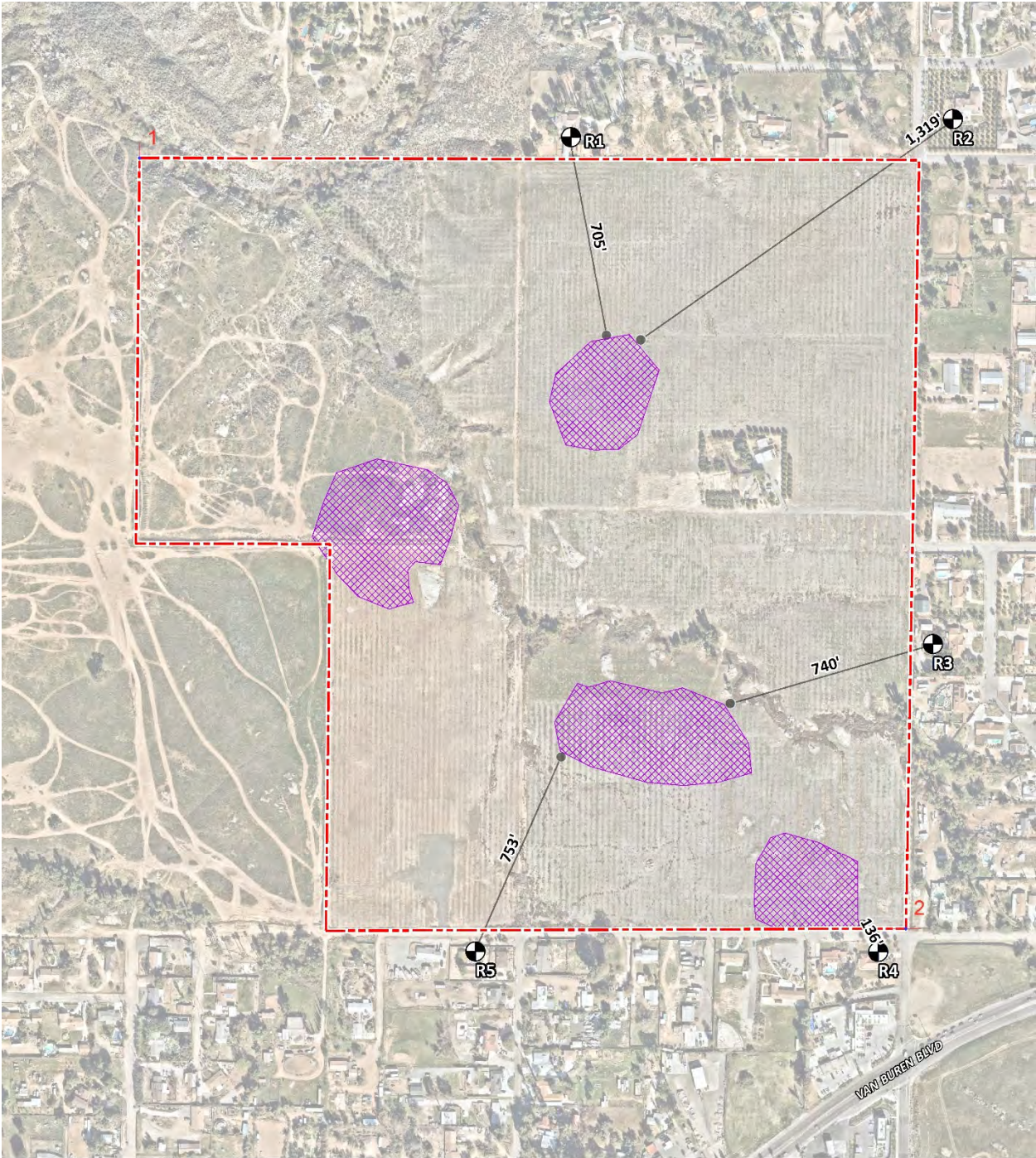


EXHIBIT 11-C: BLASTING ACTIVITY AND RECEIVER LOCATIONS



LEGEND:

Receiver Locations Distance from receiver to blasting location (in feet) Blasting Locations

TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Equipmnet ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})	Composite Reference Noise Level (dBA L _{eq})	Reference Power Level (dBA L _w)
Demolition	Concrete Saw	83	86.8	118.4
	Grapple (on backhoe)	83		
	Gradall	79		
Site Preparation	Tractor	80	84.0	115.6
	Backhoe	74		
	Grader	81		
Grading	Scraper	80	83.3	114.9
	Excavator	77		
	Dozer	78		
Rock Crushing	Rock Crusher ²	89	89.8	121.4
	Front End Loader	75		
	Hydra Break Ram	80		
Building Construction	Crane	73	80.6	112.2
	Generator	78		
	Front End Loader	75		
Paving	Paver	74	77.8	109.5
	Dump Truck	72		
	Roller	73		
Architectural Coating	Man Lift	68	76.2	107.8
	Compressor (air)	74		
	Generator (<25kVA)	70		
Blasting	Blasting	94	94.1	125.7
	Rock Drill	74		
	Front End Loader	75		

¹ FHWA Road Construction Noise Model.² University District Rock Crusher Conditional Use Permit, San Marcos

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. To assess a reasonable worst-case construction scenario Project rock crushing is assumed to be conducted during site preparation and grading stages. However, this analysis conservatively combines rock crushing noise with all construction stages.

To account for the dynamic nature of construction activities, the Project construction noise analysis models the typical construction equipment as combination of the highest reference level as multiple moving points within the construction area (Project site boundary). Rock crushing

activity is modeled simultaneously with general construction activities as a stationary activity. Construction impacts are based on the highest noise level calculated at each receiver location. As shown on Table 11-2, the overall construction noise levels are expected to range from 48.6 to 61.3 dBA L_{eq} , and the highest construction levels are expected to range from 56.4 to 61.3 dBA L_{eq} at the nearby receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

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	61.3	60.6	57.9	55.2	53.5	61.3
R2	56.4	55.7	53.0	50.3	48.6	56.4
R3	60.3	59.6	56.9	54.2	52.5	60.3
R4	59.3	58.6	55.9	53.2	51.5	59.3
R5	60.4	59.7	57.0	54.3	52.6	60.4

¹ Construction noise source and receiver locations are shown on Exhibits 11-A and 11-B.

² Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 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. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

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	61.3	80	No
R2	56.4	80	No
R3	60.3	80	No
R4	59.3	80	No
R5	60.4	80	No

¹ Noise receiver locations are shown on Exhibits 11-A and 11-B.

² Highest construction noise level operating at the Project site boundary to nearby receiver locations (Table 11-2).

³ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.

⁴ Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (17) 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 Project construction vibration levels using the following vibration assessment methods defined by the Caltrans. To calculate the vibration of equipment at distance Caltrans provides the following equation: $PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.1}$

TABLE 11-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Crane	0.008
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Caltrans, Transportation and Construction Vibration Guidance Manual, 2020.

Using the vibration source level of construction equipment provided on Table 11-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 72 to 187 feet from Project construction activities, construction vibration velocity levels are estimated to range from less than 0.01 to 0.02 in/sec PPV and will not exceed the County of Riverside threshold of 0.04 in/sec PPV at off-site receivers, as shown on Table 11-5. Therefore, the Project-related vibration impacts are considered *less than significant*.

TABLE 11-5: PROJECT CONSTRUCTION VIBRATION LEVELS – UNMITIGATED

Receiver Location ¹	Distance to Const. Activity (Feet) ²	Typical Construction Vibration Levels PPV (in/sec) ³						Thresholds PPV (in/sec) ⁴	Thresholds Exceeded? ⁵
		Small bulldozer	Crane	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Level		
R1	75'	0.00	0.00	0.01	0.01	0.02	0.02	0.04	No
R2	187'	0.00	0.00	0.00	0.00	0.00	0.00	0.04	No
R3	77'	0.00	0.00	0.01	0.01	0.02	0.02	0.04	No
R4	79'	0.00	0.00	0.01	0.01	0.02	0.02	0.04	No
R5	72'	0.00	0.00	0.01	0.02	0.02	0.02	0.04	No

¹ Construction receiver locations are shown on Exhibits 11-A and 11-B.

² Distance from receiver location to Project construction boundary.

³ Based on the Vibration Source Levels of Construction Equipment (Table 11-4).

⁴ County of Riverside General Plan.

⁵ Does the peak vibration exceed the acceptable vibration thresholds?

"PPV" = Peak Particle Velocity

11.6 BLASTING NOISE ANALYSIS

A blasting contractor would be required to complete all blasting-related activities in compliance with applicable regulations of the Riverside County Sheriff's Department, the U.S. Bureau of Mines, the California Division of Occupational Safety and Health (Cal-OHSA), the Department of Homeland Security, and the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF). As required by law a licensed blasting contractor would be responsible for performing and supervising all blasting activities, including the following:

- Drill pattern design;
- Pre-blast inspection;
- Loading of explosives;
- Pre-blast notifications and warning signaling;
- Blasting safety procedures;
- Blasting site security;
- Post-blast inspections and re-entry procedures; and
- Blast log and history.

Explosives used for blasting usually consist of a primer, secondary explosive, and an initiator. The blasting contractor would most likely use a high explosive Ammonia Gelatin as a primer for each shot and ammonium nitrate mixed with fuel oil (ANFO) as the primary blasting agent. Non-electric blasting caps are typically used to initiate the blasting agent. The charges are time delayed by at least 8-milliseconds. Delays between charges are used to decouple charges and reduce vibration.

Pattern blasting is a common technique used in blasting for construction. This method is used when rock materials occur over a wide area. Pattern blasting involves drilling holes in a pre-

designed pattern. The depth and spacing of holes is controlled to provide the maximum fracture with the minimum amount of ground shaking.

Blasting patterns typically consist of drill holes between two and five inches in diameter. Depth of the drill holes would be determined by the blasting contractor and is specific to each application. Blasting patterns on construction sites typically range from three feet by three feet to 12 feet by 12 feet.

The Blasting Engineer would control blasting-induced vibration and noise. General control measures include:

- Stemming shall be of uniform size in order to ensure consistency between individual shots;
- The weight of explosives used per delay shall be determined by adherence to the Scaled Distance Equation;
- Independent delays shall be used for each blast hole to control vibration; and
- Blasting shall not take place when wind velocity equals or exceeds 15 miles per hour. A licensed blasting contractor will determine wind speed through the use of a recording anemometer located a minimum of ten feet above ground level.

In addition, ground vibrations and air overpressure shall be monitored during each blast for compliance with the limits by the U.S. Bureau of Mines. Following each blast, seismographs shall be checked to ensure that the blasting has not exceeded relevant standards. The relevant standards are as follows:

- Pursuant to 30 CFR Ch. VII, §816.67(b)(1)(i) of U.S. Bureau of Mines publication R18485, airblasts shall not exceed 133 dB at the location of any dwelling, public building, school, church, or community or institutional building outside the permit area.
- Pursuant to 30 CFR Ch. VII, §816.67(d)(2)(i) of U.S. Bureau of Mines publication R18508, the maximum ground vibration shall not exceed the limits in said section at the location of any dwelling, public building, school, church, or community or institutional building outside the permit area.

To evaluate the potential noise levels from blasting activities during Project construction, the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) reference noise level of 94 dBA L_{max} is used at a reference distance of 50 feet. (1) Each blast represents a point-source of noise which attenuates at a rate of 6 dB for each doubling of distance from the source. The closest residential homes to the Project construction area are represented by receiver location R1 at a distance of 136 feet. With the distance attenuation from the closest blasting activities, the unmitigated noise levels at nearby receiver locations would range from approximately 70.2 dBA L_{max} based on the RCNM reference noise level, as shown in Table 11-6. However, since the type of blasting techniques planned within the Project site were unknown at the time of this analysis, the noise levels presented at the nearby sensitive receiver locations represent the worst-case conditions based on the RCNM reference noise level.

The County of Riverside General Plan and County Code of Ordinances do not identify specific construction noise level limits for blasting activities. Therefore, the OSMRE and CFR lowest maximum Airblast Limit (30 CFR 816.67(b)) of 129 dBA L_{max} at nearby sensitive uses is used in this

analysis as discussed in Section 3.7. (2) Based on the reference blasting noise level, the closest residential receiver will experience noise levels approaching 70.2 dBA L_{max} over the course of the blast, which will likely occur for only a few seconds. While some blasting noise may be noticeable by nearby residents, the single-event, temporary noise levels generated by the blast will not exceed the OSMRE and the CFR standards for airblasts. Therefore, the noise levels due to blasting activities will result in a *less than significant* noise impact.

TABLE 11-6: BLASTING CONSTRUCTION NOISE LEVELS

Receiver Location	Distance To Construction Activity (Feet) ²	Construction Noise Level (dBA L_{max})
R1	705'	61.1
R2	1,319'	57.1
R3	740'	62.4
R4	136'	70.2
R5	753'	61.8

¹ FHWA Roadway Construction Noise Model.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

11.7 BLASTING VIBRATION IMPACTS

Blasting operations can have unacceptable noise and vibration impacts if not conducted correctly. Excessive levels of structural vibration due to ground vibration from blasting can cause substantial damage to structures. A blasting contractor would be required to complete all blasting-related activities in compliance with applicable regulations of the Riverside County Sheriff's Department, the U.S. Bureau of Mines, the California Division of Occupational Safety and Health (Cal-OHSA), the Department of Homeland Security, and the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), which have many requirements for the safe handling, use, and storage of explosives and recommend various measures and controls, including, but not limited to monitoring and reporting of each blast to verify no damage has occurred at nearby structures, notifications to surrounding neighbors, limitations on the amounts and times blast may occur.

Detonating as little as 25 pounds of explosives may be perceived up to 500 feet from a charge. Therefore, without vibration controls and measures, blasting could exceed thresholds at the areas near existing residential homes surrounding the Project site, shown on Exhibit 11-C. Noise-1 would mitigate potential vibration impacts. With the implementation of the identified vibration controls blasting activities at sensitive receivers would be *less than significant*.

11.7.1 BLASTING VIBRATION MITIGATION MEASURES

The following practices would reduce any vibration level impacts produced by the proposed blasting activities at the nearby noise-sensitive residential land uses:

MM Noise-1: Blasting Limitations

Prior to approval of any grading permits that require blasting activities and a blasting permit, the Project Applicant shall prepare and submit for County review and approval of a Blasting Noise and Vibration Monitoring and Abatement Plan ("Noise and Vibration Abatement Plan"). The required Noise and Vibration Abatement Plan shall include the name and qualifications of the person(s) responsible for monitoring and reporting blast vibrations. In addition, the Noise and Vibration Abatement Plan shall require a minimum of three seismographs for monitoring peak ground vibration and air-overpressure. The Noise and Vibration Abatement Plan also shall require that equipment and its use shall conform fully to the standards developed by the Vibration Section of the International Society of Explosive Engineers (ISEE). For all blasts, the Noise and Vibration Abatement Plan shall require monitoring of ground motion and air-overpressure at the nearest residential properties or other structure of concern. The Noise and Vibration Abatement Plan also shall specify a minimum trigger level for monitoring of 0.05 in/s for ground motion and 120 dB for air-overpressure. Additionally, the Noise and Vibration Abatement Plan shall require regular reporting of blasting and measurements to Riverside County, and shall include a copy of the instrument/software-generated blast monitoring report at each instrument location that includes measured peak particle velocity in inches per second, peak air-overpressure in linear-scale decibels, and vibration and air-overpressure event plots, with date and time of event recording. In addition, the Noise and Vibration Abatement Plan shall include the following requirements:

- Prior to commencement of any blasting, a pre-blast survey of the conditions of all existing property and aboveground utilities located within 300 feet of any potential blasting areas shall be conducted. The pre-blast survey shall include a photographic record of all visible and accessible structures, facilities, utilities, or other improvements. The survey shall document the interior and exterior conditions of all residential property and associated structures located within 500 feet of blasting areas. If property owners refuse surveys, provide copies of certified-mail letters documenting attempts to provide the survey by a third-party professional survey company. The required surveys shall include a description of the interior and exterior condition of the various structures examined. Descriptions shall include the locations of any cracks, damage, or other existing defects and shall include information needed to identify and describe the defect, if any, and to evaluate the construction operations on the defect. Survey records shall include photos of all cracks and other damaged, weathered, or otherwise deteriorated structural conditions. If necessary, macro lenses and flash illumination shall be used to ensure defects are shown clearly in the photographs. Photos shall contain an accurate date stamp. No blasting shall occur prior to completion of surveys of surrounding residential properties. Surveys also shall be repeated at facilities or properties where damage concerns have been expressed by individual residents, property owners, or other concerned parties. Details of any observed changes to surveyed structures and documenting photos shall be reported and submitted to Riverside County.
- Blasting only shall be allowed Monday through Friday only between the hours of 8:00 a.m. and 5:00 p.m.
- No blasting shall occur closer than 100 feet from residential structures. In the event that non-rippable materials are encountered within 100 feet from any residential structure, alternative methods shall be employed to reduce blasting-related noise and vibration impacts. Alternative rock blasting within 100 feet of residential homes may include methods such as the drilling of

holes in the largest area of rock, inserting expansive grout or small charges into each whole to fragment the rock into smaller pieces, and then crushing the pieces for transport or other use.

- No more than a total of 2,000 pounds of explosive shall be detonated each day, excluding detonators.
- All blasts located within 500 feet of any structures or above ground utilities shall be covered with woven steel cable or steel-cable and rubber-tire blasting mats with a minimum weight of 30 pounds per square foot. Woven polypropylene or similar weed-barrier fabric, covered with at least 6 inches of soil or sand shall be placed over blast areas to protect initiators before mats are placed. Mats shall be overlapped at least 3 feet and shall completely cover the blast area and extend at least three feet beyond the blast area in all directions. If any flyrock or blasted material is thrown more than 10 feet or half the distance to the nearest structure, whichever is less, blasting shall be suspended until the County's has approved a revised blasting plan showing revisions to assure adequate ground movement control.
- Before blasts are covered, all loose soils above the blast shall be removed where feasible. Remaining ground located within 20 feet of the blast shall be thoroughly wetted with water to suppress airborne dust. Sand or soils placed over weed-barrier fabric shall be similarly wetted before placing blast mats.
- If specified vibration limits are exceeded, blasting operations shall cease immediately and a revised blasting plan shall be submitted to the County. Blasting shall not resume until a revised blasting plan has been reviewed and the Contractor has expressed in writing the conditions that will be applied to further blasting work.

Project grading and blasting contractors shall be required to ensure compliance with the Noise and Vibration Abatement Plan requirements and shall permit periodic inspection of the construction site by County of Riverside staff or its designee to confirm compliance. The requirements of the Noise and Vibration Abatement Plan also shall be specified in bid documents issued to prospective construction contractors. Riverside County shall review all monitoring reports to ensure compliance with the Noise and Vibration Abatement Plan, and shall have the authority to stop all blasting activities on site if it is determined that blasting activities are not being conducted in conformance with Noise and Vibration Abatement Plan and/or the above-listed requirements.

12 REFERENCES

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13 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Arroyo Vista 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 (619) 788-1971.

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EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
APA – American Planning Association
AWMA – Air and Waste Management Association

PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
FHWA Traffic Noise Model of Training • November 2004
CadnaA Basic and Advanced Training Certificate • October 2008.

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APPENDIX 3.1:

COUNTY OF RIVERSIDE OFFICE OF INDUSTRIAL HYGIENE NOISE STUDY REQUIREMENTS

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Chapter 9.52 - NOISE REGULATION

Sections:

9.52.010 - Intent.

At certain levels, sound becomes noise and may jeopardize the health, safety or general welfare of Riverside County residents and degrade their quality of life. Pursuant to its police power, the board of supervisors declares that noise shall be regulated in the manner described in this chapter. This chapter is intended to establish county-wide standards regulating noise. This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act and no such thresholds are established.

(Ord. 847 § 1, 2006)

9.52.020 - Exemptions.

Sound emanating from the following sources is exempt from the provisions of this chapter:

- A. Facilities owned or operated by or for a governmental agency;
- B. Capital improvement projects of a governmental agency;
- C. The maintenance or repair of public properties;
- D. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile;
- E. Public or private schools and school-sponsored activities;
- F. Agricultural operations on land designated "Agriculture" in the Riverside County general plan, or land zoned A-I (light agriculture), A-P (light agriculture with poultry), A-2 (heavy agriculture), A-D (agriculture-dairy) or C/V (citrus/vineyard), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile;
- G. Wind energy conversion systems (WECS), provided such systems comply with the WECS noise provisions of Riverside County Ordinance No. 348;
- H. Private construction projects located one-quarter of a mile or more from an inhabited dwelling;
- I. Private construction projects located within one-quarter of a mile from an inhabited dwelling,

provided that:

1. Construction does not occur between the hours of six p.m. and six a.m. during the months of June through September, and
 2. Construction does not occur between the hours of six p.m. and seven a.m. during the months of October through May;
- J. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of seven a.m. and eight p.m.;
- K. Motor vehicles, other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems;
- L. Heating and air conditioning equipment;
- M. Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety, and welfare;
- N. The discharge of firearms consistent with all state laws.

(Ord. 847 § 2, 2006)

9.52.030 - Definitions.

As used in this chapter, the following terms shall have the following meanings:

"Audio equipment" means a television, stereo, radio, tape player, compact disc player, mp3 player, I-POD or other similar device.

"Decibel (dB)" means a unit for measuring the relative amplitude of a sound equal approximately to the smallest difference normally detectable by the human ear, the range of which includes approximately one hundred thirty (130) decibels on a scale beginning with zero decibels for the faintest detectable sound. Decibels are measured with a sound level meter using different methodologies as defined below:

1. "A-weighting (dBA)" means the standard A-weighted frequency response of a sound level meter, which de-emphasizes low and high frequencies of sound in a manner similar to the human ear for moderate sounds.
2. "Maximum sound level (L_{max})" means the maximum sound level measured on a sound level meter.

"Governmental agency" means the United States, the state of California, Riverside County, any city within Riverside County, any special district within Riverside County or any combination of these agencies.

"Land use permit" means a discretionary permit issued by Riverside County pursuant to Riverside County Ordinance No. 348.

"Motor vehicle" means a vehicle that is self-propelled.

"Motor vehicle sound system" means a stereo, radio, tape player, compact disc player, mp3 player, I-POD or other similar device.

"Noise" means any loud, discordant or disagreeable sound.

"Occupied property" means property upon which is located a residence, business or industrial or manufacturing use.

"Off-highway vehicle" means a motor vehicle designed to travel over any terrain.

"Public or private school" means an institution conducting academic instruction at the preschool, elementary school, junior high school, high school, or college level.

"Public property" means property owned by a governmental agency or held open to the public, including, but not limited to, parks, streets, sidewalks, and alleys.

"Sensitive receptor" means a land use that is identified as sensitive to noise in the noise element of the Riverside County general plan, including, but not limited to, residences, schools, hospitals, churches, rest homes, cemeteries or public libraries.

"Sound-amplifying equipment" means a loudspeaker, microphone, megaphone or other similar device.

"Sound level meter" means an instrument meeting the standards of the American National Standards Institute for Type 1 or Type 2 sound level meters or an instrument that provides equivalent data.

(Ord. 847 § 3, 2006)

9.52.040 - General sound level standards.

No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 1.

TABLE 1

Sound Level Standards (Db L_{max})

GENERAL PLAN FOUNDATION COMPONENT	GENERAL PLAN LAND USE DESIGNATION	GENERAL PLAN LAND USE DESIGNATION NAME	DENSITY	MAXIMUM DECIBEL LEVEL	
				7 am— 10 pm	10 pm— 7 am

Community Development	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
	MDR	Medium Density Residential	2—5	55	45
	MHDR	Medium High Density Residential	5—8	55	45
	HDR	High Density Residential	8—14	55	45
	VHDR	Very High Density Residential	14—20	55	45
	H'TDR	Highest Density Residential	20+	55	45
	CR	Retail Commercial		65	55
	CO	Office Commercial		65	55
	CT	Tourist Commercial		65	55
	CC	Community Center		65	55
	LI	Light Industrial		75	55
	HI	Heavy Industrial		75	75
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	BP	Business Park		65	45
	PF	Public Facility		65	45
	SP	Specific Plan-Residential		55	45
		Specific Plan-Commercial		65	55
		Specific Plan-Light Industrial		75	55
		Specific Plan-Heavy Industrial		75	75
Rural Community	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
Rural	RR	Rural Residential	5 AC	45	45
	RM	Rural Mountainous	10 AC	45	45
	RD	Rural Desert	10 AC	45	45
Agriculture	AG	Agriculture	10 AC	45	45
Open Space	C	Conservation		45	45
	CH	Conservation Habitat		45	45
85					

	REC	Recreation		45	45
	RUR	Rural	20 AC	45	45
	W	Watershed		45	45
	MR	Mineral Resources		75	45

(Ord. 847 § 4, 2006)

9.52.050 - Sound level measurement methodology.

Sound level measurements may be made anywhere within the boundaries of an occupied property. The actual location of a sound level measurement shall be at the discretion of the enforcement officials identified in Section 9.52.080 of this chapter. Sound level measurements shall be made with a sound level meter. Immediately before a measurement is made, the sound level meter shall be calibrated utilizing an acoustical calibrator meeting the standards of the American National Standards Institute. Following a sound level measurement, the calibration of the sound level meter shall be re-verified. Sound level meters and calibration equipment shall be certified annually.

(Ord. 847 § 5, 2006)

9.52.060 - Special sound sources standards.

The general sound level standards set forth in Section 9.52.040 of this chapter apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards, the failure to comply with which constitutes separate violations of this chapter:

A. Motor Vehicles.

1. Off-Highway Vehicles.

- a. No person shall operate an off-highway vehicle unless it is equipped with a USDA-qualified spark arrester and a constantly operating and properly maintained muffler. A muffler is not considered constantly operating and properly maintained if it is equipped with a cutout, bypass or similar device.
- b. No person shall operate an off-highway vehicle unless the noise emitted by the vehicle

is not more than ninety-six (96) dBA if the vehicle was manufactured on or after January 1, 1986 or is not more than one hundred one (101) dBA if the vehicle was manufactured before January 1, 1986. For purposes of this subsection, emitted noise shall be measured a distance of twenty (20) inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.

2. Sound Systems. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of ten p.m. and eight a.m., such that the sound system is audible to the human ear inside any inhabited dwelling. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, at any other time such that the sound system is audible to the human ear at a distance greater than one hundred (100) feet from the vehicle.
- B. Power Tools and Equipment. No person shall operate any power tools or equipment between the hours of ten p.m. and eight a.m. such that the power tools or equipment are audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than one hundred (100) feet from the power tools or equipment.
- C. Audio Equipment. No person shall operate any audio equipment, whether portable or not, between the hours of ten p.m. and eight a.m. such that the equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the equipment may be located. No person shall operate any audio equipment, whether portable or not, at any other time such that the equipment is audible to the human ear at a distance greater than one hundred (100) feet from the equipment.
- D. Sound-Amplifying Equipment and Live Music. No person shall install, use or operate sound-amplifying equipment, or perform, or allow to be performed, live music unless such activities comply with the following requirements. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control:
 1. Sound-amplifying equipment or live music is prohibited between the hours of ten p.m. and eight a.m.
 2. Sound emanating from sound-amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than two hundred (200) feet from the equipment or music.

(Ord. 847 § 6, 2006)

9.52.070 - Exceptions.

Exceptions may be requested from the standards set forth in Section 9.52.040 or 9.52.060 of this chapter and may be characterized as construction-related, single-event or continuous-events exceptions.

A. Application and Processing.

1. Construction-Related Exceptions. An application for a construction-related exception shall be made to and considered by the director of building and safety on forms provided by the building and safety department and shall be accompanied by the appropriate filing fee. No public hearing is required.
2. Single-Event Exceptions. An application for a single-event exception shall be made to and considered by the planning director on forms provided by the planning department and shall be accompanied by the appropriate filing fee. No public hearing is required.
3. Continuous-Events Exceptions. An application for a continuous-events exception shall be made to the planning director on forms provided by the planning department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous-events exception, the planning director shall set the matter for public hearing before the planning commission, notice of which shall be given as provided in Section 18.26c of Riverside County Ordinance No. 348. Notwithstanding the above, an application for a continuous-events exception that is associated with an application for a land use permit shall be processed concurrently with the land use permit in the same manner that the land use permit is required to be processed.

B. Requirements for Approval. The appropriate decisionmaking body or officer shall not approve an exception application unless the applicant demonstrates that the activities described in the application would not be detrimental to the health, safety or general welfare of the community. In determining whether activities are detrimental to the health, safety or general welfare of the community, the appropriate decisionmaking body or officer shall consider such factors as the proposed duration of the activities and their location in relation to sensitive receptors. If an exception application is approved, reasonable conditions may be imposed to minimize the public detriment, including, but not limited to, restrictions on sound level, sound duration and operating hours.

C. Appeals. The director of building and safety's decision on an application for a construction-related exception is considered final. The planning director's decision on an application for a single-event exception is considered final. After making a decision on an application for a continuous-events exception, the appropriate decisionmaking body or officer shall mail notice of the decision to the applicant. Within ten (10) calendar days after the mailing of such notice, the applicant or an interested person may appeal the decision to the board of supervisors. Upon receipt of an appeal and payment of the appropriate appeal fee, the clerk of the board

shall set the matter for hearing not less than five days nor more than thirty (30) days thereafter and shall give written notice of the hearing in the same manner as notice of the hearing was given by the appropriate hearing officer or body. The board of supervisors shall render its decision within thirty (30) days after the appeal hearing is closed.

- D. Effect of a Pending Continuous-Events Exception Application. For a period of one hundred eighty (180) days from the effective date of this chapter, no person creating any sound prohibited by this chapter shall be considered in violation of this chapter if the sound is related to a use that is operating pursuant to an approved land use permit, if an application for a continuous-events exception has been filed to sanction the sound and if a decision on the application is pending.

(Ord. 847 § 7, 2006)

9.52.080 - Enforcement.

The Riverside County sheriff and code enforcement shall have the primary responsibility for enforcing this chapter; provided, however, the sheriff and code enforcement may be assisted by the public health department. Violations shall be prosecuted as described in Section 9.52.100 of this chapter, but nothing in this chapter shall prevent the sheriff, code enforcement or the department of public health from engaging in efforts to obtain voluntary compliance by means of warnings, notices, or educational programs.

(Ord. 847.1 § 1, 2007; Ord. 847 § 8, 2006)

9.52.090 - Duty to cooperate.

No person shall refuse to cooperate with, or obstruct, the enforcement officials identified in Section 9.52.080 of this chapter when they are engaged in the process of enforcing the provisions of this chapter. This duty to cooperate may require a person to extinguish a sound source so that it can be determined whether sound emanating from the source violates the provisions of this chapter.

(Ord. 847 § 9, 2006)

9.52.100 - Violations and penalties.

Any person who violates any provision of this chapter once or twice within a one hundred eighty (180) day period shall be guilty of an infraction. Any person who violates any provision of this chapter more than twice within a one hundred eighty (180) day period shall be guilty of a misdemeanor. Each day a violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. Penalties shall not exceed the following amounts:

- A. For the first violation within a one hundred eighty (180) day period, the minimum mandatory

fine shall be five hundred dollars (\$500.00).

- B. For the second violation within a one hundred eighty (180) day period, the minimum mandatory fine shall be seven hundred fifty dollars (\$750.00).
- C. For any further violations within a one hundred eighty (180) day period, the minimum mandatory fine shall be one thousand dollars (\$1,000.00) or imprisonment in the county jail for a period not exceeding six months, or both.

(Ord. 847 § 10, 2006)

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 14577 Study Area Photos

L1_E

33, 53' 38.250000"117, 20' 57.850000"



L1_N

33, 53' 38.290000"117, 20' 57.820000"



L1_S

33, 53' 38.280000"117, 20' 57.820000"



L1_W

33, 53' 38.240000"117, 20' 57.850000"



L2_E

33, 53' 43.240000"117, 20' 54.970000"



L2_N

33, 53' 43.220000"117, 20' 54.970000"



JN: 14577 Study Area Photos

L2_S

33, 53' 43.270000"117, 20' 54.970000"



L2_W

33, 53' 43.220000"117, 20' 54.970000"



L3_E

33, 53' 25.270000"117, 20' 56.450000"



L3_N

33, 53' 25.230000"117, 20' 56.400000"



L3_S

33, 53' 25.320000"117, 20' 56.480000"



L3_W

33, 53' 25.230000"117, 20' 56.450000"



JN: 14577 Study Area Photos

L4_E

33, 53' 13.710000"117, 20' 54.780000"



L4_N

33, 53' 13.730000"117, 20' 54.860000"



L4_S

33, 53' 13.680000"117, 20' 54.780000"



L4_W

33, 53' 13.680000"117, 20' 54.860000"



L5_E

33, 53' 14.000000"117, 21' 10.760000"



L5_N

33, 53' 14.070000"117, 21' 10.790000"



JN: 14577 Study Area Photos

L5_S

33, 53' 14.010000"117, 21' 10.760000"



L5_W

33, 53' 14.030000"117, 21' 10.790000"



APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

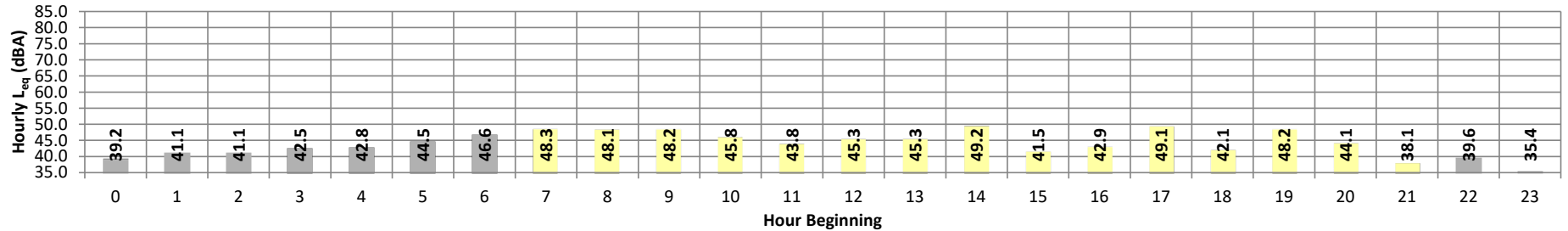
Date: Wednesday, March 23, 2022
Project: Chicago 139

Location: L1 - Located north of the Project site near single-family
Source: residence at 17975 Twin Lakes Drive.

Meter: Piccolo II

JN: 14577
Analyst: A. Khan

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	39.2	46.5	34.8	45.9	45.5	44.0	42.8	39.5	37.3	35.4	35.1	34.9	39.2	10.0	49.2
	1	41.1	49.0	34.6	47.9	47.1	45.7	44.9	42.0	39.3	35.9	35.3	34.8	41.1	10.0	51.1
	2	41.1	47.2	36.7	46.4	45.8	44.6	44.0	41.9	40.0	37.7	37.3	36.9	41.1	10.0	51.1
	3	42.5	49.0	38.3	48.0	47.3	46.0	45.3	43.3	41.6	39.3	38.9	38.4	42.5	10.0	52.5
	4	42.8	49.0	39.0	48.0	47.2	46.1	45.4	43.5	41.9	39.9	39.5	39.1	42.8	10.0	52.8
	5	44.5	50.1	40.8	49.7	49.3	48.2	47.3	45.1	43.6	41.6	41.3	41.0	44.5	10.0	54.5
	6	46.6	51.3	43.8	50.9	50.4	49.4	48.8	47.1	46.1	44.5	44.3	43.9	46.6	10.0	56.6
Day	7	48.3	53.2	45.2	52.7	52.1	51.0	50.5	48.9	47.7	46.0	45.7	45.3	48.3	0.0	48.3
	8	48.1	54.0	44.2	53.5	52.8	51.7	51.0	49.0	47.0	45.0	44.7	44.3	48.1	0.0	48.1
	9	48.2	56.4	41.6	55.8	55.1	53.6	52.5	48.9	45.4	42.7	42.2	41.7	48.2	0.0	48.2
	10	45.8	53.4	39.6	52.6	51.9	50.4	49.6	46.8	44.3	40.5	40.1	39.7	45.8	0.0	45.8
	11	43.8	51.2	37.1	50.6	50.0	49.0	48.1	45.0	41.5	38.0	37.6	37.2	43.8	0.0	43.8
	12	45.3	55.3	34.5	54.7	54.0	52.2	50.9	44.2	39.5	35.5	35.2	34.8	45.3	0.0	45.3
	13	45.3	54.7	34.8	53.9	53.1	52.0	51.1	45.4	39.8	35.7	35.3	35.0	45.3	0.0	45.3
	14	49.2	59.5	34.4	58.8	57.4	55.5	54.7	50.3	39.7	35.6	35.1	34.5	49.2	0.0	49.2
	15	41.5	48.1	33.7	47.6	47.1	46.0	45.5	43.0	40.1	34.5	34.1	33.8	41.5	0.0	41.5
	16	42.9	50.3	34.9	49.5	48.6	47.7	47.1	44.6	41.2	35.5	35.3	35.0	42.9	0.0	42.9
	17	49.1	57.0	36.1	56.7	56.3	55.5	54.2	50.8	43.5	37.2	36.7	36.3	49.1	0.0	49.1
	18	42.1	49.1	35.2	48.5	48.1	47.5	46.7	43.3	39.4	35.9	35.6	35.3	42.1	0.0	42.1
	19	48.2	56.5	36.0	56.0	55.5	54.2	53.8	49.2	42.2	37.3	36.7	36.2	48.2	5.0	53.2
	20	44.1	50.7	33.8	50.2	49.9	49.4	48.9	46.2	40.9	34.7	34.2	33.9	44.1	5.0	49.1
	21	38.1	42.9	34.6	42.7	42.4	41.7	41.2	39.2	36.9	35.1	34.9	34.7	38.1	5.0	43.1
Night	22	39.6	44.9	34.8	44.6	44.3	43.8	43.2	41.0	37.7	35.4	35.2	34.9	39.6	10.0	49.6
	23	35.4	40.4	32.7	40.0	39.6	38.6	38.0	35.8	34.5	33.2	33.0	32.8	35.4	10.0	45.4
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	38.1	42.9	33.7	42.7	42.4	41.7	41.2	39.2	36.9	34.5	34.1	33.8	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	49.2	59.5	45.2	58.8	57.4	55.5	54.7	50.8	47.7	46.0	45.7	45.3			
Energy Average		46.3	Average:		52.3	51.6	50.5	49.7	46.3	41.9	37.9	37.6	37.2			
Night	Min	35.4	40.4	32.7	40.0	39.6	38.6	38.0	35.8	34.5	33.2	33.0	32.8	45.2	46.3	42.4
	Max	46.6	51.3	43.8	50.9	50.4	49.4	48.8	47.1	46.1	44.5	44.3	43.9			
Energy Average		42.4	Average:		46.8	46.3	45.1	44.4	42.1	40.2	38.1	37.8	37.4			

24-Hour Noise Level Measurement Summary

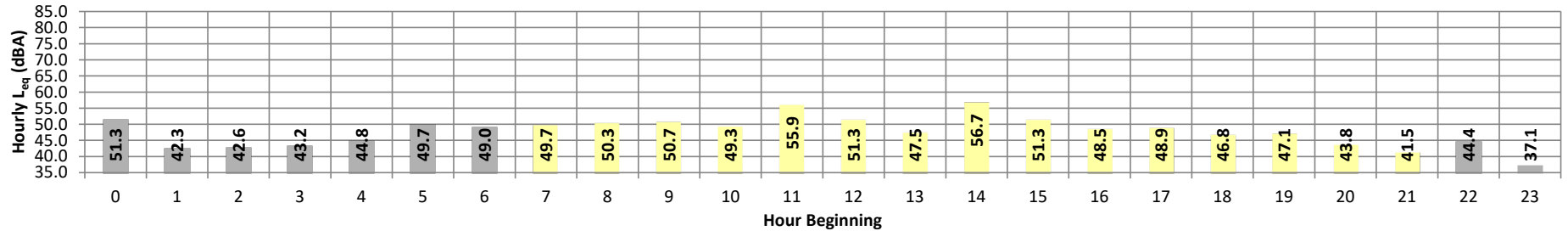
Date: Wednesday, March 23, 2022
Project: Chicago 139

Location: L2 - Located northeast of the Project site near single-family
Source: residence at 18019 Twin Lakes Drive.

Meter: Piccolo II

JN: 14577
Analyst: A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
Night	0	51.3	62.6	36.8	61.9	61.7	60.8	58.8	44.9	40.1	37.6	37.3	36.9	51.3	10.0	61.3
	1	42.3	49.5	36.6	48.6	47.9	46.5	45.8	43.2	40.9	37.8	37.3	36.8	42.3	10.0	52.3
	2	42.6	48.7	38.9	47.8	47.1	46.2	45.5	43.4	41.7	39.6	39.4	39.0	42.6	10.0	52.6
	3	43.2	48.3	40.5	47.5	46.9	45.8	45.2	43.8	42.7	41.2	40.9	40.6	43.2	10.0	53.2
	4	44.8	51.5	40.8	50.9	50.2	48.8	47.9	45.2	43.6	41.6	41.3	40.9	44.8	10.0	54.8
	5	49.7	60.9	41.6	60.5	59.9	57.0	53.6	47.2	44.2	42.3	42.0	41.7	49.7	10.0	59.7
	6	49.0	75.9	44.1	75.5	74.8	71.9	67.0	51.2	46.9	44.8	44.6	44.2	49.0	10.0	59.0
Day	7	49.7	57.1	46.2	56.8	56.5	55.1	53.4	49.0	48.1	46.9	46.6	46.3	49.7	0.0	49.7
	8	50.3	58.4	45.9	57.8	57.4	55.7	54.4	50.0	48.2	46.6	46.2	46.0	50.3	0.0	50.3
	9	50.7	58.4	45.3	58.0	57.5	56.1	54.8	51.0	48.6	46.1	45.8	45.4	50.7	0.0	50.7
	10	49.3	58.7	43.5	58.0	57.0	54.6	53.2	49.2	46.9	44.4	44.0	43.6	49.3	0.0	49.3
	11	55.9	69.2	40.6	69.0	68.1	64.2	59.2	49.1	44.8	41.6	41.2	40.7	55.9	0.0	55.9
	12	51.3	62.4	38.0	61.9	61.5	59.5	57.2	48.9	44.0	39.1	38.6	38.1	51.3	0.0	51.3
	13	47.5	57.5	37.7	57.0	56.4	54.5	52.7	47.2	42.2	38.6	38.2	37.8	47.5	0.0	47.5
	14	56.7	68.6	37.7	68.3	68.0	65.6	61.6	50.4	43.5	39.2	38.7	37.9	56.7	0.0	56.7
	15	51.3	61.7	40.8	61.5	60.9	58.1	56.7	50.7	44.7	41.7	41.3	41.0	51.3	0.0	51.3
	16	48.5	58.6	41.4	58.2	57.6	55.1	53.3	47.0	44.7	42.3	42.0	41.5	48.5	0.0	48.5
	17	48.9	57.5	41.3	57.0	56.2	54.3	53.4	49.6	45.3	42.1	41.7	41.4	48.9	0.0	48.9
	18	46.8	56.4	39.8	55.9	55.1	53.9	52.8	45.9	43.0	40.6	40.2	39.9	46.8	0.0	46.8
	19	47.1	56.8	38.4	56.3	56.0	54.8	53.1	45.8	42.0	39.1	38.8	38.5	47.1	5.0	52.1
	20	43.8	51.0	36.4	50.8	50.4	49.3	48.3	44.8	41.4	37.4	37.0	36.5	43.8	5.0	48.8
	21	41.5	49.1	37.8	48.7	48.3	46.9	45.5	41.4	39.5	38.3	38.1	37.9	41.5	5.0	46.5
	Night	22	44.4	54.5	38.5	54.0	53.4	51.4	48.2	43.2	40.7	39.2	38.9	38.7	44.4	10.0
23		37.1	41.8	35.0	41.2	40.7	39.5	39.0	37.6	36.5	35.5	35.3	35.1	37.1	10.0	47.1
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	41.5	49.1	36.4	48.7	48.3	46.9	45.5	41.4	39.5	37.4	37.0	36.5	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	56.7	69.2	46.2	69.0	68.1	65.6	61.6	51.0	48.6	46.9	46.6	46.3			
Energy Average		51.0	Average:		58.4	57.8	55.8	54.0	48.0	44.4	41.6	41.2	40.8			
Night	Min	37.1	41.8	35.0	41.2	40.7	39.5	39.0	37.6	36.5	35.5	35.3	35.1	49.8	51.0	46.8
	Max	51.3	75.9	44.1	75.5	74.8	71.9	67.0	51.2	46.9	44.8	44.6	44.2			
Energy Average		46.8	Average:		54.2	53.6	52.0	50.1	44.4	41.9	40.0	39.7	39.3			

24-Hour Noise Level Measurement Summary

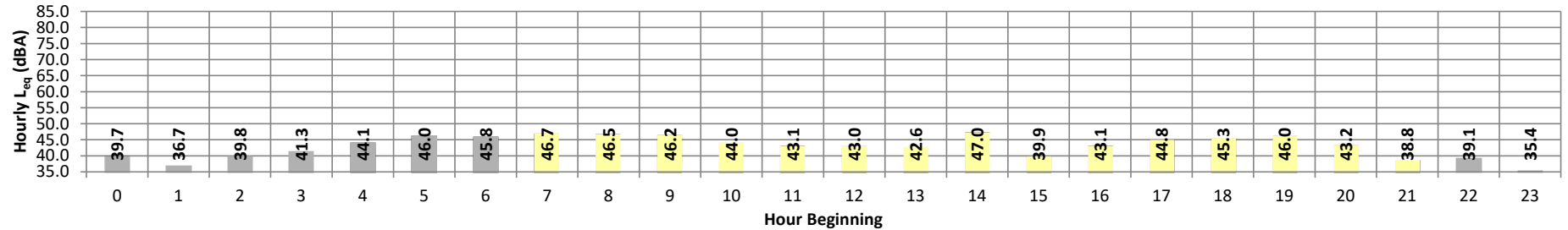
Date: Wednesday, March 23, 2022
Project: Chicago 139

Location: L3 - Located east of the Project site near single-family
Source: residence at 15765 Cartwright Street.

Meter: Piccolo II

JN: 14577
Analyst: A. Khan

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	39.7	45.3	35.9	44.9	44.5	43.5	42.8	40.5	38.6	36.6	36.3	36.0	39.7	10.0	49.7
	1	36.7	40.9	34.2	40.6	40.3	39.4	39.0	37.3	36.2	34.7	34.5	34.3	36.7	10.0	46.7
	2	39.8	44.9	36.6	44.5	44.0	43.0	42.4	40.5	39.0	37.4	37.0	36.7	39.8	10.0	49.8
	3	41.3	45.2	38.2	44.9	44.5	43.7	43.3	42.0	40.9	39.0	38.7	38.3	41.3	10.0	51.3
	4	44.1	48.0	40.9	47.7	47.4	46.7	46.3	44.9	43.6	41.7	41.4	41.1	44.1	10.0	54.1
	5	46.0	50.2	42.0	49.9	49.7	49.1	48.7	47.0	45.5	43.0	42.6	42.1	46.0	10.0	56.0
	6	45.8	49.6	42.9	49.3	48.9	48.2	47.8	46.5	45.4	43.8	43.4	43.0	45.8	10.0	55.8
Day	7	46.7	51.1	43.8	50.7	50.3	49.4	48.9	47.2	46.1	44.6	44.3	43.9	46.7	0.0	46.7
	8	46.5	51.5	42.8	51.0	50.6	49.8	49.2	47.3	45.6	43.6	43.3	42.9	46.5	0.0	46.5
	9	46.2	52.5	41.0	52.0	51.6	50.5	49.7	47.3	44.9	42.0	41.6	41.1	46.2	0.0	46.2
	10	44.0	49.8	39.3	49.2	48.6	47.6	47.1	45.3	42.6	40.2	39.9	39.4	44.0	0.0	44.0
	11	43.1	50.6	37.0	49.8	49.0	47.7	46.9	44.0	41.5	38.0	37.6	37.1	43.1	0.0	43.1
	12	43.0	50.9	34.2	50.3	49.7	48.1	47.3	44.0	40.7	35.0	34.6	34.3	43.0	0.0	43.0
	13	42.6	50.0	34.9	49.5	48.9	47.8	47.0	44.0	39.8	35.8	35.5	35.1	42.6	0.0	42.6
	14	47.0	53.8	34.8	53.4	53.0	52.3	51.6	49.6	43.8	36.7	36.1	35.1	47.0	0.0	47.0
	15	39.9	46.6	33.6	46.1	45.7	44.7	44.1	41.1	38.2	34.2	34.0	33.7	39.9	0.0	39.9
	16	43.1	51.4	36.1	50.7	50.1	48.7	47.7	43.8	40.2	36.9	36.6	36.3	43.1	0.0	43.1
	17	44.8	52.6	37.1	52.0	51.7	50.5	49.6	45.2	41.6	38.4	37.8	37.3	44.8	0.0	44.8
	18	45.3	53.2	36.0	52.8	52.6	51.9	51.2	46.1	40.5	36.7	36.4	36.1	45.3	0.0	45.3
	19	46.0	54.5	36.2	54.1	53.6	52.7	51.5	45.7	41.3	37.0	36.7	36.3	46.0	5.0	51.0
	20	43.2	49.6	34.5	49.2	48.7	48.1	47.6	45.2	40.7	35.7	35.0	34.6	43.2	5.0	48.2
	21	38.8	43.7	35.4	43.3	43.0	42.4	42.0	40.1	37.5	36.0	35.7	35.5	38.8	5.0	43.8
Night	22	39.1	45.4	34.9	44.8	44.4	43.3	42.3	40.2	37.5	35.5	35.3	35.0	39.1	10.0	49.1
	23	35.4	40.3	33.0	39.9	39.5	38.4	37.7	35.9	34.5	33.4	33.3	33.1	35.4	10.0	45.4
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	38.8	43.7	33.6	43.3	43.0	42.4	42.0	40.1	37.5	34.2	34.0	33.7	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	47.0	54.5	43.8	54.1	53.6	52.7	51.6	49.6	46.1	44.6	44.3	43.9			
Energy Average		44.6	Average:		50.3	49.8	48.8	48.1	45.1	41.7	38.1	37.7	37.2	43.8 44.6 42.3		
Night	Min	35.4	40.3	33.0	39.9	39.5	38.4	37.7	35.9	34.5	33.4	33.3	33.1			
	Max	46.0	50.2	42.9	49.9	49.7	49.1	48.7	47.0	45.5	43.8	43.4	43.0			
Energy Average		42.3	Average:		45.2	44.8	43.9	43.4	41.6	40.1	38.3	38.1	37.7			

24-Hour Noise Level Measurement Summary

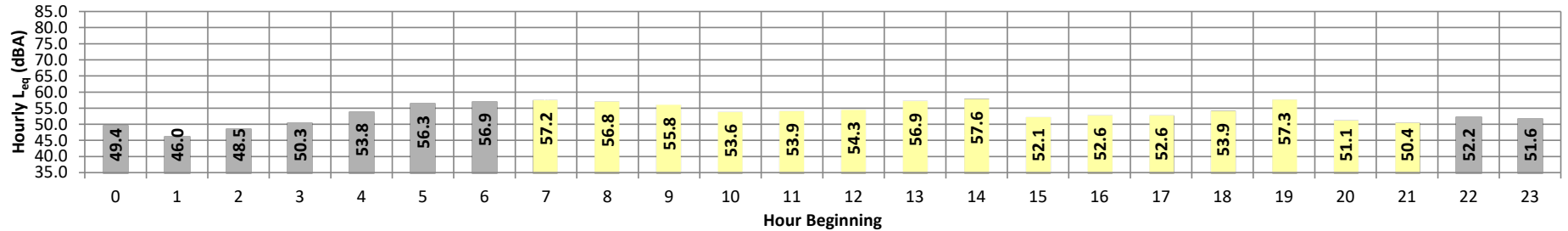
Date: Wednesday, March 23, 2022
Project: Chicago 139

Location: L4 - Located southeast of the Project site near single-family
Source: residence at 17975 Iris Avenue.

Meter: Piccolo II

JN: 14577
Analyst: A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
Night	0	49.4	57.2	42.4	56.9	56.5	55.0	53.7	49.9	47.4	43.6	43.0	42.5	49.4	10.0	59.4
	1	46.0	53.1	38.8	52.8	52.5	51.2	50.2	46.7	44.1	40.2	39.6	38.9	46.0	10.0	56.0
	2	48.5	55.9	41.1	55.6	55.3	54.2	53.0	49.3	45.9	42.3	41.8	41.2	48.5	10.0	58.5
	3	50.3	56.2	43.8	55.9	55.5	54.5	53.9	51.3	49.0	45.2	44.6	43.9	50.3	10.0	60.3
	4	53.8	60.6	46.9	60.3	60.0	59.0	58.0	54.4	52.0	48.5	47.8	47.1	53.8	10.0	63.8
	5	56.3	63.6	49.6	63.3	63.1	61.9	60.3	56.5	54.6	51.1	50.5	49.8	56.3	10.0	66.3
	6	56.9	63.7	50.1	63.4	63.1	62.1	61.3	58.2	54.5	51.4	50.8	50.2	56.9	10.0	66.9
Day	7	57.2	65.0	52.1	64.5	63.8	62.1	60.9	57.5	55.4	53.1	52.7	52.3	57.2	0.0	57.2
	8	56.8	65.7	51.1	65.3	64.6	62.4	60.5	56.6	54.7	52.2	51.8	51.3	56.8	0.0	56.8
	9	55.8	65.1	49.5	64.6	63.4	61.1	59.6	55.7	53.6	50.8	50.3	49.7	55.8	0.0	55.8
	10	53.6	60.0	48.4	59.7	59.3	58.1	57.3	54.2	52.3	49.5	49.0	48.6	53.6	0.0	53.6
	11	53.9	62.3	46.8	61.9	61.4	59.9	58.7	53.8	50.9	48.0	47.5	47.0	53.9	0.0	53.9
	12	54.3	64.4	46.0	64.1	63.5	60.8	58.9	53.0	50.3	47.1	46.6	46.2	54.3	0.0	54.3
	13	56.9	68.9	46.9	68.1	67.5	64.4	61.3	53.9	51.1	48.2	47.6	47.1	56.9	0.0	56.9
	14	57.6	67.3	44.6	67.0	66.3	64.5	63.0	57.5	51.1	46.2	45.5	44.8	57.6	0.0	57.6
	15	52.1	59.7	45.4	59.3	58.9	57.8	56.7	52.5	49.6	46.5	46.0	45.6	52.1	0.0	52.1
	16	52.6	60.9	44.3	60.6	60.1	58.5	57.1	53.2	49.4	45.5	44.9	44.5	52.6	0.0	52.6
	17	52.6	61.6	44.9	61.1	60.5	58.8	57.4	52.5	49.5	46.1	45.5	45.0	52.6	0.0	52.6
	18	53.9	65.5	43.4	64.9	63.9	61.3	59.1	52.3	48.1	44.4	43.9	43.5	53.9	0.0	53.9
	19	57.3	68.3	43.4	68.0	67.6	65.4	62.9	55.1	49.7	45.0	44.1	43.5	57.3	5.0	62.3
	20	51.1	59.0	42.4	58.7	58.3	57.2	56.1	51.9	47.8	43.7	43.1	42.5	51.1	5.0	56.1
	21	50.4	59.0	42.5	58.7	58.3	56.9	55.2	50.2	47.3	43.6	43.0	42.6	50.4	5.0	55.4
Night	22	52.2	61.7	43.3	61.4	60.8	59.1	56.7	51.8	48.2	44.5	43.9	43.5	52.2	10.0	62.2
	23	51.6	63.5	41.4	62.7	62.0	57.4	55.4	49.9	46.9	42.9	42.2	41.6	51.6	10.0	61.6
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	50.4	59.0	42.4	58.7	58.3	56.9	55.2	50.2	47.3	43.6	43.0	42.5	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	57.6	68.9	52.1	68.1	67.6	65.4	63.0	57.5	55.4	53.1	52.7	52.3			
Energy Average		55.0	Average:		63.1	62.5	60.6	59.0	54.0	50.7	47.3	46.8	46.3			
Night	Min	46.0	53.1	38.8	52.8	52.5	51.2	50.2	46.7	44.1	40.2	39.6	38.9	54.3	55.0	53.0
	Max	56.9	63.7	50.1	63.4	63.1	62.1	61.3	58.2	54.6	51.4	50.8	50.2			
Energy Average		53.0	Average:		59.1	58.7	57.2	55.8	52.0	49.2	45.5	44.9	44.3			

24-Hour Noise Level Measurement Summary

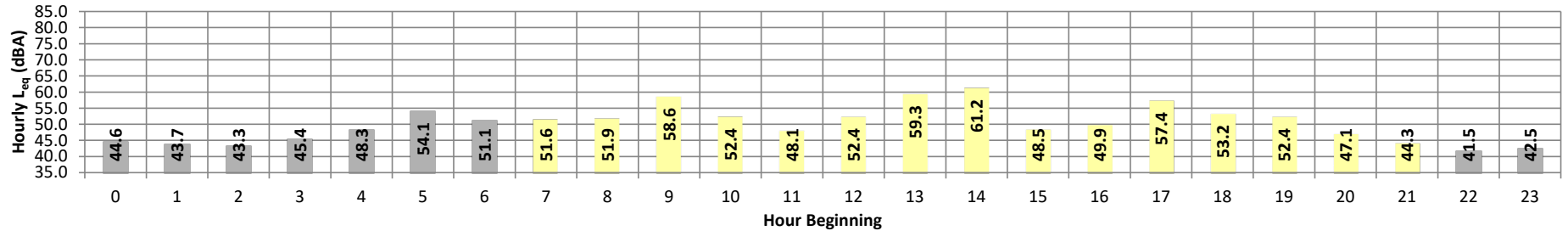
Date: Wednesday, March 23, 2022
Project: Chicago 139

Location: L5 - Located south of the Project site near single-family
Source: residence at 16016 Gamble Avenue.

Meter: Piccolo II

JN: 14577
Analyst: A. Khan

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	44.6	54.5	38.4	53.8	52.9	50.2	48.1	44.2	42.1	39.4	39.0	38.6	44.6	10.0	54.6
	1	43.7	53.8	36.6	53.4	52.8	50.2	47.9	42.7	39.9	37.4	37.1	36.7	43.7	10.0	53.7
	2	43.3	49.6	38.3	49.2	48.8	47.8	46.8	44.0	41.8	39.2	38.8	38.4	43.3	10.0	53.3
	3	45.4	51.0	40.3	50.6	50.1	49.0	48.4	46.5	44.4	41.3	40.8	40.4	45.4	10.0	55.4
	4	48.3	54.1	43.4	53.8	53.3	52.1	51.4	49.3	47.4	44.6	44.1	43.5	48.3	10.0	58.3
	5	54.1	63.6	47.7	63.2	62.6	60.4	57.8	53.3	51.3	48.8	48.3	47.8	54.1	10.0	64.1
	6	51.1	57.4	46.5	57.0	56.7	55.3	54.3	51.4	49.9	47.6	47.1	46.7	51.1	10.0	61.1
Day	7	51.6	56.7	48.0	56.3	55.8	54.9	54.1	52.2	50.8	49.0	48.6	48.1	51.6	0.0	51.6
	8	51.9	60.4	47.1	60.1	59.3	56.9	55.2	51.7	50.1	48.0	47.7	47.3	51.9	0.0	51.9
	9	58.6	67.7	47.6	66.9	66.1	64.5	63.4	59.3	54.9	51.2	50.4	48.3	58.6	0.0	58.6
	10	52.4	61.6	44.0	60.8	60.2	58.7	57.5	52.5	48.8	45.4	44.8	44.2	52.4	0.0	52.4
	11	48.1	57.2	41.0	56.9	56.4	54.2	52.2	47.8	45.3	42.2	41.8	41.2	48.1	0.0	48.1
	12	52.4	64.2	37.4	63.8	62.9	61.0	58.6	48.4	43.2	39.5	38.1	37.5	52.4	0.0	52.4
	13	59.3	71.8	38.1	71.2	70.4	68.1	65.5	52.6	44.8	39.0	38.6	38.2	59.3	0.0	59.3
	14	61.2	73.7	37.3	73.4	72.4	69.3	66.4	55.3	47.2	39.4	38.2	37.4	61.2	0.0	61.2
	15	48.5	60.6	37.0	60.3	59.6	56.6	53.3	44.6	41.0	37.8	37.5	37.1	48.5	0.0	48.5
	16	49.9	60.7	38.9	60.3	59.6	57.4	55.4	48.4	43.6	39.7	39.4	39.0	49.9	0.0	49.9
	17	57.4	70.0	41.1	69.3	68.2	65.5	62.7	53.1	48.2	43.6	42.4	41.3	57.4	0.0	57.4
	18	53.2	65.1	38.9	64.2	63.3	61.8	57.8	51.1	44.2	40.1	39.6	39.0	53.2	0.0	53.2
	19	52.4	60.7	39.9	60.0	59.5	58.6	57.6	52.7	49.1	43.7	42.1	40.5	52.4	5.0	57.4
	20	47.1	57.2	36.6	56.8	56.2	53.7	51.8	47.1	42.5	37.6	37.1	36.7	47.1	5.0	52.1
	21	44.3	56.6	36.9	56.1	54.6	50.9	47.7	41.7	39.2	37.6	37.3	37.1	44.3	5.0	49.3
Night	22	41.5	49.3	36.5	48.9	48.3	46.7	45.4	41.8	39.4	37.2	37.0	36.7	41.5	10.0	51.5
	23	42.5	53.7	35.2	53.1	52.1	48.9	46.5	41.1	38.6	35.9	35.6	35.3	42.5	10.0	52.5
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	44.3	56.6	36.6	56.1	54.6	50.9	47.7	41.7	39.2	37.6	37.1	36.7	24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	61.2	73.7	48.0	73.4	72.4	69.3	66.4	59.3	54.9	51.2	50.4	48.3			
Energy Average		55.0	Average:		62.4	61.6	59.5	57.3	50.6	46.2	42.3	41.6	40.9			
Night	Min	41.5	49.3	35.2	48.9	48.3	46.7	45.4	41.1	38.6	35.9	35.6	35.3	53.5	55.0	48.2
	Max	54.1	63.6	47.7	63.2	62.6	60.4	57.8	53.3	51.3	48.8	48.3	47.8			
Energy Average		48.2	Average:		53.7	53.1	51.2	49.6	46.0	43.9	41.3	40.9	40.5			

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APPENDIX 7.1:

ON-SITE TRAFFIC NOISE CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Chicago Av.
Lot No: 11

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 20.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 20.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 1,532.2 feet Road Elevation: 1,528.5 feet Barrier Elevation: 1,532.2 feet Road Grade: 0.0%		Autos: 75.5% 14.0% 10.5% 97.42%				
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 1,528.50				
		Medium Trucks: 1,530.80				
		Heavy Trucks: 1,536.51 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 33.795				
		Medium Trucks: 34.073				
Heavy Trucks: 33.474						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	59.44	-0.37	2.45	-1.20	0.00	-4.900	-7.900
Medium Trucks:	71.09	-17.61	2.39	-1.20	-0.09	0.000	0.000
Heavy Trucks:	77.24	-21.56	2.51	-1.20	-1.23	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.3	58.3	57.0	51.0	59.4	60.0
Medium Trucks:	54.7	50.8	43.3	52.0	58.2	58.2
Heavy Trucks:	57.0	52.9	49.6	54.2	60.4	60.5
Vehicle Noise:	62.7	60.0	57.9	57.4	64.2	64.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.4	53.4	52.1	46.1	54.5	55.1
Medium Trucks:	54.7	50.8	43.3	52.0	58.2	58.2
Heavy Trucks:	57.0	52.9	49.6	54.2	60.4	60.5
Vehicle Noise:	60.6	57.3	54.4	56.7	63.1	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Iris Av.
Lot No: 227

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 22.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos: 1,565.00				
Barrier Distance to Observer: 18.0 feet		Medium Trucks: 1,567.30				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 1,573.01 Grade Adjustment: 0.0				
Pad Elevation: 1,566.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 1,565.0 feet		Autos: 34.000				
Barrier Elevation: 1,566.0 feet		Medium Trucks: 33.671				
Road Grade: 0.0%		Heavy Trucks: 33.526				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	2.41	-1.20	-0.18	0.000	0.000
Medium Trucks:	73.11	-18.40	2.47	-1.20	-0.52	0.000	0.000
Heavy Trucks:	78.76	-22.35	2.50	-1.20	-2.04	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.6	59.2	53.2	61.6	62.3
Medium Trucks:	56.0	52.1	44.6	53.3	59.5	59.6
Heavy Trucks:	57.7	53.7	50.3	54.9	61.1	61.2
Vehicle Noise:	64.5	61.8	59.9	58.7	65.6	65.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.6	59.2	53.2	61.6	62.3
Medium Trucks:	56.0	52.1	44.6	53.3	59.5	59.6
Heavy Trucks:	57.7	53.7	50.3	54.9	61.1	61.2
Vehicle Noise:	64.5	61.8	59.9	58.7	65.6	65.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Iris Av.
Lot No: 200

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15					
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15					
Vehicle Speed:	30 mph	Vehicle Mix					
Near/Far Lane Distance:	12 feet						
Site Data		VehicleType	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 20.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 20.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 1,521.0 feet Road Elevation: 1,522.5 feet Barrier Elevation: 1,522.5 feet Road Grade: 0.0%		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 1,522.50					
		Medium Trucks: 1,524.80					
		Heavy Trucks: 1,530.51 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 33.649					
		Medium Trucks: 33.488					
Heavy Trucks: 33.768							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	2.48	-1.20	-0.12	0.000	0.000
Medium Trucks:	73.11	-18.40	2.51	-1.20	-0.46	0.000	0.000
Heavy Trucks:	78.76	-22.35	2.45	-1.20	-2.09	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.6	59.3	53.3	61.7	62.3
Medium Trucks:	56.0	52.1	44.6	53.4	59.5	59.6
Heavy Trucks:	57.7	53.6	50.2	54.9	61.1	61.2
Vehicle Noise:	64.5	61.9	59.9	58.7	65.6	65.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.6	59.3	53.3	61.7	62.3
Medium Trucks:	56.0	52.1	44.6	53.4	59.5	59.6
Heavy Trucks:	57.7	53.6	50.2	54.9	61.1	61.2
Vehicle Noise:	64.5	61.9	59.9	58.7	65.6	65.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard No Wall
Road Name: Iris Av.
Lot No: 165

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 30.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 1,507.30				
Barrier Distance to Observer: 20.0 feet		Medium Trucks: 1,509.60				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 1,515.31 Grade Adjustment: 0.0				
Pad Elevation: 1,511.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 1,507.3 feet		Autos: 44.449				
Barrier Elevation: 1,511.0 feet		Medium Trucks: 44.057				
Road Grade: 0.0%		Heavy Trucks: 43.595				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	0.66	-1.20	-0.05	0.000	0.000
Medium Trucks:	73.11	-18.40	0.72	-1.20	-0.19	0.000	0.000
Heavy Trucks:	78.76	-22.35	0.79	-1.20	-0.97	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	58.8	57.5	51.5	59.9	60.5
Medium Trucks:	54.2	50.3	42.8	51.6	57.8	57.8
Heavy Trucks:	56.0	52.0	48.6	53.2	59.4	59.5
Vehicle Noise:	62.7	60.1	58.1	56.9	63.9	64.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	58.8	57.5	51.5	59.9	60.5
Medium Trucks:	54.2	50.3	42.8	51.6	57.8	57.8
Heavy Trucks:	56.0	52.0	48.6	53.2	59.4	59.5
Vehicle Noise:	62.7	60.1	58.1	56.9	63.9	64.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Chicago Av.
Lot No: 11

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier:	20.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	40.0 feet	Autos: 1,528.50				
Barrier Distance to Observer:	20.0 feet	Medium Trucks: 1,530.80				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 1,536.51 Grade Adjustment: 0.0				
Pad Elevation:	1,532.2 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	1,528.5 feet	Autos: 33.795				
Barrier Elevation:	1,532.2 feet	Medium Trucks: 34.073				
Road Grade:	0.0%	Heavy Trucks: 33.474				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	59.44	-0.37	2.45	-1.20	0.00	-4.900	-7.900
Medium Trucks:	71.09	-17.61	2.39	-1.20	-0.09	0.000	0.000
Heavy Trucks:	77.24	-21.56	2.51	-1.20	-1.23	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.3	58.3	57.0	51.0	59.4	60.0
Medium Trucks:	54.7	50.8	43.3	52.0	58.2	58.2
Heavy Trucks:	57.0	52.9	49.6	54.2	60.4	60.5
Vehicle Noise:	62.7	60.0	57.9	57.4	64.2	64.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.4	53.4	52.1	46.1	54.5	55.1
Medium Trucks:	54.7	50.8	43.3	52.0	58.2	58.2
Heavy Trucks:	57.0	52.9	49.6	54.2	60.4	60.5
Vehicle Noise:	60.6	57.3	54.4	56.7	63.1	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Iris Av.
Lot No: 227

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier:	22.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	40.0 feet	Autos: 1,565.00				
Barrier Distance to Observer:	18.0 feet	Medium Trucks: 1,567.30				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 1,573.01 Grade Adjustment: 0.0				
Pad Elevation:	1,566.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	1,565.0 feet	Autos: 34.000				
Barrier Elevation:	1,566.0 feet	Medium Trucks: 33.671				
Road Grade:	0.0%	Heavy Trucks: 33.526				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	2.41	-1.20	-0.18	0.000	0.000
Medium Trucks:	73.11	-18.40	2.47	-1.20	-0.52	0.000	0.000
Heavy Trucks:	78.76	-22.35	2.50	-1.20	-2.04	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.6	59.2	53.2	61.6	62.3
Medium Trucks:	56.0	52.1	44.6	53.3	59.5	59.6
Heavy Trucks:	57.7	53.7	50.3	54.9	61.1	61.2
Vehicle Noise:	64.5	61.8	59.9	58.7	65.6	65.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.6	59.2	53.2	61.6	62.3
Medium Trucks:	56.0	52.1	44.6	53.3	59.5	59.6
Heavy Trucks:	57.7	53.7	50.3	54.9	61.1	61.2
Vehicle Noise:	64.5	61.8	59.9	58.7	65.6	65.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Iris Av.
Lot No: 200

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 20.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos: 1,522.50				
Barrier Distance to Observer: 20.0 feet		Medium Trucks: 1,524.80				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 1,530.51 Grade Adjustment: 0.0				
Pad Elevation: 1,521.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 1,522.5 feet		Autos: 33.649				
Barrier Elevation: 1,522.5 feet		Medium Trucks: 33.488				
Road Grade: 0.0%		Heavy Trucks: 33.768				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	2.48	-1.20	-0.12	0.000	0.000
Medium Trucks:	73.11	-18.40	2.51	-1.20	-0.46	0.000	0.000
Heavy Trucks:	78.76	-22.35	2.45	-1.20	-2.09	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.6	59.3	53.3	61.7	62.3
Medium Trucks:	56.0	52.1	44.6	53.4	59.5	59.6
Heavy Trucks:	57.7	53.6	50.2	54.9	61.1	61.2
Vehicle Noise:	64.5	61.9	59.9	58.7	65.6	65.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.6	59.3	53.3	61.7	62.3
Medium Trucks:	56.0	52.1	44.6	53.4	59.5	59.6
Heavy Trucks:	57.7	53.6	50.2	54.9	61.1	61.2
Vehicle Noise:	64.5	61.9	59.9	58.7	65.6	65.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Backyard With Wall
Road Name: Iris Av.
Lot No: 165

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier:	30.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet	Autos: 1,507.30				
Barrier Distance to Observer:	20.0 feet	Medium Trucks: 1,509.60				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 1,515.31 Grade Adjustment: 0.0				
Pad Elevation:	1,511.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	1,507.3 feet	Autos: 44.449				
Barrier Elevation:	1,511.0 feet	Medium Trucks: 44.057				
Road Grade:	0.0%	Heavy Trucks: 43.595				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	0.66	-1.20	-0.05	0.000	0.000
Medium Trucks:	73.11	-18.40	0.72	-1.20	-0.19	0.000	0.000
Heavy Trucks:	78.76	-22.35	0.79	-1.20	-0.97	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	58.8	57.5	51.5	59.9	60.5
Medium Trucks:	54.2	50.3	42.8	51.6	57.8	57.8
Heavy Trucks:	56.0	52.0	48.6	53.2	59.4	59.5
Vehicle Noise:	62.7	60.1	58.1	56.9	63.9	64.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	58.8	57.5	51.5	59.9	60.5
Medium Trucks:	54.2	50.3	42.8	51.6	57.8	57.8
Heavy Trucks:	56.0	52.0	48.6	53.2	59.4	59.5
Vehicle Noise:	62.7	60.1	58.1	56.9	63.9	64.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Chicago Av.
Lot No: 11

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier:	20.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	51.0 feet	Autos: 1,528.50				
Barrier Distance to Observer:	31.0 feet	Medium Trucks: 1,530.80				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 1,536.51 Grade Adjustment: 0.0				
Pad Elevation:	1,532.2 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	1,528.5 feet	Autos: 44.580				
Barrier Elevation:	1,532.2 feet	Medium Trucks: 45.055				
Road Grade:	0.0%	Heavy Trucks: 44.604				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	59.44	-0.37	0.64	-1.20	0.05	-5.500	-8.500
Medium Trucks:	71.09	-17.61	0.57	-1.20	-0.02	0.000	0.000
Heavy Trucks:	77.24	-21.56	0.64	-1.20	-1.02	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.5	56.5	55.2	49.2	57.6	58.2
Medium Trucks:	52.9	49.0	41.5	50.2	56.4	56.4
Heavy Trucks:	55.1	51.1	47.7	52.3	58.5	58.6
Vehicle Noise:	60.9	58.2	56.1	55.5	62.4	62.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.0	51.0	49.7	43.7	52.1	52.7
Medium Trucks:	52.9	49.0	41.5	50.2	56.4	56.4
Heavy Trucks:	55.1	51.1	47.7	52.3	58.5	58.6
Vehicle Noise:	58.6	55.2	52.2	54.8	61.2	61.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Iris Av.
Lot No: 227

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier:	22.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet	Autos: 1,565.00				
Barrier Distance to Observer:	28.0 feet	Medium Trucks: 1,567.30				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 1,573.01 Grade Adjustment: 0.0				
Pad Elevation:	1,566.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	1,565.0 feet	Autos: 44.000				
Barrier Elevation:	1,566.0 feet	Medium Trucks: 43.746				
Road Grade:	0.0%	Heavy Trucks: 43.635				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	0.73	-1.20	-0.07	0.000	0.000
Medium Trucks:	73.11	-18.40	0.77	-1.20	-0.33	0.000	0.000
Heavy Trucks:	78.76	-22.35	0.78	-1.20	-1.82	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.9	58.9	57.6	51.5	60.0	60.6
Medium Trucks:	54.3	50.4	42.9	51.6	57.8	57.8
Heavy Trucks:	56.0	51.9	48.6	53.2	59.4	59.5
Vehicle Noise:	62.8	60.2	58.2	57.0	63.9	64.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.9	58.9	57.6	51.5	60.0	60.6
Medium Trucks:	54.3	50.4	42.9	51.6	57.8	57.8
Heavy Trucks:	56.0	51.9	48.6	53.2	59.4	59.5
Vehicle Noise:	62.8	60.2	58.2	57.0	63.9	64.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Iris Av.
Lot No: 200

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 20.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 1,522.50				
Barrier Distance to Observer: 30.0 feet		Medium Trucks: 1,524.80				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 1,530.51 Grade Adjustment: 0.0				
Pad Elevation: 1,521.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 1,522.5 feet		Autos: 43.729				
Barrier Elevation: 1,522.5 feet		Medium Trucks: 43.606				
Road Grade: 0.0%		Heavy Trucks: 43.821				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	0.77	-1.20	-0.06	0.000	0.000
Medium Trucks:	73.11	-18.40	0.79	-1.20	-0.37	0.000	0.000
Heavy Trucks:	78.76	-22.35	0.76	-1.20	-2.06	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.9	58.9	57.6	51.6	60.0	60.6
Medium Trucks:	54.3	50.4	42.9	51.7	57.8	57.9
Heavy Trucks:	56.0	51.9	48.5	53.2	59.4	59.5
Vehicle Noise:	62.8	60.2	58.2	57.0	63.9	64.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.9	58.9	57.6	51.6	60.0	60.6
Medium Trucks:	54.3	50.4	42.9	51.7	57.8	57.9
Heavy Trucks:	56.0	51.9	48.5	53.2	59.4	59.5
Vehicle Noise:	62.8	60.2	58.2	57.0	63.9	64.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: First Floor With Wall
Road Name: Iris Av.
Lot No: 165

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier:	30.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	60.0 feet	Autos: 1,507.30				
Barrier Distance to Observer:	30.0 feet	Medium Trucks: 1,509.60				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 1,515.31 Grade Adjustment: 0.0				
Pad Elevation:	1,511.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	1,507.3 feet	Autos: 54.366				
Barrier Elevation:	1,511.0 feet	Medium Trucks: 54.046				
Road Grade:	0.0%	Heavy Trucks: 53.670				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	-0.65	-1.20	0.00	0.000	0.000
Medium Trucks:	73.11	-18.40	-0.61	-1.20	-0.07	0.000	0.000
Heavy Trucks:	78.76	-22.35	-0.56	-1.20	-0.78	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.5	57.5	56.2	50.2	58.6	59.2
Medium Trucks:	52.9	49.0	41.5	50.3	56.4	56.5
Heavy Trucks:	54.6	50.6	47.2	51.8	58.0	58.1
Vehicle Noise:	61.4	58.8	56.8	55.6	62.6	62.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.5	57.5	56.2	50.2	58.6	59.2
Medium Trucks:	52.9	49.0	41.5	50.3	56.4	56.5
Heavy Trucks:	54.6	50.6	47.2	51.8	58.0	58.1
Vehicle Noise:	61.4	58.8	56.8	55.6	62.6	62.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Chicago Av.
Lot No: 11

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 20.0 feet Centerline Dist. to Observer: 51.0 feet Barrier Distance to Observer: 31.0 feet Observer Height (Above Pad): 14.0 feet Pad Elevation: 1,532.2 feet Road Elevation: 1,528.5 feet Barrier Elevation: 1,532.2 feet Road Grade: 0.0%		Autos: 75.5% 14.0% 10.5% 97.42%				
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 1,528.50				
		Medium Trucks: 1,530.80				
		Heavy Trucks: 1,536.51 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 47.982				
		Medium Trucks: 47.183				
Heavy Trucks: 45.640						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	59.44	-0.37	0.16	-1.20	-0.14	0.000	0.000
Medium Trucks:	71.09	-17.61	0.27	-1.20	-0.51	0.000	0.000
Heavy Trucks:	77.24	-21.56	0.49	-1.20	-2.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.0	56.0	54.7	48.7	57.1	57.7
Medium Trucks:	52.6	48.7	41.2	49.9	56.1	56.1
Heavy Trucks:	55.0	50.9	47.5	52.2	58.4	58.5
Vehicle Noise:	60.5	57.8	55.6	55.3	62.1	62.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.0	56.0	54.7	48.7	57.1	57.7
Medium Trucks:	52.6	48.7	41.2	49.9	56.1	56.1
Heavy Trucks:	55.0	50.9	47.5	52.2	58.4	58.5
Vehicle Noise:	60.5	57.8	55.6	55.3	62.1	62.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Iris Av.
Lot No: 227

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier:	22.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet	Autos: 1,565.00				
Barrier Distance to Observer:	28.0 feet	Medium Trucks: 1,567.30				
Observer Height (Above Pad):	14.0 feet	Heavy Trucks: 1,573.01 Grade Adjustment: 0.0				
Pad Elevation:	1,566.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	1,565.0 feet	Autos: 46.098				
Barrier Elevation:	1,566.0 feet	Medium Trucks: 45.402				
Road Grade:	0.0%	Heavy Trucks: 44.147				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	0.43	-1.20	-0.83	0.000	0.000
Medium Trucks:	73.11	-18.40	0.52	-1.20	-1.53	0.000	0.000
Heavy Trucks:	78.76	-22.35	0.71	-1.20	-4.13	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	58.6	57.3	51.2	59.7	60.3
Medium Trucks:	54.0	50.1	42.6	51.4	57.6	57.6
Heavy Trucks:	55.9	51.9	48.5	53.1	59.3	59.4
Vehicle Noise:	62.5	59.9	57.9	56.8	63.7	64.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	58.6	57.3	51.2	59.7	60.3
Medium Trucks:	54.0	50.1	42.6	51.4	57.6	57.6
Heavy Trucks:	55.9	51.9	48.5	53.1	59.3	59.4
Vehicle Noise:	62.5	59.9	57.9	56.8	63.7	64.0

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Iris Av.
Lot No: 200

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier:	20.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet	Autos: 1,522.50				
Barrier Distance to Observer:	30.0 feet	Medium Trucks: 1,524.80				
Observer Height (Above Pad):	14.0 feet	Heavy Trucks: 1,530.51 Grade Adjustment: 0.0				
Pad Elevation:	1,521.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	1,522.5 feet	Autos: 45.346				
Barrier Elevation:	1,522.5 feet	Medium Trucks: 44.767				
Road Grade:	0.0%	Heavy Trucks: 43.820				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	0.53	-1.20	-0.74	0.000	0.000
Medium Trucks:	73.11	-18.40	0.62	-1.20	-1.49	0.000	0.000
Heavy Trucks:	78.76	-22.35	0.76	-1.20	-4.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.7	58.7	57.4	51.4	59.8	60.4
Medium Trucks:	54.1	50.2	42.7	51.5	57.7	57.7
Heavy Trucks:	56.0	51.9	48.5	53.2	59.4	59.5
Vehicle Noise:	62.6	60.0	58.0	56.9	63.8	64.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.7	58.7	57.4	51.4	59.8	60.4
Medium Trucks:	54.1	50.2	42.7	51.5	57.7	57.7
Heavy Trucks:	56.0	51.9	48.5	53.2	59.4	59.5
Vehicle Noise:	62.6	60.0	58.0	56.9	63.8	64.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v10/31/19

Scenario: Second Floor With Wall
Road Name: Iris Av.
Lot No: 165

Project Name: Arroyo Vista
Job Number: 14577
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,000 vehicles	Autos: 15				
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	800 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 30.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 60.0 feet		Autos: 1,507.30				
Barrier Distance to Observer: 30.0 feet		Medium Trucks: 1,509.60				
Observer Height (Above Pad): 14.0 feet		Heavy Trucks: 1,515.31 Grade Adjustment: 0.0				
Pad Elevation: 1,511.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 1,507.3 feet		Autos: 56.509				
Barrier Elevation: 1,511.0 feet		Medium Trucks: 55.832				
Road Grade: 0.0%		Heavy Trucks: 54.534				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	62.51	-1.16	-0.90	-1.20	-0.55	0.000	0.000
Medium Trucks:	73.11	-18.40	-0.82	-1.20	-0.97	0.000	0.000
Heavy Trucks:	78.76	-22.35	-0.67	-1.20	-2.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.3	57.2	55.9	49.9	58.3	59.0
Medium Trucks:	52.7	48.8	41.3	50.0	56.2	56.3
Heavy Trucks:	54.5	50.5	47.1	51.7	57.9	58.0
Vehicle Noise:	61.2	58.6	56.6	55.4	62.4	62.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.3	57.2	55.9	49.9	58.3	59.0
Medium Trucks:	52.7	48.8	41.3	50.0	56.2	56.3
Heavy Trucks:	54.5	50.5	47.1	51.7	57.9	58.0
Vehicle Noise:	61.2	58.6	56.6	55.4	62.4	62.7

APPENDIX 8.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Van Buren Bl.
Road Segment: n/o Victoria Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 30,281 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,562 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.13	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-15.10	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.06	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.0	65.7	64.4	58.4	66.8	67.4
Medium Trucks:	60.7	57.6	50.1	58.8	65.0	65.0
Heavy Trucks:	61.6	58.3	54.9	59.5	65.7	65.8
Vehicle Noise:	68.8	67.0	65.0	63.7	70.7	71.0

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	84	182	391	843
CNEL:	88	190	410	884

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Van Buren Bl.
Road Segment: s/o Victoria Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,758 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,364 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 55 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 71.218				
Right View: 90.0 degrees		Medium Trucks: 71.094				
		Heavy Trucks: 71.106				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.45	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-14.79	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.75	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	69.3	68.0	62.0	70.4	71.1
Medium Trucks:	64.0	60.8	53.3	62.1	68.3	68.3
Heavy Trucks:	64.1	60.7	57.3	62.0	68.2	68.3
Vehicle Noise:	72.2	70.4	68.5	66.8	73.9	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	137	296	638	1,375
CNEL:	145	312	671	1,446

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Mockingbird Canyon Rd.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 26,488 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,241 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 12 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 49.890					
		Medium Trucks: 49.712					
		Heavy Trucks: 49.730					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.68	-0.09	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-16.56	-0.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-20.51	-0.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)							
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL	
Autos:	71.2	69.9	68.6	62.6	71.0	71.6	
Medium Trucks:	64.6	61.4	53.9	62.7	68.8	68.9	
Heavy Trucks:	64.6	61.3	57.9	62.5	68.7	68.8	
Vehicle Noise:	72.8	71.0	69.1	67.4	74.4	74.8	

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	99	212	458	986
CNEL:	104	223	481	1,037

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Washington St.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 15,725 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,330 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
		Autos:	77.5%	14.0%	10.5%	92.00%	
		Medium Trucks:	48.0%	2.0%	50.0%	3.00%	
		Heavy Trucks:	48.0%	2.0%	50.0%	5.00%	
		Noise Source Elevations (in feet)					
		Autos:	0.000				
		Medium Trucks:	2.297				
		Heavy Trucks:	8.006	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	-0.96	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-15.83	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-13.61	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:	67.6	66.4	65.0	59.0	67.4	68.1
Medium Trucks:	63.7	60.5	52.7	61.9	68.1	68.1
Heavy Trucks:	70.8	67.5	59.7	68.9	75.1	75.1
Vehicle Noise:	73.0	70.5	66.3	70.1	76.4	76.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	255	550	1,184
CNEL:	120	260	559	1,205

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Washington St.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	9,192 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	778 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
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		Autos: 77.5% 14.0% 10.5% 92.00%				
		Medium Trucks: 48.0% 2.0% 50.0% 3.00%				
		Heavy Trucks: 48.0% 2.0% 50.0% 5.00%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 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:	64.30	-2.20	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-17.07	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-14.85	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:	62.2	61.0	59.6	53.6	62.0	62.7
Medium Trucks:	58.8	55.5	47.8	57.0	63.1	63.2
Heavy Trucks:	66.8	63.6	55.8	65.0	71.2	71.2
Vehicle Noise:	68.6	65.9	61.3	65.9	72.2	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	287	619
CNEL:	63	135	292	628

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Chicago Av./Alta Cresta Av.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	1,122 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	95 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos:	0.000			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	2.297			
Pad Elevation: 0.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos:	29.816			
Left View: -90.0 degrees		Medium Trucks:	29.518			
Right View: 90.0 degrees		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-9.62	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-26.86	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-30.82	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.2	50.0	48.2	42.2	50.8	51.4
Medium Trucks:	46.1	45.3	38.9	37.4	45.8	46.1
Heavy Trucks:	49.3	48.6	39.5	40.8	49.2	49.3
Vehicle Noise:	54.1	53.1	49.2	45.3	53.8	54.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	5	12	25
CNEL:	3	6	12	27

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Chicago Av./Alta Cresta Av.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,835 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	240 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 30.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 30.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 29.816				
Right View: 90.0 degrees		Medium Trucks: 29.518				
		Heavy Trucks: 29.547				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-5.60	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-22.84	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-26.79	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.2	54.0	52.3	46.2	54.8	55.4
Medium Trucks:	50.1	49.3	42.9	41.4	49.9	50.1
Heavy Trucks:	53.3	52.6	43.6	44.8	53.2	53.3
Vehicle Noise:	58.1	57.2	53.2	49.3	57.8	58.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	10	22	46
CNEL:	5	11	23	49

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Gamble Av.
Road Segment: s/o Iris Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	117 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	10 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height:	0.0 feet	Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm):	0.0	Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier:	30.0 feet	Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer:	30.0 feet					
Barrier Distance to Observer:	0.0 feet	Noise Source Elevations (in feet)				
Observer Height (Above Pad):	5.0 feet	Autos:	0.000			
Pad Elevation:	0.0 feet	Medium Trucks:	2.297			
Road Elevation:	0.0 feet	Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Grade:	0.0%	Lane Equivalent Distance (in feet)				
Left View:	-90.0 degrees	Autos:	29.816			
Right View:	90.0 degrees	Medium Trucks:	29.518			
		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-19.44	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-36.68	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-40.64	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	41.4	40.2	38.4	32.4	41.0	41.6
Medium Trucks:	36.2	35.5	29.1	27.6	36.0	36.2
Heavy Trucks:	39.5	38.8	29.7	31.0	39.3	39.5
Vehicle Noise:	44.3	43.3	39.4	35.5	44.0	44.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	1	3	6
CNEL:	1	1	3	6

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Wood Rd.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 9,239 vehicles				Autos: 15				
Peak Hour Percentage: 8.46%				Medium Trucks (2 Axles): 15				
Peak Hour Volume: 782 vehicles				Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph				Vehicle Mix				
Near/Far Lane Distance: 36 feet				VehicleType	Day	Evening	Night	Daily
Site Data				Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet				Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0				Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet				Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet				Autos: 0.000				
Barrier Distance to Observer: 0.0 feet				Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet				Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet				Autos: 46.915				
Road Grade: 0.0%				Medium Trucks: 46.726				
Left View: -90.0 degrees				Heavy Trucks: 46.744				
Right View: 90.0 degrees								
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	66.51	-2.51	0.31	-1.20	-4.65	0.000	0.000	
Medium Trucks:	77.72	-19.75	0.34	-1.20	-4.87	0.000	0.000	
Heavy Trucks:	82.99	-23.70	0.34	-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:	63.1	61.8	60.5	54.5	62.9	63.6		
Medium Trucks:	57.1	53.9	46.4	55.2	61.4	61.4		
Heavy Trucks:	58.4	55.1	51.7	56.4	62.6	62.7		
Vehicle Noise:	65.1	63.2	61.2	60.2	67.1	67.4		
Centerline Distance to Noise Contour (in feet)								
	70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:	32	69	149	320				
CNEL:	34	72	156	335				

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Wood Rd.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,370 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,046 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 46.915				
Right View: 90.0 degrees		Medium Trucks: 46.726				
		Heavy Trucks: 46.744				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.24	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-18.48	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.44	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	63.1	61.8	55.8	64.2	64.8
Medium Trucks:	58.4	55.2	47.7	56.5	62.6	62.7
Heavy Trucks:	59.7	56.4	53.0	57.6	63.8	63.9
Vehicle Noise:	66.4	64.5	62.5	61.5	68.4	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	181	389
CNEL:	41	88	189	407

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Trautwein Rd./Cole Av.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 19,588 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,657 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 46.915					
Road Grade: 0.0%		Medium Trucks: 46.726					
Left View: -90.0 degrees		Heavy Trucks: 46.744					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.21	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.45	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.41	0.34	-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	67.8	66.5	60.5	68.9	69.5
Medium Trucks:	62.7	59.5	52.0	60.8	66.9	67.0
Heavy Trucks:	63.1	59.8	56.4	61.0	67.2	67.3
Vehicle Noise:	70.8	69.0	67.0	65.5	72.6	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	159	344	740
CNEL:	78	167	361	777

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Trautwein Rd./Cole Av.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 12,051 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,019 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet							
Barrier Distance to Observer: 0.0 feet		Autos: 0.000					
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297					
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%							
Left View: -90.0 degrees		Autos: 46.915					
Right View: 90.0 degrees		Medium Trucks: 46.726					
		Heavy Trucks: 46.744					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.32	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-19.56	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.52	0.34	-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:	67.0	65.7	64.4	58.4	66.8	67.4
Medium Trucks:	60.6	57.4	49.9	58.7	64.8	64.9
Heavy Trucks:	61.0	57.7	54.3	58.9	65.1	65.2
Vehicle Noise:	68.7	66.9	64.9	63.4	70.4	70.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	115	249	535
CNEL:	56	121	261	562

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Victoria Av.
Road Segment: w/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,090 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 854 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph						
Near/Far Lane Distance: 12 feet		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 37.0 feet						
Centerline Dist. to Observer: 37.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet						
Road Grade: 0.0%		Lane Equivalent Distance (in feet)				
Left View: -90.0 degrees		Autos: 36.851				
Right View: 90.0 degrees		Medium Trucks: 36.610				
		Heavy Trucks: 36.634				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.64	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	79.45	-19.88	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.83	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	65.2	63.9	57.9	66.3	66.9
Medium Trucks:	60.3	57.1	49.6	58.4	64.5	64.6
Heavy Trucks:	61.1	57.8	54.4	59.1	65.3	65.4
Vehicle Noise:	68.4	66.5	64.5	63.2	70.2	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	82	177	382
CNEL:	40	86	186	401

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Victoria Av.
Road Segment: e/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	5,757 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	487 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	40 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 37.0 feet Centerline Dist. to Observer: 37.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:	75.5%	14.0%	10.5%	97.42%
		Medium Trucks:	48.9%	2.2%	48.9%	1.84%
		Heavy Trucks:	47.3%	5.4%	47.3%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	36.851			
		Medium Trucks:	36.610			
Heavy Trucks:	36.634					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.56	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-21.80	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.76	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	61.3	60.0	54.0	62.4	63.1
Medium Trucks:	56.6	53.5	46.0	54.7	60.9	60.9
Heavy Trucks:	58.0	54.6	51.2	55.9	62.1	62.2
Vehicle Noise:	64.7	62.7	60.7	59.7	66.6	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	102	221
CNEL:	23	50	107	231

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Van Buren Bl.
 Road Segment: w/o Washington St.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 28,697 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,428 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet							
Barrier Distance to Observer: 0.0 feet		Autos: 0.000					
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297					
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%							
Left View: -90.0 degrees		Autos: 71.218					
Right View: 90.0 degrees		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.44	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.79	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.75	-2.40	-1.20	-5.25	0.000	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	65.4	59.4	67.9	68.5
Medium Trucks:	61.6	58.4	50.9	59.7	65.9	65.9
Heavy Trucks:	62.0	58.7	55.3	60.0	66.2	66.3
Vehicle Noise:	69.7	67.9	66.0	64.5	71.5	71.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	206	443	955
CNEL:	100	216	465	1,003

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Van Buren Bl.
 Road Segment: e/o Washington St.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 35,562 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,009 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.37	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.86	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.82	-2.40	-1.20	-5.25	0.000	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	66.4	60.4	68.8	69.4
Medium Trucks:	62.5	59.4	51.9	60.6	66.8	66.8
Heavy Trucks:	63.0	59.6	56.2	60.9	67.1	67.2
Vehicle Noise:	70.7	68.8	66.9	65.4	72.4	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	237	511	1,102
CNEL:	116	249	537	1,157

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Van Buren Bl.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 35,550 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,008 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.37	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.86	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.82	-2.40	-1.20	-5.25	0.000	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	66.4	60.4	68.8	69.4
Medium Trucks:	62.5	59.4	51.9	60.6	66.8	66.8
Heavy Trucks:	63.0	59.6	56.2	60.9	67.1	67.2
Vehicle Noise:	70.7	68.8	66.9	65.4	72.4	72.7

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	237	511	1,101
CNEL:	116	249	537	1,157

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Van Buren Bl.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 33,813 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,861 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 71.218					
		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.16	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.08	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.04	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.5	66.2	60.1	68.6	69.2
Medium Trucks:	62.3	59.2	51.6	60.4	66.6	66.6
Heavy Trucks:	62.7	59.4	56.0	60.7	66.9	67.0
Vehicle Noise:	70.4	68.6	66.7	65.2	72.2	72.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	107	229	494	1,065
CNEL:	112	241	519	1,119

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Van Buren Bl.
Road Segment: e/o Wood Rd.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 31,982 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,706 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.91	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.32	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.28	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.5	67.2	65.9	59.9	68.3	68.9
Medium Trucks:	62.1	58.9	51.4	60.2	66.3	66.4
Heavy Trucks:	62.5	59.2	55.8	60.4	66.6	66.7
Vehicle Noise:	70.2	68.4	66.5	64.9	72.0	72.3

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	221	476	1,026
CNEL:	108	232	500	1,078

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Van Buren Bl.
 Road Segment: e/o Trautwein Rd./Cole Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 29,513 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,497 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.57	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.67	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.63	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.9	65.6	59.6	68.0	68.6
Medium Trucks:	61.7	58.6	51.1	59.8	66.0	66.0
Heavy Trucks:	62.2	58.8	55.4	60.1	66.3	66.4
Vehicle Noise:	69.9	68.0	66.1	64.6	71.6	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	210	452	973
CNEL:	102	220	474	1,022

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Iris Av.
 Road Segment: w/o Gamble Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	35 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	3 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
		Autos:	77.5%	12.9%	9.6%	97.42%
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	29.816			
		Medium Trucks:	29.518			
		Heavy Trucks:	29.547			

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-25.48	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-42.71	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-46.67	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	38.3	37.2	35.4	29.3	38.0	38.6
Medium Trucks:	32.9	32.1	25.8	24.2	32.7	32.9
Heavy Trucks:	35.4	34.7	25.6	26.9	35.2	35.4
Vehicle Noise:	40.9	39.9	36.2	32.1	40.6	41.0

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	1	2	3
CNEL:	0	1	2	3

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Iris Av.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	177 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	15 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height:	0.0 feet	Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm):	0.0	Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier:	30.0 feet	Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer:	30.0 feet	Noise Source Elevations (in feet)				
Barrier Distance to Observer:	0.0 feet	Autos:	0.000			
Observer Height (Above Pad):	5.0 feet	Medium Trucks:	2.297			
Pad Elevation:	0.0 feet	Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Grade:	0.0%	Autos:	29.816			
Left View:	-90.0 degrees	Medium Trucks:	29.518			
Right View:	90.0 degrees	Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-18.44	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-35.67	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-39.63	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.4	44.2	42.4	36.4	45.0	45.6
Medium Trucks:	39.9	39.2	32.8	31.2	39.7	39.9
Heavy Trucks:	42.4	41.7	32.7	33.9	42.3	42.4
Vehicle Noise:	47.9	46.9	43.3	39.1	47.6	48.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	4	10
CNEL:	1	2	5	10

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Iris Av.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	154 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	13 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos:	0.000			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	2.297			
Pad Elevation: 0.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos:	29.816			
Left View: -90.0 degrees		Medium Trucks:	29.518			
Right View: 90.0 degrees		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-19.04	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-36.28	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-40.24	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.8	43.6	41.8	35.8	44.4	45.0
Medium Trucks:	39.3	38.5	32.2	30.6	39.1	39.3
Heavy Trucks:	41.8	41.1	32.1	33.3	41.7	41.8
Vehicle Noise:	47.3	46.3	42.7	38.5	47.0	47.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	4	9
CNEL:	1	2	4	9

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Van Buren Bl.
 Road Segment: n/o Victoria Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 30,787 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,605 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.21	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-15.03	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.99	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	65.8	64.5	58.5	66.9	67.5
Medium Trucks:	60.8	57.6	50.1	58.9	65.1	65.1
Heavy Trucks:	61.7	58.4	55.0	59.6	65.8	65.9
Vehicle Noise:	68.9	67.0	65.1	63.8	70.7	71.1

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	184	396	852
CNEL:	89	193	415	894

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Van Buren Bl.
 Road Segment: s/o Victoria Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,484 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,425 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 55 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet Centerline Dist. to Observer: 76.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 71.218				
		Medium Trucks: 71.094				
		Heavy Trucks: 71.106				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.52	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-14.71	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.67	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	69.4	68.1	62.1	70.5	71.1
Medium Trucks:	64.1	60.9	53.4	62.2	68.3	68.4
Heavy Trucks:	64.1	60.8	57.4	62.1	68.3	68.4
Vehicle Noise:	72.3	70.5	68.6	66.9	73.9	74.3

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	139	300	646	1,391
CNEL:	146	315	679	1,464

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Mockingbird Canyon Rd.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 27,236 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,304 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 12 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet							
Barrier Distance to Observer: 0.0 feet		Autos: 0.000					
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297					
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%							
Left View: -90.0 degrees		Autos: 49.890					
Right View: 90.0 degrees		Medium Trucks: 49.712					
		Heavy Trucks: 49.730					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.80	-0.09	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-16.44	-0.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-20.39	-0.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	70.0	68.7	62.7	71.1	71.7
Medium Trucks:	64.7	61.5	54.0	62.8	69.0	69.0
Heavy Trucks:	64.7	61.4	58.0	62.7	68.9	69.0
Vehicle Noise:	72.9	71.1	69.2	67.5	74.5	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	216	466	1,004
CNEL:	106	228	490	1,056

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Washington St.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 15,879 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,343 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos:	77.5%	14.0%	10.5%	92.00%
		Medium Trucks:	48.0%	2.0%	50.0%	3.00%
		Heavy Trucks:	48.0%	2.0%	50.0%	5.00%
		Noise Source Elevations (in feet)				
Barrier Height: 0.0 feet		Autos:	0.000	Grade Adjustment: 0.0		
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	2.297			
Centerline Dist. to Barrier: 44.0 feet		Heavy Trucks:	8.006			
Centerline Dist. to Observer: 44.0 feet		Lane Equivalent Distance (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos:	40.460			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	40.241			
Pad Elevation: 0.0 feet		Heavy Trucks:	40.262			
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.92	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-15.78	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-13.57	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:	67.6	66.4	65.0	59.0	67.5	68.1
Medium Trucks:	63.8	60.5	52.7	61.9	68.1	68.1
Heavy Trucks:	70.8	67.5	59.8	69.0	75.1	75.2
Vehicle Noise:	73.0	70.5	66.4	70.1	76.5	76.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	257	553	1,192
CNEL:	121	261	563	1,213

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Washington St.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	9,280 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	785 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph					
Near/Far Lane Distance:	36 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height:	0.0 feet	Autos:	77.5%	14.0%	10.5%	92.00%
Barrier Type (0-Wall, 1-Berm):	0.0	Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Centerline Dist. to Barrier:	44.0 feet	Heavy Trucks:	48.0%	2.0%	50.0%	5.00%
Centerline Dist. to Observer:	44.0 feet					
Barrier Distance to Observer:	0.0 feet	Noise Source Elevations (in feet)				
Observer Height (Above Pad):	5.0 feet	Autos:	0.000			
Pad Elevation:	0.0 feet	Medium Trucks:	2.297			
Road Elevation:	0.0 feet	Heavy Trucks:	8.006	Grade Adjustment:	0.0	
Road Grade:	0.0%	Lane Equivalent Distance (in feet)				
Left View:	-90.0 degrees	Autos:	40.460			
Right View:	90.0 degrees	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:	64.30	-2.16	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-17.03	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-14.81	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.2	61.0	59.6	53.6	62.1	62.7
Medium Trucks:	58.8	55.6	47.8	57.0	63.2	63.2
Heavy Trucks:	66.9	63.6	55.8	65.0	71.2	71.2
Vehicle Noise:	68.6	65.9	61.3	65.9	72.3	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	134	289	623
CNEL:	63	136	293	632

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Chicago Av./Alta Cresta Av.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,662 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	225 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height:	0.0 feet	Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm):	0.0	Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier:	30.0 feet	Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer:	30.0 feet					
Barrier Distance to Observer:	0.0 feet					
Observer Height (Above Pad):	5.0 feet					
Pad Elevation:	0.0 feet					
Road Elevation:	0.0 feet					
Road Grade:	0.0%					
Left View:	-90.0 degrees					
Right View:	90.0 degrees					
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	29.816			
		Medium Trucks:	29.518			
		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-5.87	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-23.11	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-27.07	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.9	53.8	52.0	45.9	54.6	55.2
Medium Trucks:	49.8	49.0	42.7	41.1	49.6	49.8
Heavy Trucks:	53.0	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	57.8	56.9	53.0	49.1	57.6	58.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	10	21	45
CNEL:	5	10	22	47

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Chicago Av./Alta Cresta Av.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,945 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	249 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 30.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 30.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees		Autos: 29.816				
		Medium Trucks: 29.518				
		Heavy Trucks: 29.547				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-5.43	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-22.67	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-26.63	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.4	54.2	52.4	46.4	55.0	55.6
Medium Trucks:	50.3	49.5	43.1	41.6	50.0	50.3
Heavy Trucks:	53.5	52.8	43.7	45.0	53.3	53.5
Vehicle Noise:	58.3	57.3	53.4	49.5	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	10	22	48
CNEL:	5	11	23	51

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Gamble Av.
Road Segment: s/o Iris Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	777 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	66 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 30.0 feet Centerline Dist. to Observer: 30.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
		Medium Trucks: 29.518				
Heavy Trucks: 29.547						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-11.22	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-28.46	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-32.41	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.6	48.4	46.6	40.6	49.2	49.8
Medium Trucks:	44.5	43.7	37.3	35.8	44.2	44.5
Heavy Trucks:	47.7	47.0	38.0	39.2	47.6	47.7
Vehicle Noise:	52.5	51.5	47.6	43.7	52.2	52.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2	4	9	20
CNEL:	2	4	10	21

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Wood Rd.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	9,349 vehicles	Autos: 15					
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15					
Peak Hour Volume:	791 vehicles	Heavy Trucks (3+ Axles): 15					
Vehicle Speed:	40 mph						
Near/Far Lane Distance:	36 feet						
Site Data		Vehicle Mix					
		VehicleType	Day	Evening	Night	Daily	
Barrier Height:	0.0 feet	Autos:	75.5%	14.0%	10.5%	97.42%	
Barrier Type (0-Wall, 1-Berm):	0.0	Medium Trucks:	48.9%	2.2%	48.9%	1.84%	
Centerline Dist. to Barrier:	50.0 feet	Heavy Trucks:	47.3%	5.4%	47.3%	0.74%	
Centerline Dist. to Observer:	50.0 feet						
Barrier Distance to Observer:	0.0 feet	Noise Source Elevations (in feet)					
Observer Height (Above Pad):	5.0 feet	Autos:	0.000				
Pad Elevation:	0.0 feet	Medium Trucks:	2.297				
Road Elevation:	0.0 feet	Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Road Grade:	0.0%	Lane Equivalent Distance (in feet)					
Left View:	-90.0 degrees	Autos:	46.915				
Right View:	90.0 degrees	Medium Trucks:	46.726				
		Heavy Trucks:	46.744				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.46	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.70	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.65	0.34	-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:	63.2	61.9	60.6	54.6	63.0	63.6
Medium Trucks:	57.2	54.0	46.5	55.2	61.4	61.4
Heavy Trucks:	58.5	55.2	51.8	56.4	62.6	62.7
Vehicle Noise:	65.2	63.3	61.3	60.2	67.2	67.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	70	150	323
CNEL:	34	73	157	338

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Wood Rd.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,590 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,065 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 46.915				
Road Grade: 0.0%		Medium Trucks: 46.726				
Left View: -90.0 degrees		Heavy Trucks: 46.744				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.17	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-18.40	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.36	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.5	63.2	61.9	55.8	64.3	64.9
Medium Trucks:	58.4	55.3	47.8	56.5	62.7	62.7
Heavy Trucks:	59.8	56.5	53.1	57.7	63.9	64.0
Vehicle Noise:	66.5	64.6	62.5	61.5	68.4	68.7

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	85	183	394
CNEL:	41	89	191	412

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Trautwein Rd./Cole Av.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 19,764 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,672 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 46.915					
		Medium Trucks: 46.726					
		Heavy Trucks: 46.744					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.18	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.41	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.37	0.34	-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	66.5	60.5	69.0	69.6
Medium Trucks:	62.7	59.6	52.1	60.8	67.0	67.0
Heavy Trucks:	63.1	59.8	56.4	61.1	67.3	67.4
Vehicle Noise:	70.8	69.0	67.1	65.6	72.6	72.9

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	346	745
CNEL:	78	168	363	782

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Trautwein Rd./Cole Av.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 12,117 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,025 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet							
Barrier Distance to Observer: 0.0 feet		Autos: 0.000					
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297					
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%							
Left View: -90.0 degrees		Autos: 46.915					
Right View: 90.0 degrees		Medium Trucks: 46.726					
		Heavy Trucks: 46.744					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.30	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-19.54	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.50	0.34	-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:	67.0	65.7	64.4	58.4	66.8	67.5
Medium Trucks:	60.6	57.4	49.9	58.7	64.8	64.9
Heavy Trucks:	61.0	57.7	54.3	59.0	65.1	65.2
Vehicle Noise:	68.7	66.9	65.0	63.5	70.5	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	249	537
CNEL:	56	122	262	564

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Victoria Av.
 Road Segment: w/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,200 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 863 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 12 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 37.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 37.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.851				
Road Grade: 0.0%		Medium Trucks: 36.610				
Left View: -90.0 degrees		Heavy Trucks: 36.634				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.59	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	79.45	-19.83	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.79	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	65.3	64.0	57.9	66.4	67.0
Medium Trucks:	60.3	57.2	49.7	58.4	64.6	64.6
Heavy Trucks:	61.2	57.9	54.5	59.1	65.3	65.4
Vehicle Noise:	68.4	66.5	64.6	63.3	70.3	70.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	83	179	385
CNEL:	40	87	187	404

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Victoria Av.
 Road Segment: e/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	5,867 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	496 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	40 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 37.0 feet Centerline Dist. to Observer: 37.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 75.5% 14.0% 10.5% 97.42%				
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 36.851				
		Medium Trucks: 36.610				
Heavy Trucks: 36.634						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.48	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-21.72	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.68	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	61.4	60.1	54.1	62.5	63.2
Medium Trucks:	56.7	53.6	46.1	54.8	61.0	61.0
Heavy Trucks:	58.0	54.7	51.3	56.0	62.2	62.3
Vehicle Noise:	64.7	62.8	60.8	59.8	66.7	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	104	223
CNEL:	23	50	108	234

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Van Buren Bl.
 Road Segment: w/o Washington St.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 29,445 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,491 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.56	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.68	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.64	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.9	65.6	59.5	68.0	68.6
Medium Trucks:	61.7	58.5	51.0	59.8	66.0	66.0
Heavy Trucks:	62.1	58.8	55.4	60.1	66.3	66.4
Vehicle Noise:	69.8	68.0	66.1	64.6	71.6	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	209	451	971
CNEL:	102	220	473	1,020

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Van Buren Bl.
 Road Segment: e/o Washington St.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,552 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,092 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.49	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.74	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.70	-2.40	-1.20	-5.25	0.000	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	67.8	66.5	60.5	68.9	69.5
Medium Trucks:	62.7	59.5	52.0	60.7	66.9	66.9
Heavy Trucks:	63.1	59.8	56.4	61.0	67.2	67.3
Vehicle Noise:	70.8	69.0	67.0	65.5	72.5	72.9

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	112	242	521	1,122
CNEL:	118	254	547	1,178

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Van Buren Bl.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 35,880 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,035 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 71.218					
		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.41	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.82	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.78	-2.40	-1.20	-5.25	0.000	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	66.4	60.4	68.8	69.4
Medium Trucks:	62.6	59.4	51.9	60.7	66.8	66.9
Heavy Trucks:	63.0	59.7	56.3	60.9	67.1	67.2
Vehicle Noise:	70.7	68.9	67.0	65.4	72.5	72.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	239	514	1,108
CNEL:	116	251	540	1,164

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Van Buren Bl.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 34,913 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,954 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.29	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.94	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.90	-2.40	-1.20	-5.25	0.000	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	67.6	66.3	60.3	68.7	69.3
Medium Trucks:	62.5	59.3	51.8	60.5	66.7	66.7
Heavy Trucks:	62.9	59.6	56.2	60.8	67.0	67.1
Vehicle Noise:	70.6	68.8	66.8	65.3	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	109	234	505	1,088
CNEL:	114	246	530	1,143

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Van Buren Bl.
 Road Segment: e/o Wood Rd.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,752 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,771 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.02	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.22	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.18	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	67.3	66.0	60.0	68.4	69.1
Medium Trucks:	62.2	59.0	51.5	60.3	66.4	66.5
Heavy Trucks:	62.6	59.3	55.9	60.5	66.7	66.8
Vehicle Noise:	70.3	68.5	66.6	65.0	72.1	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	225	484	1,043
CNEL:	110	236	508	1,095

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Van Buren Bl.
 Road Segment: e/o Trautwein Rd./Cole Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 30,041 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,541 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.64	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.60	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.55	-2.40	-1.20	-5.25	0.000	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	65.6	59.6	68.0	68.7
Medium Trucks:	61.8	58.6	51.1	59.9	66.1	66.1
Heavy Trucks:	62.2	58.9	55.5	60.2	66.4	66.5
Vehicle Noise:	69.9	68.1	66.2	64.7	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	98	212	457	984
CNEL:	103	223	480	1,034

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Iris Av.
 Road Segment: w/o Gamble Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	35 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	3 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos: 29.816				
Left View: -90.0 degrees		Medium Trucks: 29.518				
Right View: 90.0 degrees		Heavy Trucks: 29.547				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-25.48	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-42.71	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-46.67	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	38.3	37.2	35.4	29.3	38.0	38.6
Medium Trucks:	32.9	32.1	25.8	24.2	32.7	32.9
Heavy Trucks:	35.4	34.7	25.6	26.9	35.2	35.4
Vehicle Noise:	40.9	39.9	36.2	32.1	40.6	41.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	1	2	3
CNEL:	0	1	2	3

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Iris Av.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	397 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	34 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos: 29.816				
Left View: -90.0 degrees		Medium Trucks: 29.518				
Right View: 90.0 degrees		Heavy Trucks: 29.547				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-14.93	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-32.17	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-36.12	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.9	47.7	45.9	39.9	48.5	49.1
Medium Trucks:	43.4	42.7	36.3	34.8	43.2	43.4
Heavy Trucks:	45.9	45.2	36.2	37.4	45.8	45.9
Vehicle Noise:	51.4	50.4	46.8	42.6	51.1	51.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2	4	8	17
CNEL:	2	4	8	18

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
 Road Name: Iris Av.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	154 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	13 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos: 29.816				
Left View: -90.0 degrees		Medium Trucks: 29.518				
Right View: 90.0 degrees		Heavy Trucks: 29.547				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-19.04	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-36.28	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-40.24	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.8	43.6	41.8	35.8	44.4	45.0
Medium Trucks:	39.3	38.5	32.2	30.6	39.1	39.3
Heavy Trucks:	41.8	41.1	32.1	33.3	41.7	41.8
Vehicle Noise:	47.3	46.3	42.7	38.5	47.0	47.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	4	9
CNEL:	1	2	4	9

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Van Buren Bl.
 Road Segment: n/o Victoria Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 33,838 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,863 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.62	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-14.62	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.58	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	66.2	64.9	58.9	67.3	67.9
Medium Trucks:	61.2	58.1	50.6	59.3	65.5	65.5
Heavy Trucks:	62.1	58.8	55.4	60.0	66.2	66.3
Vehicle Noise:	69.3	67.4	65.5	64.2	71.2	71.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	196	421	908
CNEL:	95	205	442	952

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
Road Name: Van Buren Bl.
Road Segment: s/o Victoria Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 47,454 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 4,015 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.21	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-14.02	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.98	-2.40	-1.20	-5.25	0.000	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	68.8	62.8	71.2	71.8
Medium Trucks:	64.8	61.6	54.1	62.9	69.0	69.1
Heavy Trucks:	64.8	61.5	58.1	62.8	69.0	69.0
Vehicle Noise:	73.0	71.2	69.3	67.6	74.6	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	155	333	718	1,547
CNEL:	163	351	755	1,627

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Mockingbird Canyon Rd.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,803 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,775 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 55 mph		Vehicle Mix				
Near/Far Lane Distance: 12 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 49.890				
Road Grade: 0.0%		Medium Trucks: 49.712				
Left View: -90.0 degrees		Heavy Trucks: 49.730				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.61	-0.09	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-15.63	-0.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.58	-0.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.1	70.8	69.5	63.5	71.9	72.5
Medium Trucks:	65.5	62.3	54.8	63.6	69.8	69.8
Heavy Trucks:	65.5	62.2	58.8	63.5	69.7	69.8
Vehicle Noise:	73.7	71.9	70.0	68.3	75.4	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	114	245	528	1,137
CNEL:	120	258	555	1,196

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Washington St.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,811 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,761 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 14.0% 10.5% 92.00%				
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		Medium Trucks: 48.0% 2.0% 50.0% 3.00%				
		Heavy Trucks: 48.0% 2.0% 50.0% 5.00%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 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	0.26	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-14.61	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-12.39	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:	68.8	67.6	66.2	60.2	68.7	69.3
Medium Trucks:	65.0	61.7	53.9	63.1	69.3	69.3
Heavy Trucks:	72.0	68.7	60.9	70.1	76.3	76.3
Vehicle Noise:	74.2	71.7	67.5	71.3	77.7	77.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	308	663	1,427
CNEL:	145	313	674	1,452

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Washington St.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 11,032 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 933 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 35 mph						
Near/Far Lane Distance: 36 feet		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 14.0% 10.5% 92.00%				
		Medium Trucks: 48.0% 2.0% 50.0% 3.00%				
		Heavy Trucks: 48.0% 2.0% 50.0% 5.00%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 40.460				
		Medium Trucks: 40.241				
		Heavy Trucks: 40.262				
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						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.41	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-16.27	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-14.06	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.8	60.4	54.4	62.8	63.5
Medium Trucks:	59.6	56.3	48.6	57.8	63.9	63.9
Heavy Trucks:	67.6	64.4	56.6	65.8	71.9	72.0
Vehicle Noise:	69.4	66.7	62.1	66.7	73.0	73.1

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	325	699
CNEL:	71	153	329	709

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
Road Name: Chicago Av./Alta Cresta Av.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	1,122 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	95 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos:	0.000			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	2.297			
Pad Elevation: 0.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos:	29.816			
Left View: -90.0 degrees		Medium Trucks:	29.518			
Right View: 90.0 degrees		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-9.62	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-26.86	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-30.82	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.2	50.0	48.2	42.2	50.8	51.4
Medium Trucks:	46.1	45.3	38.9	37.4	45.8	46.1
Heavy Trucks:	49.3	48.6	39.5	40.8	49.2	49.3
Vehicle Noise:	54.1	53.1	49.2	45.3	53.8	54.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	5	12	25
CNEL:	3	6	12	27

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Chicago Av./Alta Cresta Av.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,131 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	265 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 30.0 feet Centerline Dist. to Observer: 30.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
		Medium Trucks: 29.518				
Heavy Trucks: 29.547						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-5.17	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-22.41	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-26.36	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.6	54.5	52.7	46.6	55.3	55.9
Medium Trucks:	50.5	49.7	43.4	41.8	50.3	50.5
Heavy Trucks:	53.7	53.0	44.0	45.3	53.6	53.7
Vehicle Noise:	58.5	57.6	53.7	49.8	58.3	58.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	23	50
CNEL:	5	11	24	53

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Gamble Av.
 Road Segment: s/o Iris Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	196 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	17 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	30.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	30.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 29.816				
Road Grade:	0.0%	Medium Trucks: 29.518				
Left View:	-90.0 degrees	Heavy Trucks: 29.547				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-17.20	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-34.44	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-38.40	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.6	42.4	40.7	34.6	43.2	43.8
Medium Trucks:	38.5	37.7	31.3	29.8	38.3	38.5
Heavy Trucks:	41.7	41.0	32.0	33.2	41.6	41.7
Vehicle Noise:	46.5	45.6	41.6	37.7	46.2	46.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	4	8
CNEL:	1	2	4	8

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Wood Rd.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	9,239 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	782 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	40 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet					
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 46.915				
Right View: 90.0 degrees		Medium Trucks: 46.726				
		Heavy Trucks: 46.744				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.51	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.75	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.70	0.34	-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:	63.1	61.8	60.5	54.5	62.9	63.6
Medium Trucks:	57.1	53.9	46.4	55.2	61.4	61.4
Heavy Trucks:	58.4	55.1	51.7	56.4	62.6	62.7
Vehicle Noise:	65.1	63.2	61.2	60.2	67.1	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	69	149	320
CNEL:	34	72	156	335

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Wood Rd.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 13,657 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,155 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees		Autos: 46.915				
		Medium Trucks: 46.726				
		Heavy Trucks: 46.744				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.81	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-18.05	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.01	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.8	63.5	62.2	56.2	64.6	65.2
Medium Trucks:	58.8	55.6	48.1	56.9	63.1	63.1
Heavy Trucks:	60.1	56.8	53.4	58.1	64.3	64.4
Vehicle Noise:	66.8	64.9	62.9	61.9	68.8	69.1

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	90	193	416
CNEL:	43	94	202	435

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Trautwein Rd./Cole Av.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 19,588 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,657 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 46.915				
Road Grade: 0.0%		Medium Trucks: 46.726				
Left View: -90.0 degrees		Heavy Trucks: 46.744				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.21	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.45	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.41	0.34	-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	67.8	66.5	60.5	68.9	69.5
Medium Trucks:	62.7	59.5	52.0	60.8	66.9	67.0
Heavy Trucks:	63.1	59.8	56.4	61.0	67.2	67.3
Vehicle Noise:	70.8	69.0	67.0	65.5	72.6	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	159	344	740
CNEL:	78	167	361	777

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Trautwein Rd./Cole Av.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 13,305 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,126 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet							
Barrier Distance to Observer: 0.0 feet		Autos: 0.000					
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297					
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%							
Left View: -90.0 degrees		Autos: 46.915					
Right View: 90.0 degrees		Medium Trucks: 46.726					
		Heavy Trucks: 46.744					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.89	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-19.13	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.09	0.34	-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:	67.4	66.1	64.8	58.8	67.2	67.9
Medium Trucks:	61.0	57.8	50.3	59.1	65.3	65.3
Heavy Trucks:	61.4	58.1	54.7	59.4	65.6	65.7
Vehicle Noise:	69.1	67.3	65.4	63.9	70.9	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	123	265	572
CNEL:	60	129	279	601

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Victoria Av.
 Road Segment: w/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,090 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 854 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 12 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 37.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 37.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.851				
Road Grade: 0.0%		Medium Trucks: 36.610				
Left View: -90.0 degrees		Heavy Trucks: 36.634				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.64	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	79.45	-19.88	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.83	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	65.2	63.9	57.9	66.3	66.9
Medium Trucks:	60.3	57.1	49.6	58.4	64.5	64.6
Heavy Trucks:	61.1	57.8	54.4	59.1	65.3	65.4
Vehicle Noise:	68.4	66.5	64.5	63.2	70.2	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	82	177	382
CNEL:	40	86	186	401

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Victoria Av.
 Road Segment: e/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	5,757 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	487 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	40 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 37.0 feet Centerline Dist. to Observer: 37.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 75.5% 14.0% 10.5% 97.42%				
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 36.851				
		Medium Trucks: 36.610				
Heavy Trucks: 36.634						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.56	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-21.80	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.76	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	61.3	60.0	54.0	62.4	63.1
Medium Trucks:	56.6	53.5	46.0	54.7	60.9	60.9
Heavy Trucks:	58.0	54.6	51.2	55.9	62.1	62.2
Vehicle Noise:	64.7	62.7	60.7	59.7	66.6	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	102	221
CNEL:	23	50	107	231

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Van Buren Bl.
 Road Segment: w/o Washington St.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,255 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,729 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.95	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.29	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.24	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.5	67.3	66.0	59.9	68.4	69.0
Medium Trucks:	62.1	58.9	51.4	60.2	66.4	66.4
Heavy Trucks:	62.5	59.2	55.8	60.5	66.7	66.8
Vehicle Noise:	70.2	68.4	66.5	65.0	72.0	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	222	479	1,032
CNEL:	108	234	503	1,084

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Van Buren Bl.
 Road Segment: e/o Washington St.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,485 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,425 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.94	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.30	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.26	-2.40	-1.20	-5.25	0.000	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	68.3	66.9	60.9	69.3	70.0
Medium Trucks:	63.1	59.9	52.4	61.2	67.4	67.4
Heavy Trucks:	63.5	60.2	56.8	61.5	67.7	67.8
Vehicle Noise:	71.2	69.4	67.5	66.0	73.0	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	558	1,201
CNEL:	126	272	585	1,261

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Van Buren Bl.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 35,550 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,008 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet Centerline Dist. to Observer: 76.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 71.218				
		Medium Trucks: 71.094				
		Heavy Trucks: 71.106				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.37	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.86	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.82	-2.40	-1.20	-5.25	0.000	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	66.4	60.4	68.8	69.4
Medium Trucks:	62.5	59.4	51.9	60.6	66.8	66.8
Heavy Trucks:	63.0	59.6	56.2	60.9	67.1	67.2
Vehicle Noise:	70.7	68.8	66.9	65.4	72.4	72.7

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	237	511	1,101
CNEL:	116	249	537	1,157

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Van Buren Bl.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 33,813 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,861 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 71.218				
Right View: 90.0 degrees		Medium Trucks: 71.094				
		Heavy Trucks: 71.106				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.16	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.08	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.04	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.5	66.2	60.1	68.6	69.2
Medium Trucks:	62.3	59.2	51.6	60.4	66.6	66.6
Heavy Trucks:	62.7	59.4	56.0	60.7	66.9	67.0
Vehicle Noise:	70.4	68.6	66.7	65.2	72.2	72.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	107	229	494	1,065
CNEL:	112	241	519	1,119

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Van Buren Bl.
 Road Segment: e/o Wood Rd.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 31,982 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,706 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.91	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.32	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.28	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.5	67.2	65.9	59.9	68.3	68.9
Medium Trucks:	62.1	58.9	51.4	60.2	66.3	66.4
Heavy Trucks:	62.5	59.2	55.8	60.4	66.6	66.7
Vehicle Noise:	70.2	68.4	66.5	64.9	72.0	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	221	476	1,026
CNEL:	108	232	500	1,078

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Van Buren Bl.
 Road Segment: e/o Trautwein Rd./Cole Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 29,513 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,497 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.57	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.67	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.63	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.9	65.6	59.6	68.0	68.6
Medium Trucks:	61.7	58.6	51.1	59.8	66.0	66.0
Heavy Trucks:	62.2	58.8	55.4	60.1	66.3	66.4
Vehicle Noise:	69.9	68.0	66.1	64.6	71.6	71.9

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	210	452	973
CNEL:	102	220	474	1,022

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Iris Av.
 Road Segment: w/o Gamble Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	35 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	3 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos:	0.000			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	2.297			
Pad Elevation: 0.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos:	29.816			
Left View: -90.0 degrees		Medium Trucks:	29.518			
Right View: 90.0 degrees		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-25.48	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-42.71	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-46.67	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	38.3	37.2	35.4	29.3	38.0	38.6
Medium Trucks:	32.9	32.1	25.8	24.2	32.7	32.9
Heavy Trucks:	35.4	34.7	25.6	26.9	35.2	35.4
Vehicle Noise:	40.9	39.9	36.2	32.1	40.6	41.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	1	2	3
CNEL:	0	1	2	3

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Iris Av.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	177 vehicles	Autos: 15					
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15					
Peak Hour Volume:	15 vehicles	Heavy Trucks (3+ Axles): 15					
Vehicle Speed:	30 mph						
Near/Far Lane Distance:	12 feet						
Site Data		Vehicle Mix					
		VehicleType	Day	Evening	Night	Daily	
		Autos:	77.5%	12.9%	9.6%	97.42%	
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%	
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%	
		Noise Source Elevations (in feet)					
		Autos:	0.000				
		Medium Trucks:	2.297				
		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)					
		Autos:	29.816				
		Medium Trucks:	29.518				
		Heavy Trucks:	29.547				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-18.44	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-35.67	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-39.63	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.4	44.2	42.4	36.4	45.0	45.6
Medium Trucks:	39.9	39.2	32.8	31.2	39.7	39.9
Heavy Trucks:	42.4	41.7	32.7	33.9	42.3	42.4
Vehicle Noise:	47.9	46.9	43.3	39.1	47.6	48.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	4	10
CNEL:	1	2	5	10

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC (2027)
 Road Name: Iris Av.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	154 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	13 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos:	0.000			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	2.297			
Pad Elevation: 0.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos:	29.816			
Left View: -90.0 degrees		Medium Trucks:	29.518			
Right View: 90.0 degrees		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-19.04	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-36.28	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-40.24	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.8	43.6	41.8	35.8	44.4	45.0
Medium Trucks:	39.3	38.5	32.2	30.6	39.1	39.3
Heavy Trucks:	41.8	41.1	32.1	33.3	41.7	41.8
Vehicle Noise:	47.3	46.3	42.7	38.5	47.0	47.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	4	9
CNEL:	1	2	4	9

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Van Buren Bl.
 Road Segment: n/o Victoria Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 34,344 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,906 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 71.218					
		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.68	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-14.56	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.51	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	66.3	64.9	58.9	67.3	68.0
Medium Trucks:	61.3	58.1	50.6	59.4	65.5	65.6
Heavy Trucks:	62.1	58.8	55.4	60.1	66.3	66.4
Vehicle Noise:	69.4	67.5	65.5	64.3	71.2	71.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	198	426	917
CNEL:	96	207	446	961

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Van Buren Bl.
 Road Segment: s/o Victoria Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 48,180 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,076 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 55 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.28	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-13.96	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.91	-2.40	-1.20	-5.25	0.000	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	68.9	62.8	71.3	71.9
Medium Trucks:	64.8	61.7	54.2	62.9	69.1	69.1
Heavy Trucks:	64.9	61.6	58.2	62.8	69.0	69.1
Vehicle Noise:	73.0	71.2	69.3	67.6	74.7	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	156	337	725	1,563
CNEL:	164	354	763	1,644

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Mockingbird Canyon Rd.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 33,551 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,838 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 12 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 49.890					
Road Grade: 0.0%		Medium Trucks: 49.712					
Left View: -90.0 degrees		Heavy Trucks: 49.730					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.71	-0.09	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-15.53	-0.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.49	-0.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.2	70.9	69.6	63.6	72.0	72.6
Medium Trucks:	65.6	62.4	54.9	63.7	69.9	69.9
Heavy Trucks:	65.6	62.3	58.9	63.6	69.8	69.9
Vehicle Noise:	73.8	72.0	70.1	68.4	75.4	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	115	249	536	1,154
CNEL:	121	262	563	1,214

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Washington St.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,965 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,774 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 14.0% 10.5% 92.00%				
Barrier Height: 0.0 feet		Medium Trucks: 48.0% 2.0% 50.0% 3.00%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 48.0% 2.0% 50.0% 5.00%				
Centerline Dist. to Barrier: 44.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 44.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 40.460				
Road Grade: 0.0%		Medium Trucks: 40.241				
Left View: -90.0 degrees		Heavy Trucks: 40.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.29	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-14.58	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-12.36	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:	68.8	67.7	66.2	60.2	68.7	69.3
Medium Trucks:	65.0	61.7	53.9	63.2	69.3	69.3
Heavy Trucks:	72.0	68.7	61.0	70.2	76.3	76.4
Vehicle Noise:	74.3	71.7	67.6	71.3	77.7	77.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	309	666	1,434
CNEL:	146	314	677	1,459

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Washington St.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 11,120 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 941 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 35 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 14.0% 10.5% 92.00%				
Barrier Height: 0.0 feet		Medium Trucks: 48.0% 2.0% 50.0% 3.00%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 48.0% 2.0% 50.0% 5.00%				
Centerline Dist. to Barrier: 44.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 44.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 40.460				
Road Grade: 0.0%		Medium Trucks: 40.241				
Left View: -90.0 degrees		Heavy Trucks: 40.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.37	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-16.24	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-14.02	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.8	60.4	54.4	62.9	63.5
Medium Trucks:	59.6	56.4	48.6	57.8	63.9	64.0
Heavy Trucks:	67.7	64.4	56.6	65.8	72.0	72.0
Vehicle Noise:	69.4	66.7	62.1	66.7	73.1	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	326	703
CNEL:	71	154	331	713

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Chicago Av./Alta Cresta Av.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,662 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	225 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 30.0 feet Centerline Dist. to Observer: 30.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
		Medium Trucks: 29.518				
Heavy Trucks: 29.547						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-5.87	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-23.11	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-27.07	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.9	53.8	52.0	45.9	54.6	55.2
Medium Trucks:	49.8	49.0	42.7	41.1	49.6	49.8
Heavy Trucks:	53.0	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	57.8	56.9	53.0	49.1	57.6	58.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	10	21	45
CNEL:	5	10	22	47

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Chicago Av./Alta Cresta Av.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,241 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	274 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
Medium Trucks: 29.518						
Heavy Trucks: 29.547						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-5.02	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-22.26	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-26.21	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.8	54.6	52.8	46.8	55.4	56.0
Medium Trucks:	50.7	49.9	43.5	42.0	50.4	50.7
Heavy Trucks:	53.9	53.2	44.2	45.4	53.8	53.9
Vehicle Noise:	58.7	57.7	53.8	49.9	58.4	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	24	51
CNEL:	5	12	25	54

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Gamble Av.
 Road Segment: s/o Iris Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	856 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	72 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
		Autos:	77.5%	12.9%	9.6%	97.42%
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	29.816			
		Medium Trucks:	29.518			
		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-10.80	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-28.04	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-31.99	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.0	48.8	47.1	41.0	49.6	50.2
Medium Trucks:	44.9	44.1	37.7	36.2	44.7	44.9
Heavy Trucks:	48.1	47.4	38.4	39.6	48.0	48.1
Vehicle Noise:	52.9	52.0	48.0	44.1	52.6	53.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2	5	10	21
CNEL:	2	5	10	22

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Wood Rd.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	9,349 vehicles	Autos: 15					
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15					
Peak Hour Volume:	791 vehicles	Heavy Trucks (3+ Axles): 15					
Vehicle Speed:	40 mph						
Near/Far Lane Distance:	36 feet						
Site Data		Vehicle Mix					
		VehicleType	Day	Evening	Night	Daily	
Barrier Height:	0.0 feet	Autos:	75.5%	14.0%	10.5%	97.42%	
Barrier Type (0-Wall, 1-Berm):	0.0	Medium Trucks:	48.9%	2.2%	48.9%	1.84%	
Centerline Dist. to Barrier:	50.0 feet	Heavy Trucks:	47.3%	5.4%	47.3%	0.74%	
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 Source Elevations (in feet)					
		Autos:	0.000				
		Medium Trucks:	2.297				
		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)					
		Autos:	46.915				
		Medium Trucks:	46.726				
		Heavy Trucks:	46.744				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.46	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.70	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.65	0.34	-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:	63.2	61.9	60.6	54.6	63.0	63.6
Medium Trucks:	57.2	54.0	46.5	55.2	61.4	61.4
Heavy Trucks:	58.5	55.2	51.8	56.4	62.6	62.7
Vehicle Noise:	65.2	63.3	61.3	60.2	67.2	67.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	70	150	323
CNEL:	34	73	157	338

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Wood Rd.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 13,877 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,174 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 46.915				
Road Grade: 0.0%		Medium Trucks: 46.726				
Left View: -90.0 degrees		Heavy Trucks: 46.744				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.74	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-17.98	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.94	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	63.6	62.3	56.3	64.7	65.3
Medium Trucks:	58.9	55.7	48.2	57.0	63.1	63.2
Heavy Trucks:	60.2	56.9	53.5	58.1	64.3	64.4
Vehicle Noise:	66.9	65.0	63.0	62.0	68.9	69.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	91	195	420
CNEL:	44	95	204	439

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Trautwein Rd./Cole Av.
 Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 19,764 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,672 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 46.915					
Road Grade: 0.0%		Medium Trucks: 46.726					
Left View: -90.0 degrees		Heavy Trucks: 46.744					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.18	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.41	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.37	0.34	-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	66.5	60.5	69.0	69.6
Medium Trucks:	62.7	59.6	52.1	60.8	67.0	67.0
Heavy Trucks:	63.1	59.8	56.4	61.1	67.3	67.4
Vehicle Noise:	70.8	69.0	67.1	65.6	72.6	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	346	745
CNEL:	78	168	363	782

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Trautwein Rd./Cole Av.
 Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 13,371 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,131 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 46.915					
Road Grade: 0.0%		Medium Trucks: 46.726					
Left View: -90.0 degrees		Heavy Trucks: 46.744					
Right View: 90.0 degrees							

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.87	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-19.11	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-23.07	0.34	-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:	67.4	66.2	64.8	58.8	67.3	67.9
Medium Trucks:	61.0	57.9	50.4	59.1	65.3	65.3
Heavy Trucks:	61.4	58.1	54.7	59.4	65.6	65.7
Vehicle Noise:	69.1	67.3	65.4	63.9	70.9	71.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	124	266	574
CNEL:	60	130	280	603

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Victoria Av.
 Road Segment: w/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,200 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 863 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 12 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 37.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 37.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.851				
Road Grade: 0.0%		Medium Trucks: 36.610				
Left View: -90.0 degrees		Heavy Trucks: 36.634				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.59	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	79.45	-19.83	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.79	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	65.3	64.0	57.9	66.4	67.0
Medium Trucks:	60.3	57.2	49.7	58.4	64.6	64.6
Heavy Trucks:	61.2	57.9	54.5	59.1	65.3	65.4
Vehicle Noise:	68.4	66.5	64.6	63.3	70.3	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	83	179	385
CNEL:	40	87	187	404

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Victoria Av.
 Road Segment: e/o Van Buren Bl.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	5,867 vehicles	Autos: 15					
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15					
Peak Hour Volume:	496 vehicles	Heavy Trucks (3+ Axles): 15					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	12 feet						
Site Data		VehicleType	Day	Evening	Night	Daily	
		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 36.851					
Medium Trucks: 36.610							
Heavy Trucks: 36.634							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.48	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-21.72	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.68	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	61.4	60.1	54.1	62.5	63.2
Medium Trucks:	56.7	53.6	46.1	54.8	61.0	61.0
Heavy Trucks:	58.0	54.7	51.3	56.0	62.2	62.3
Vehicle Noise:	64.7	62.8	60.8	59.8	66.7	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	48	104	223
CNEL:	23	50	108	234

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Van Buren Bl.
 Road Segment: w/o Washington St.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 33,003 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,792 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.05	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.19	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.14	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	67.4	66.1	60.0	68.5	69.1
Medium Trucks:	62.2	59.0	51.5	60.3	66.5	66.5
Heavy Trucks:	62.6	59.3	55.9	60.6	66.8	66.9
Vehicle Noise:	70.3	68.5	66.6	65.1	72.1	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	226	487	1,048
CNEL:	110	237	511	1,101

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Van Buren Bl.
 Road Segment: e/o Washington St.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 41,475 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,509 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet Centerline Dist. to Observer: 76.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:	75.5%	14.0%	10.5%	97.42%
		Medium Trucks:	48.9%	2.2%	48.9%	1.84%
		Heavy Trucks:	47.3%	5.4%	47.3%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	71.218			
		Medium Trucks:	71.094			
Heavy Trucks:	71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.04	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.20	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.15	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	68.4	67.0	61.0	69.5	70.1
Medium Trucks:	63.2	60.0	52.5	61.3	67.5	67.5
Heavy Trucks:	63.6	60.3	56.9	61.6	67.8	67.9
Vehicle Noise:	71.3	69.5	67.6	66.1	73.1	73.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	567	1,221
CNEL:	128	276	595	1,282

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Van Buren Bl.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 35,880 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,035 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.41	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.82	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.78	-2.40	-1.20	-5.25	0.000	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	66.4	60.4	68.8	69.4
Medium Trucks:	62.6	59.4	51.9	60.7	66.8	66.9
Heavy Trucks:	63.0	59.7	56.3	60.9	67.1	67.2
Vehicle Noise:	70.7	68.9	67.0	65.4	72.5	72.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	239	514	1,108
CNEL:	116	251	540	1,164

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Van Buren Bl.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 34,913 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,954 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet Centerline Dist. to Observer: 76.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:		75.5%	14.0%	10.5%	97.42%
		Medium Trucks:		48.9%	2.2%	48.9%	1.84%
		Heavy Trucks:		47.3%	5.4%	47.3%	0.74%
		Noise Source Elevations (in feet)					
		Autos:		0.000			
		Medium Trucks:		2.297			
		Heavy Trucks:		8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)					
		Autos:		71.218			
Medium Trucks:		71.094					
Heavy Trucks:		71.106					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.29	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.94	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.90	-2.40	-1.20	-5.25	0.000	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	67.6	66.3	60.3	68.7	69.3
Medium Trucks:	62.5	59.3	51.8	60.5	66.7	66.7
Heavy Trucks:	62.9	59.6	56.2	60.8	67.0	67.1
Vehicle Noise:	70.6	68.8	66.8	65.3	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	109	234	505	1,088
CNEL:	114	246	530	1,143

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Van Buren Bl.
 Road Segment: e/o Wood Rd.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 32,752 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,771 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.02	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.22	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.18	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	67.3	66.0	60.0	68.4	69.1
Medium Trucks:	62.2	59.0	51.5	60.3	66.4	66.5
Heavy Trucks:	62.6	59.3	55.9	60.5	66.7	66.8
Vehicle Noise:	70.3	68.5	66.6	65.0	72.1	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	225	484	1,043
CNEL:	110	236	508	1,095

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Van Buren Bl.
 Road Segment: e/o Trautwein Rd./Cole Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 30,041 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,541 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.64	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-15.60	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-19.55	-2.40	-1.20	-5.25	0.000	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	65.6	59.6	68.0	68.7
Medium Trucks:	61.8	58.6	51.1	59.9	66.1	66.1
Heavy Trucks:	62.2	58.9	55.5	60.2	66.4	66.5
Vehicle Noise:	69.9	68.1	66.2	64.7	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	98	212	457	984
CNEL:	103	223	480	1,034

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
Road Name: Iris Av.
Road Segment: w/o Gamble Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	35 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	3 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height:	0.0 feet	Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm):	0.0	Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier:	30.0 feet	Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer:	30.0 feet	Noise Source Elevations (in feet)				
Barrier Distance to Observer:	0.0 feet	Autos:	0.000			
Observer Height (Above Pad):	5.0 feet	Medium Trucks:	2.297			
Pad Elevation:	0.0 feet	Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Grade:	0.0%	Autos:	29.816			
Left View:	-90.0 degrees	Medium Trucks:	29.518			
Right View:	90.0 degrees	Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-25.48	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-42.71	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-46.67	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	38.3	37.2	35.4	29.3	38.0	38.6
Medium Trucks:	32.9	32.1	25.8	24.2	32.7	32.9
Heavy Trucks:	35.4	34.7	25.6	26.9	35.2	35.4
Vehicle Noise:	40.9	39.9	36.2	32.1	40.6	41.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	1	2	3
CNEL:	0	1	2	3

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Iris Av.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	397 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	34 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 30.0 feet Centerline Dist. to Observer: 30.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
		Medium Trucks: 29.518				
Heavy Trucks: 29.547						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-14.93	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-32.17	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-36.12	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.9	47.7	45.9	39.9	48.5	49.1
Medium Trucks:	43.4	42.7	36.3	34.8	43.2	43.4
Heavy Trucks:	45.9	45.2	36.2	37.4	45.8	45.9
Vehicle Noise:	51.4	50.4	46.8	42.6	51.1	51.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2	4	8	17
CNEL:	2	4	8	18

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC (2027)
 Road Name: Iris Av.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	154 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	13 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos:	0.000			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	2.297			
Pad Elevation: 0.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos:	29.816			
Left View: -90.0 degrees		Medium Trucks:	29.518			
Right View: 90.0 degrees		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-19.04	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-36.28	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-40.24	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.8	43.6	41.8	35.8	44.4	45.0
Medium Trucks:	39.3	38.5	32.2	30.6	39.1	39.3
Heavy Trucks:	41.8	41.1	32.1	33.3	41.7	41.8
Vehicle Noise:	47.3	46.3	42.7	38.5	47.0	47.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	4	9
CNEL:	1	2	4	9

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: n/o Victoria Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 41,126 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,479 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: s/o Victoria Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 51,843 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 4,386 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.60	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-13.64	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.60	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	70.5	69.2	63.2	71.6	72.2
Medium Trucks:	65.2	62.0	54.5	63.2	69.4	69.5
Heavy Trucks:	65.2	61.9	58.5	63.1	69.3	69.4
Vehicle Noise:	73.4	71.6	69.7	68.0	75.0	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	353	762	1,641
CNEL:	173	372	801	1,726

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Mockingbird Canyon Rd.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 35,727 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,023 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 12 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 49.890					
		Medium Trucks: 49.712					
		Heavy Trucks: 49.730					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.98	-0.09	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-15.26	-0.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.21	-0.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	71.2	69.9	63.9	72.3	72.9
Medium Trucks:	65.9	62.7	55.2	64.0	70.1	70.2
Heavy Trucks:	65.9	62.6	59.2	63.8	70.0	70.1
Vehicle Noise:	74.1	72.3	70.4	68.7	75.7	76.1

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	559	1,203
CNEL:	127	273	588	1,266

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Washington St.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 24,184 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,046 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 77.5% 14.0% 10.5% 92.00%					
		Medium Trucks: 48.0% 2.0% 50.0% 3.00%					
		Heavy Trucks: 48.0% 2.0% 50.0% 5.00%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 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	0.91	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.96	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-11.74	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:	69.4	68.3	66.9	60.8	69.3	69.9
Medium Trucks:	65.6	62.4	54.6	63.8	69.9	70.0
Heavy Trucks:	72.6	69.4	61.6	70.8	76.9	77.0
Vehicle Noise:	74.9	72.3	68.2	71.9	78.3	78.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	158	340	732	1,578
CNEL:	161	346	745	1,605

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Washington St.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,047 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,019 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 35 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 14.0% 10.5% 92.00%				
Barrier Height: 0.0 feet		Medium Trucks: 48.0% 2.0% 50.0% 3.00%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 48.0% 2.0% 50.0% 5.00%				
Centerline Dist. to Barrier: 44.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 44.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 40.460				
Right View: 90.0 degrees		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:	64.30	-1.03	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-15.89	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-13.67	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:	63.4	62.2	60.8	54.7	63.2	63.8
Medium Trucks:	60.0	56.7	48.9	58.1	64.3	64.3
Heavy Trucks:	68.0	64.7	57.0	66.2	72.3	72.4
Vehicle Noise:	69.8	67.1	62.5	67.1	73.4	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	344	742
CNEL:	75	162	349	752

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Chicago Av./Alta Cresta Av.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	1,363 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	115 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos: 29.816				
Left View: -90.0 degrees		Medium Trucks: 29.518				
Right View: 90.0 degrees		Heavy Trucks: 29.547				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-8.78	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-26.02	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-29.97	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.0	50.8	49.1	43.0	51.6	52.3
Medium Trucks:	46.9	46.1	39.8	38.2	46.7	46.9
Heavy Trucks:	50.1	49.4	40.4	41.6	50.0	50.1
Vehicle Noise:	54.9	54.0	50.1	46.2	54.7	55.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	6	13	28
CNEL:	3	7	14	30

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Chicago Av./Alta Cresta Av.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,444 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	291 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 30.0 feet Centerline Dist. to Observer: 30.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
		Medium Trucks: 29.518				
Heavy Trucks: 29.547						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-4.75	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-21.99	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-25.95	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.0	54.9	53.1	47.1	55.7	56.3
Medium Trucks:	50.9	50.2	43.8	42.2	50.7	50.9
Heavy Trucks:	54.1	53.5	44.4	45.7	54.0	54.1
Vehicle Noise:	59.0	58.0	54.1	50.2	58.7	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	25	53
CNEL:	6	12	26	56

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Gamble Av.
Road Segment: s/o Iris Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	215 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	18 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	30.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	30.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 29.816				
Road Grade:	0.0%	Medium Trucks: 29.518				
Left View:	-90.0 degrees	Heavy Trucks: 29.547				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-16.80	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-34.04	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-37.99	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.0	42.8	41.1	35.0	43.6	44.2
Medium Trucks:	38.9	38.1	31.7	30.2	38.7	38.9
Heavy Trucks:	42.1	41.4	32.4	33.6	42.0	42.1
Vehicle Noise:	46.9	46.0	42.0	38.1	46.6	47.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	4	8
CNEL:	1	2	4	9

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Wood Rd.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,618 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,067 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 46.915				
Road Grade: 0.0%		Medium Trucks: 46.726				
Left View: -90.0 degrees		Heavy Trucks: 46.744				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.16	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-18.39	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.35	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.5	63.2	61.9	55.9	64.3	64.9
Medium Trucks:	58.5	55.3	47.8	56.5	62.7	62.7
Heavy Trucks:	59.8	56.5	53.1	57.7	63.9	64.0
Vehicle Noise:	66.5	64.6	62.6	61.5	68.5	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	85	183	394
CNEL:	41	89	191	412

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Wood Rd.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 17,833 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,509 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 46.915					
Road Grade: 0.0%		Medium Trucks: 46.726					
Left View: -90.0 degrees		Heavy Trucks: 46.744					
Right View: 90.0 degrees							

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.35	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-16.89	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.85	0.34	-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:	66.0	64.7	63.4	57.4	65.8	66.4
Medium Trucks:	60.0	56.8	49.3	58.0	64.2	64.2
Heavy Trucks:	61.3	58.0	54.6	59.2	65.4	65.5
Vehicle Noise:	68.0	66.1	64.1	63.0	70.0	70.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	107	231	497
CNEL:	52	112	241	519

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Trautwein Rd./Cole Av.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 28,156 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,382 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 46.915					
		Medium Trucks: 46.726					
		Heavy Trucks: 46.744					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.36	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.88	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.83	0.34	-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:	70.7	69.4	68.1	62.1	70.5	71.1
Medium Trucks:	64.3	61.1	53.6	62.3	68.5	68.5
Heavy Trucks:	64.7	61.4	58.0	62.6	68.8	68.9
Vehicle Noise:	72.4	70.5	68.6	67.1	74.1	74.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	203	438	943
CNEL:	99	213	459	990

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Trautwein Rd./Cole Av.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 17,456 vehicles				Autos: 15				
Peak Hour Percentage: 8.46%				Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,477 vehicles				Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph				Vehicle Mix				
Near/Far Lane Distance: 36 feet				VehicleType	Day	Evening	Night	Daily
Site Data				Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet				Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0				Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet				Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet				Autos: 0.000				
Barrier Distance to Observer: 0.0 feet				Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet				Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet				Autos: 46.915				
Road Grade: 0.0%				Medium Trucks: 46.726				
Left View: -90.0 degrees				Heavy Trucks: 46.744				
Right View: 90.0 degrees								
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	-0.72	0.31	-1.20	-4.65	0.000	0.000	
Medium Trucks:	81.00	-17.95	0.34	-1.20	-4.87	0.000	0.000	
Heavy Trucks:	85.38	-21.91	0.34	-1.20	-5.43	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	68.6	67.3	66.0	60.0	68.4	69.0		
Medium Trucks:	62.2	59.0	51.5	60.3	66.4	66.5		
Heavy Trucks:	62.6	59.3	55.9	60.5	66.7	66.8		
Vehicle Noise:	70.3	68.5	66.5	65.0	72.1	72.4		
Centerline Distance to Noise Contour (in feet)								
	70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:	69	148	318	685				
CNEL:	72	155	334	720				

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Victoria Av.
Road Segment: w/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 12,254 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,037 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 12 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 36.851					
		Medium Trucks: 36.610					
		Heavy Trucks: 36.634					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.79	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	79.45	-19.03	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.99	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	66.1	64.8	58.7	67.2	67.8
Medium Trucks:	61.1	58.0	50.5	59.2	65.4	65.4
Heavy Trucks:	62.0	58.7	55.3	59.9	66.1	66.2
Vehicle Noise:	69.2	67.3	65.4	64.1	71.1	71.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	94	202	435
CNEL:	46	98	212	456

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Victoria Av.
Road Segment: e/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	6,992 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	592 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	40 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 37.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 37.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 36.851				
Right View: 90.0 degrees		Medium Trucks: 36.610				
		Heavy Trucks: 36.634				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.72	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-20.96	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.91	1.92	-1.20	-5.61	0.000	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	60.9	54.9	63.3	63.9
Medium Trucks:	57.5	54.3	46.8	55.6	61.7	61.8
Heavy Trucks:	58.8	55.5	52.1	56.7	62.9	63.0
Vehicle Noise:	65.5	63.6	61.6	60.6	67.5	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	54	117	251
CNEL:	26	57	122	263

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: w/o Washington St.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 38,410 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,249 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 71.218					
		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.71	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.53	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.48	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	68.0	66.7	60.7	69.1	69.7
Medium Trucks:	62.9	59.7	52.2	61.0	67.1	67.2
Heavy Trucks:	63.3	60.0	56.6	61.2	67.4	67.5
Vehicle Noise:	71.0	69.2	67.3	65.7	72.8	73.1

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	116	250	538	1,160
CNEL:	122	262	565	1,218

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: e/o Washington St.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 48,133 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 4,072 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet							
Barrier Distance to Observer: 0.0 feet		Autos: 0.000					
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297					
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%							
Left View: -90.0 degrees		Autos: 71.218					
Right View: 90.0 degrees		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.69	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-13.55	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-17.50	-2.40	-1.20	-5.25	0.000	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	67.7	61.7	70.1	70.7
Medium Trucks:	63.9	60.7	53.2	61.9	68.1	68.1
Heavy Trucks:	64.3	61.0	57.6	62.2	68.4	68.5
Vehicle Noise:	72.0	70.2	68.2	66.7	73.7	74.1

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	135	290	626	1,348
CNEL:	142	305	657	1,416

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
 Road Name: Van Buren Bl.
 Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 43,175 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,653 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.22	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.02	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-17.98	-2.40	-1.20	-5.25	0.000	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	67.2	61.2	69.6	70.3
Medium Trucks:	63.4	60.2	52.7	61.5	67.6	67.7
Heavy Trucks:	63.8	60.5	57.1	61.7	67.9	68.0
Vehicle Noise:	71.5	69.7	67.8	66.2	73.3	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	125	270	582	1,254
CNEL:	132	284	611	1,317

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
 Road Name: Van Buren Bl.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 41,066 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,474 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.00	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.24	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.19	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	68.3	67.0	61.0	69.4	70.0
Medium Trucks:	63.2	60.0	52.5	61.2	67.4	67.5
Heavy Trucks:	63.6	60.3	56.9	61.5	67.7	67.8
Vehicle Noise:	71.3	69.5	67.5	66.0	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	121	261	563	1,213
CNEL:	127	274	591	1,273

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: e/o Wood Rd.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 40,274 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,407 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.92	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.32	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.28	-2.40	-1.20	-5.25	0.000	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	66.9	60.9	69.3	69.9
Medium Trucks:	63.1	59.9	52.4	61.2	67.3	67.4
Heavy Trucks:	63.5	60.2	56.8	61.4	67.6	67.7
Vehicle Noise:	71.2	69.4	67.5	65.9	73.0	73.3

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	258	556	1,197
CNEL:	126	271	583	1,257

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
 Road Name: Van Buren Bl.
 Road Segment: e/o Trautwein Rd./Cole Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 35,843 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,032 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 71.218					
		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.41	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.83	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.79	-2.40	-1.20	-5.25	0.000	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	66.4	60.4	68.8	69.4
Medium Trucks:	62.6	59.4	51.9	60.7	66.8	66.9
Heavy Trucks:	63.0	59.7	56.3	60.9	67.1	67.2
Vehicle Noise:	70.7	68.9	67.0	65.4	72.5	72.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	239	514	1,107
CNEL:	116	251	540	1,163

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Iris Av.
Road Segment: w/o Gamble Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	43 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	4 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	30.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	30.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 29.816				
Road Grade:	0.0%	Medium Trucks: 29.518				
Left View:	-90.0 degrees	Heavy Trucks: 29.547				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-24.58	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-41.82	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-45.78	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	39.2	38.1	36.3	30.2	38.9	39.5
Medium Trucks:	33.8	33.0	26.6	25.1	33.6	33.8
Heavy Trucks:	36.3	35.6	26.5	27.8	36.1	36.3
Vehicle Noise:	41.8	40.8	37.1	33.0	41.5	41.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	1	2	4
CNEL:	0	1	2	4

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Iris Av.
Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	215 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	18 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
		Medium Trucks: 29.518				
		Heavy Trucks: 29.547				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-17.59	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-34.83	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-38.79	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.2	45.1	43.3	37.2	45.9	46.5
Medium Trucks:	40.8	40.0	33.6	32.1	40.6	40.8
Heavy Trucks:	43.3	42.6	33.5	34.8	43.1	43.3
Vehicle Noise:	48.8	47.8	44.1	40.0	48.5	48.9

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	5	11
CNEL:	1	3	5	12

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Iris Av.
Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	187 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	16 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Barrier: 30.0 feet		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Observer: 30.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos:	0.000			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	2.297			
Pad Elevation: 0.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos:	29.816			
Left View: -90.0 degrees		Medium Trucks:	29.518			
Right View: 90.0 degrees		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-18.20	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-35.44	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-39.39	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.6	44.4	42.7	36.6	45.2	45.9
Medium Trucks:	40.2	39.4	33.0	31.5	39.9	40.2
Heavy Trucks:	42.7	42.0	32.9	34.2	42.5	42.7
Vehicle Noise:	48.1	47.2	43.5	39.4	47.9	48.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	5	10
CNEL:	1	2	5	11

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: n/o Victoria Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 41,632 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,522 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.52	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.72	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.68	-2.40	-1.20	-5.25	0.000	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	67.1	65.8	59.8	68.2	68.8
Medium Trucks:	62.1	59.0	51.5	60.2	66.4	66.4
Heavy Trucks:	63.0	59.7	56.3	60.9	67.1	67.2
Vehicle Noise:	70.2	68.3	66.4	65.1	72.1	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	225	484	1,042
CNEL:	109	235	507	1,093

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: s/o Victoria Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 52,569 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 4,447 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.66	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-13.58	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.54	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	70.5	69.2	63.2	71.6	72.3
Medium Trucks:	65.2	62.1	54.6	63.3	69.5	69.5
Heavy Trucks:	65.3	61.9	58.6	63.2	69.4	69.5
Vehicle Noise:	73.4	71.6	69.7	68.0	75.1	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	166	357	769	1,656
CNEL:	174	375	809	1,742

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Mockingbird Canyon Rd.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,475 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,086 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 55 mph		Vehicle Mix				
Near/Far Lane Distance: 12 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 49.890				
Right View: 90.0 degrees		Medium Trucks: 49.712				
		Heavy Trucks: 49.730				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.07	-0.09	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-15.17	-0.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.12	-0.07	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	71.3	70.0	64.0	72.4	73.0
Medium Trucks:	66.0	62.8	55.3	64.0	70.2	70.3
Heavy Trucks:	66.0	62.7	59.3	63.9	70.1	70.2
Vehicle Noise:	74.1	72.4	70.5	68.8	75.8	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	566	1,220
CNEL:	128	276	596	1,283

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Washington St.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 25,338 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,144 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet		Autos:	77.5%	14.0%	10.5%	92.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks:	48.0%	2.0%	50.0%	3.00%	
Centerline Dist. to Barrier: 44.0 feet		Heavy Trucks:	48.0%	2.0%	50.0%	5.00%	
Centerline Dist. to Observer: 44.0 feet		Noise Source Elevations (in feet)					
Barrier Distance to Observer: 0.0 feet		Autos:	0.000	Grade Adjustment: 0.0			
Observer Height (Above Pad): 5.0 feet		Medium Trucks:	2.297				
Pad Elevation: 0.0 feet		Heavy Trucks:	8.006				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%		Autos:	40.460				
Left View: -90.0 degrees		Medium Trucks:	40.241				
Right View: 90.0 degrees		Heavy Trucks:	40.262				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.11	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.75	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-11.54	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:	69.6	68.5	67.1	61.0	69.5	70.1
Medium Trucks:	65.8	62.6	54.8	64.0	70.1	70.2
Heavy Trucks:	72.8	69.6	61.8	71.0	77.2	77.2
Vehicle Noise:	75.1	72.5	68.4	72.1	78.5	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	163	351	755	1,627
CNEL:	166	357	769	1,656

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Washington St.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,135 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,027 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 35 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 14.0% 10.5% 92.00%				
Barrier Height: 0.0 feet		Medium Trucks: 48.0% 2.0% 50.0% 3.00%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 48.0% 2.0% 50.0% 5.00%				
Centerline Dist. to Barrier: 44.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 44.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 40.460				
Road Grade: 0.0%		Medium Trucks: 40.241				
Left View: -90.0 degrees		Heavy Trucks: 40.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.99	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-15.86	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-13.64	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:	63.4	62.2	60.8	54.8	63.2	63.9
Medium Trucks:	60.0	56.7	49.0	58.2	64.3	64.4
Heavy Trucks:	68.0	64.8	57.0	66.2	72.4	72.4
Vehicle Noise:	69.8	67.1	62.5	67.1	73.4	73.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	161	346	745
CNEL:	76	163	351	756

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Chicago Av./Alta Cresta Av.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,903 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	246 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 30.0 feet Centerline Dist. to Observer: 30.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
		Medium Trucks: 29.518				
Heavy Trucks: 29.547						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-5.50	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-22.73	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-26.69	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.3	54.1	52.4	46.3	54.9	55.5
Medium Trucks:	50.2	49.4	43.0	41.5	50.0	50.2
Heavy Trucks:	53.4	52.7	43.7	44.9	53.3	53.4
Vehicle Noise:	58.2	57.3	53.3	49.4	57.9	58.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	10	22	47
CNEL:	5	11	23	50

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Chicago Av./Alta Cresta Av.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,554 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	301 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 30.0 feet Centerline Dist. to Observer: 30.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 29.816				
		Medium Trucks: 29.518				
Heavy Trucks: 29.547						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-4.62	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-21.86	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-25.81	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.2	55.0	53.2	47.2	55.8	56.4
Medium Trucks:	51.1	50.3	43.9	42.4	50.8	51.1
Heavy Trucks:	54.3	53.6	44.6	45.8	54.2	54.3
Vehicle Noise:	59.1	58.1	54.2	50.3	58.8	59.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	12	25	54
CNEL:	6	12	27	57

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Gamble Av.
Road Segment: s/o Iris Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	875 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	74 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	25 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	30.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	30.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 29.816				
Road Grade:	0.0%	Medium Trucks: 29.518				
Left View:	-90.0 degrees	Heavy Trucks: 29.547				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-10.70	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	70.80	-27.94	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	77.97	-31.90	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.1	48.9	47.2	41.1	49.7	50.3
Medium Trucks:	45.0	44.2	37.8	36.3	44.8	45.0
Heavy Trucks:	48.2	47.5	38.5	39.7	48.1	48.2
Vehicle Noise:	53.0	52.1	48.1	44.2	52.7	53.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2	5	10	21
CNEL:	2	5	10	23

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Wood Rd.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,728 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,077 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 46.915				
Road Grade: 0.0%		Medium Trucks: 46.726				
Left View: -90.0 degrees		Heavy Trucks: 46.744				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.12	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-18.36	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.31	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.5	63.2	61.9	55.9	64.3	64.9
Medium Trucks:	58.5	55.3	47.8	56.6	62.7	62.8
Heavy Trucks:	59.8	56.5	53.1	57.7	63.9	64.0
Vehicle Noise:	66.5	64.6	62.6	61.6	68.5	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	85	184	397
CNEL:	41	89	193	415

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Wood Rd.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 18,053 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,527 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 46.915				
Road Grade: 0.0%		Medium Trucks: 46.726				
Left View: -90.0 degrees		Heavy Trucks: 46.744				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.40	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-16.84	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.79	0.34	-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:	66.0	64.7	63.4	57.4	65.8	66.5
Medium Trucks:	60.0	56.8	49.3	58.1	64.3	64.3
Heavy Trucks:	61.3	58.0	54.6	59.3	65.5	65.6
Vehicle Noise:	68.0	66.1	64.1	63.1	70.0	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	232	501
CNEL:	52	113	243	524

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Trautwein Rd./Cole Av.
Road Segment: n/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 28,332 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,397 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 50.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 50.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 46.915					
Road Grade: 0.0%		Medium Trucks: 46.726					
Left View: -90.0 degrees		Heavy Trucks: 46.744					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.39	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.85	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-19.81	0.34	-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:	70.7	69.4	68.1	62.1	70.5	71.1
Medium Trucks:	64.3	61.1	53.6	62.4	68.5	68.6
Heavy Trucks:	64.7	61.4	58.0	62.6	68.8	68.9
Vehicle Noise:	72.4	70.6	68.6	67.1	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	204	439	947
CNEL:	99	214	461	994

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Trautwein Rd./Cole Av.
Road Segment: s/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 17,522 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,482 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 36 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
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		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 46.915					
		Medium Trucks: 46.726					
		Heavy Trucks: 46.744					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.70	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.94	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-21.89	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)							
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL	
Autos:	68.6	67.3	66.0	60.0	68.4	69.1	
Medium Trucks:	62.2	59.0	51.5	60.3	66.5	66.5	
Heavy Trucks:	62.6	59.3	55.9	60.6	66.8	66.8	
Vehicle Noise:	70.3	68.5	66.6	65.1	72.1	72.4	

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	319	687
CNEL:	72	155	335	722

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Victoria Av.
Road Segment: w/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 12,364 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,046 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 12 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 37.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 37.0 feet							
Barrier Distance to Observer: 0.0 feet		Autos: 0.000					
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297					
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%							
Left View: -90.0 degrees		Autos: 36.851					
Right View: 90.0 degrees		Medium Trucks: 36.610					
		Heavy Trucks: 36.634					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.76	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	79.45	-18.99	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.95	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	66.1	64.8	58.8	67.2	67.8
Medium Trucks:	61.2	58.0	50.5	59.3	65.4	65.5
Heavy Trucks:	62.0	58.7	55.3	60.0	66.2	66.3
Vehicle Noise:	69.2	67.4	65.4	64.1	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	94	203	438
CNEL:	46	99	213	459

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Victoria Av.
Road Segment: e/o Van Buren Bl.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	7,102 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	601 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	40 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 37.0 feet Centerline Dist. to Observer: 37.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 75.5% 14.0% 10.5% 97.42%				
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 36.851				
		Medium Trucks: 36.610				
Heavy Trucks: 36.634						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.65	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-20.89	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.85	1.92	-1.20	-5.61	0.000	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	62.3	60.9	54.9	63.4	64.0
Medium Trucks:	57.6	54.4	46.9	55.6	61.8	61.8
Heavy Trucks:	58.9	55.6	52.2	56.8	63.0	63.1
Vehicle Noise:	65.6	63.6	61.6	60.6	67.5	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	55	118	254
CNEL:	27	57	123	265

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: w/o Washington St.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS						
Highway Data		Site Conditions (Hard = 10, Soft = 15)						
Average Daily Traffic (Adt): 39,158 vehicles		Autos: 15						
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15						
Peak Hour Volume: 3,313 vehicles		Heavy Trucks (3+ Axles): 15						
Vehicle Speed: 50 mph		Vehicle Mix						
Near/Far Lane Distance: 54 feet								
Site Data		VehicleType	Day	Evening	Night	Daily		
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 76.0 feet Centerline Dist. to Observer: 76.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:		75.5%	14.0%	10.5%	97.42%	
		Medium Trucks:		48.9%	2.2%	48.9%	1.84%	
		Heavy Trucks:		47.3%	5.4%	47.3%	0.74%	
		Noise Source Elevations (in feet)						
		Autos:		0.000				
		Medium Trucks:		2.297				
		Heavy Trucks:		8.006	Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)						
		Autos:		71.218				
		Medium Trucks:		71.094				
		Heavy Trucks:		71.106				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.79	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.44	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.40	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	68.1	66.8	60.8	69.2	69.8
Medium Trucks:	63.0	59.8	52.3	61.0	67.2	67.2
Heavy Trucks:	63.4	60.1	56.7	61.3	67.5	67.6
Vehicle Noise:	71.1	69.3	67.3	65.8	72.8	73.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	253	545	1,175
CNEL:	123	266	573	1,234

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: e/o Washington St.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 49,103 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 4,154 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000					
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 71.218					
Road Grade: 0.0%		Medium Trucks: 71.094					
Left View: -90.0 degrees		Heavy Trucks: 71.106					
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.78	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-13.46	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-17.42	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.1	67.8	61.8	70.2	70.8
Medium Trucks:	63.9	60.8	53.3	62.0	68.2	68.2
Heavy Trucks:	64.4	61.0	57.6	62.3	68.5	68.6
Vehicle Noise:	72.1	70.2	68.3	66.8	73.8	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	137	294	634	1,366
CNEL:	143	309	666	1,435

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 43,505 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,681 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 71.218					
		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.25	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-13.99	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-17.94	-2.40	-1.20	-5.25	0.000	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	68.6	67.3	61.2	69.7	70.3
Medium Trucks:	63.4	60.2	52.7	61.5	67.7	67.7
Heavy Trucks:	63.8	60.5	57.1	61.8	68.0	68.1
Vehicle Noise:	71.5	69.7	67.8	66.3	73.3	73.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	126	271	585	1,260
CNEL:	132	285	614	1,323

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
 Road Name: Van Buren Bl.
 Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
 Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 42,166 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,567 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 71.218				
Road Grade: 0.0%		Medium Trucks: 71.094				
Left View: -90.0 degrees		Heavy Trucks: 71.106				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.11	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.12	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.08	-2.40	-1.20	-5.25	0.000	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	67.1	61.1	69.5	70.1
Medium Trucks:	63.3	60.1	52.6	61.4	67.5	67.6
Heavy Trucks:	63.7	60.4	57.0	61.6	67.8	67.9
Vehicle Noise:	71.4	69.6	67.7	66.1	73.2	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	123	266	573	1,234
CNEL:	130	279	602	1,296

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: e/o Wood Rd.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 41,044 vehicles		Autos: 15					
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,472 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 54 feet							
		VehicleType		Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%					
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%					
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 76.0 feet							
Barrier Distance to Observer: 0.0 feet		Autos: 0.000					
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297					
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Grade: 0.0%							
Left View: -90.0 degrees		Autos: 71.218					
Right View: 90.0 degrees		Medium Trucks: 71.094					
		Heavy Trucks: 71.106					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.00	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.24	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.20	-2.40	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	68.3	67.0	61.0	69.4	70.0
Medium Trucks:	63.2	60.0	52.5	61.2	67.4	67.5
Heavy Trucks:	63.6	60.3	56.9	61.5	67.7	67.8
Vehicle Noise:	71.3	69.5	67.5	66.0	73.0	73.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	121	261	563	1,212
CNEL:	127	274	591	1,273

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Van Buren Bl.
Road Segment: e/o Trautwein Rd./Cole Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,371 vehicles		Autos: 15				
Peak Hour Percentage: 8.46%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,077 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 54 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 75.5% 14.0% 10.5% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 48.9% 2.2% 48.9% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 47.3% 5.4% 47.3% 0.74%				
Centerline Dist. to Barrier: 76.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 76.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%						
Left View: -90.0 degrees		Autos: 71.218				
Right View: 90.0 degrees		Medium Trucks: 71.094				
		Heavy Trucks: 71.106				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.47	-2.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-14.77	-2.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-18.72	-2.40	-1.20	-5.25	0.000	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	67.8	66.5	60.5	68.9	69.5
Medium Trucks:	62.6	59.5	52.0	60.7	66.9	66.9
Heavy Trucks:	63.1	59.7	56.3	61.0	67.2	67.3
Vehicle Noise:	70.8	68.9	67.0	65.5	72.5	72.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	112	241	519	1,118
CNEL:	117	253	545	1,174

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Iris Av.
Road Segment: w/o Gamble Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	43 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	4 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	30.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	30.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 29.816				
Road Grade:	0.0%	Medium Trucks: 29.518				
Left View:	-90.0 degrees	Heavy Trucks: 29.547				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-24.58	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-41.82	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-45.78	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	39.2	38.1	36.3	30.2	38.9	39.5
Medium Trucks:	33.8	33.0	26.6	25.1	33.6	33.8
Heavy Trucks:	36.3	35.6	26.5	27.8	36.1	36.3
Vehicle Noise:	41.8	40.8	37.1	33.0	41.5	41.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	1	2	4
CNEL:	0	1	2	4

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Iris Av.
Road Segment: w/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	435 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	37 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
		Autos:	77.5%	12.9%	9.6%	97.42%
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	29.816			
		Medium Trucks:	29.518			
		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-14.53	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-31.77	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-35.73	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.3	48.1	46.3	40.3	48.9	49.5
Medium Trucks:	43.8	43.1	36.7	35.2	43.6	43.8
Heavy Trucks:	46.3	45.6	36.6	37.8	46.2	46.3
Vehicle Noise:	51.8	50.8	47.2	43.0	51.5	51.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2	4	8	18
CNEL:	2	4	9	19

Tuesday, April 11, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:
Road Name: Iris Av.
Road Segment: e/o Chicago Av./Alta Cresta Av.

Project Name: Arroyo Vista
Job Number: 14577

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	187 vehicles	Autos: 15				
Peak Hour Percentage:	8.46%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	16 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	30 mph					
Near/Far Lane Distance:	12 feet					
Site Data		Vehicle Mix				
		VehicleType	Day	Evening	Night	Daily
		Autos:	77.5%	12.9%	9.6%	97.42%
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	29.816			
		Medium Trucks:	29.518			
		Heavy Trucks:	29.547			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	61.75	-18.20	3.26	-1.20	-4.49	0.000	0.000
Medium Trucks:	73.48	-35.44	3.33	-1.20	-4.86	0.000	0.000
Heavy Trucks:	79.92	-39.39	3.32	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.6	44.4	42.7	36.6	45.2	45.9
Medium Trucks:	40.2	39.4	33.0	31.5	39.9	40.2
Heavy Trucks:	42.7	42.0	32.9	34.2	42.5	42.7
Vehicle Noise:	48.1	47.2	43.5	39.4	47.9	48.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1	2	5	10
CNEL:	1	2	5	11

Tuesday, April 11, 2023

APPENDIX 10.1:

OPERATIONS NOISE CALCULATIONS

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14577 - Arroyo Vista

CadnaA Noise Prediction Model: 14577-02_Operation.cna

Date: 11.04.23

Analyst: B. Maddux

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 Rcvr - 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)
R1		R1	33.7	31.0	37.7	0.0	0.0	0.0		x	Total	5.00	r 6227063.78	2270948.36	5.00
R2		R2	29.6	26.8	33.5	0.0	0.0	0.0		x	Total	5.00	r 6228371.46	2271009.86	5.00
R3		R3	34.5	31.8	38.5	0.0	0.0	0.0		x	Total	5.00	r 6228303.46	2269214.00	5.00
R4		R4	32.9	30.2	36.9	0.0	0.0	0.0		x	Total	5.00	r 6228115.94	2268158.46	5.00
R5		R5	35.5	32.8	39.5	0.0	0.0	0.0		x	Total	5.00	r 6226736.83	2268160.29	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)
AC001		AC001	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6225628.05	2269617.96	3.00
AC002		AC002	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6225745.15	2269625.13	3.00
AC003		AC003	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6225845.53	2269632.30	3.00
AC004		AC004	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6225924.39	2269637.08	3.00
AC005		AC005	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6225998.48	2269665.75	3.00
AC006		AC006	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6226070.18	2269713.55	3.00
AC007		AC007	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6226261.36	2269414.82	3.00
AC008		AC008	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6226268.53	2269367.02	3.00
AC009		AC009	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6226342.62	2269321.61	3.00
AC010		AC010	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6226266.14	2269302.50	3.00
AC011		AC011	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6226266.14	2269218.85	3.00
AC012		AC012	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6226258.97	2269132.81	3.00
AC013		AC013	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a 6226258.97	2269037.22	3.00

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)
AC014		AC014	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226258.97	2268953.57	3.00
AC015		AC015	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226258.97	2268874.71	3.00
AC016		AC016	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226258.97	2268793.45	3.00
AC017		AC017	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226258.97	2268709.81	3.00
AC018		AC018	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226258.97	2268628.55	3.00
AC019		AC019	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226261.36	2268552.08	3.00
AC020		AC020	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226256.58	2268320.26	3.00
AC021		AC021	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226325.89	2268317.87	3.00
AC022		AC022	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226478.84	2268308.31	3.00
AC023		AC023	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226581.61	2268305.92	3.00
AC024		AC024	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226679.59	2268310.70	3.00
AC025		AC025	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226839.71	2268305.92	3.00
AC026		AC026	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226844.49	2268442.14	3.00
AC027		AC027	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226846.88	2268590.31	3.00
AC028		AC028	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226844.49	2268676.35	3.00
AC029		AC029	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226844.49	2268767.16	3.00
AC030		AC030	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226844.49	2268810.18	3.00
AC031		AC031	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226856.44	2268915.34	3.00
AC032		AC032	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226875.56	2268960.74	3.00
AC033		AC033	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226909.02	2268915.34	3.00
AC034		AC034	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226892.29	2268807.79	3.00
AC035		AC035	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226892.29	2268764.78	3.00
AC036		AC036	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226889.90	2268671.57	3.00
AC037		AC037	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226889.90	2268583.15	3.00
AC038		AC038	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226894.68	2268437.36	3.00
AC039		AC039	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226897.07	2268308.31	3.00
AC040		AC040	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227093.04	2268308.31	3.00
AC041		AC041	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227143.23	2268308.31	3.00
AC042		AC042	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227250.77	2268308.31	3.00
AC043		AC043	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227174.29	2268865.15	3.00
AC044		AC044	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227226.87	2268846.03	3.00
AC045		AC045	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227174.29	2268791.06	3.00
AC046		AC046	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227224.48	2268740.88	3.00
AC047		AC047	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227171.90	2268707.42	3.00
AC048		AC048	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227224.48	2268688.30	3.00
AC049		AC049	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227176.68	2268635.72	3.00
AC050		AC050	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227179.07	2268585.54	3.00
AC051		AC051	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227229.26	2268590.31	3.00
AC052		AC052	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227475.42	2268313.09	3.00
AC053		AC053	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227494.54	2268454.09	3.00
AC054		AC054	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227537.55	2268487.55	3.00
AC055		AC055	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227492.15	2268528.18	3.00
AC056		AC056	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227492.15	2268602.26	3.00
AC057		AC057	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227532.77	2268669.18	3.00
AC058		AC058	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227539.94	2268721.76	3.00
AC059		AC059	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227492.15	2268712.20	3.00
AC060		AC060	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227496.93	2268760.00	3.00
AC061		AC061	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227475.42	2268824.52	3.00
AC062		AC062	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227568.62	2268313.09	3.00
AC063		AC063	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227628.37	2268315.48	3.00
AC064		AC064	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227735.91	2268313.09	3.00
AC065		AC065	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227831.51	2268313.09	3.00
AC066		AC066	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227934.27	2268315.48	3.00
AC067		AC067	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228029.87	2268310.70	3.00
AC068		AC068	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227752.64	2268664.40	3.00
AC069		AC069	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227855.41	2268659.62	3.00
AC070		AC070	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227958.17	2268678.74	3.00
AC071		AC071	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228020.31	2268695.47	3.00
AC072		AC072	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227946.22	2268862.76	3.00
AC073		AC073	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227888.86	2268855.59	3.00
AC074		AC074	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227817.17	2268860.37	3.00
AC075		AC075	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227759.81	2268877.10	3.00
AC076		AC076	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227707.23	2268944.02	3.00
AC077		AC077	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227666.61	2268987.03	3.00
AC078		AC078	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227582.96	2268996.59	3.00
AC079		AC079	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227473.03	2269118.48	3.00
AC080		AC080	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227367.87	2269080.24	3.00
AC081		AC081	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227289.01	2269104.14	3.00
AC082		AC082	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227226.87	2269065.90	3.00
AC083		AC083	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226854.05	2269216.46	3.00
AC084		AC084	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226789.52	2269278.60	3.00
AC085		AC085	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226732.17	2269386.14	3.00
AC086		AC086	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226698.71	2269433.94	3.00
AC087		AC087	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226629.40	2269531.92	3.00
AC088		AC088	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226581.61	2269479.35	3.00
AC089		AC089	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226486.01	2269579.72	3.00
AC090		AC090	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226311.55		

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	(ft)	X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)			(ft)	(ft)	(ft)
AC091		AC091	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226282.87	2269818.71	3.00
AC092		AC092	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226354.57	2269864.11	3.00
AC093		AC093	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226376.08	2269811.54	3.00
AC094		AC094	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226428.66	2269842.60	3.00
AC095		AC095	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226404.76	2269885.62	3.00
AC096		AC096	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226497.96	2269940.59	3.00
AC097		AC097	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226517.08	2269895.18	3.00
AC098		AC098	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226000.87	2269969.27	3.00
AC099		AC099	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226058.23	2270007.51	3.00
AC100		AC100	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226132.31	2270040.96	3.00
AC101		AC101	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226196.84	2270086.37	3.00
AC102		AC102	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227219.70	2269414.82	3.00
AC103		AC103	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227303.35	2269393.31	3.00
AC104		AC104	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227391.77	2269369.41	3.00
AC105		AC105	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227451.52	2269357.46	3.00
AC106		AC106	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227542.33	2269324.00	3.00
AC107		AC107	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227614.03	2269264.26	3.00
AC108		AC108	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227695.28	2269214.07	3.00
AC109		AC109	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227759.81	2269159.10	3.00
AC110		AC110	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227826.73	2269104.14	3.00
AC111		AC111	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227869.74	2269039.61	3.00
AC112		AC112	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226758.46	2269962.10	3.00
AC113		AC113	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226717.83	2270079.20	3.00
AC114		AC114	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226691.54	2270127.00	3.00
AC115		AC115	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226638.96	2270198.70	3.00
AC116		AC116	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227155.17	2269515.19	3.00
AC117		AC117	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227095.43	2269579.72	3.00
AC118		AC118	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227050.02	2269632.30	3.00
AC119		AC119	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226978.32	2269694.43	3.00
AC120		AC120	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226885.12	2269732.67	3.00
AC121		AC121	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226856.44	2269768.52	3.00
AC122		AC122	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226825.37	2269837.83	3.00
AC123		AC123	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226572.05	2270260.83	3.00
AC124		AC124	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226529.03	2270342.09	3.00
AC125		AC125	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226493.18	2270416.17	3.00
AC126		AC126	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226481.23	2270506.99	3.00
AC127		AC127	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226469.28	2270590.63	3.00
AC128		AC128	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226572.05	2270731.64	3.00
AC129		AC129	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226717.83	2270724.47	3.00
AC130		AC130	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226777.58	2270722.08	3.00
AC131		AC131	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226937.70	2270717.30	3.00
AC132		AC132	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227095.43	2270729.25	3.00
AC133		AC133	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227260.33	2270714.91	3.00
AC134		AC134	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227413.28	2270769.87	3.00
AC135		AC135	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227673.78	2270753.14	3.00
AC136		AC136	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227731.13	2270757.92	3.00
AC137		AC137	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227884.08	2270767.48	3.00
AC138		AC138	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228130.24	2270734.03	3.00
AC139		AC139	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228137.41	2270664.72	3.00
AC140		AC140	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228132.63	2270442.46	3.00
AC141		AC141	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226789.52	2270535.67	3.00
AC142		AC142	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226777.58	2270495.04	3.00
AC143		AC143	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226789.52	2270449.63	3.00
AC144		AC144	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226830.15	2270392.27	3.00
AC145		AC145	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226863.61	2270351.65	3.00
AC146		AC146	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226901.85	2270294.29	3.00
AC147		AC147	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226952.04	2270234.54	3.00
AC148		AC148	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226992.66	2270174.80	3.00
AC149		AC149	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226961.60	2270382.71	3.00
AC150		AC150	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226880.34	2270416.17	3.00
AC151		AC151	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226949.65	2270432.90	3.00
AC152		AC152	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227038.07	2270382.71	3.00
AC153		AC153	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227050.02	2270432.90	3.00
AC154		AC154	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227212.53	2270380.32	3.00
AC155		AC155	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227207.75	2270432.90	3.00
AC156		AC156	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227265.11	2270432.90	3.00
AC157		AC157	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227267.50	2270377.94	3.00
AC158		AC158	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227379.82	2270387.49	3.00
AC159		AC159	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227372.65	2270444.85	3.00
AC160		AC160	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227556.67	2270442.46	3.00
AC161		AC161	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227556.67	2270389.88	3.00
AC162		AC162	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227609.25	2270387.49	3.00
AC163		AC163	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227604.47	2270435.29	3.00
AC164		AC164	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227716.79	2270435.29	3.00
AC165		AC165	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227716.79	2270387.49	3.00
AC166		AC166	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227821.95	2270392.27	3.00
AC167		AC167	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a			

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)
AC168		AC168	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227934.27	2270444.85	3.00
AC169		AC169	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227931.88	2270387.49	3.00
AC170		AC170	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227066.75	2270031.40	3.00
AC171		AC171	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227100.21	2269993.17	3.00
AC172		AC172	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227148.00	2269928.64	3.00
AC173		AC173	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227212.53	2269880.84	3.00
AC174		AC174	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227257.94	2269821.10	3.00
AC175		AC175	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227315.30	2269952.54	3.00
AC176		AC176	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227214.92	2269957.32	3.00
AC177		AC177	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227262.72	2269978.83	3.00
AC178		AC178	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227322.47	2270033.79	3.00
AC179		AC179	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227365.48	2269993.17	3.00
AC180		AC180	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227384.60	2270043.35	3.00
AC181		AC181	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227489.76	2270043.35	3.00
AC182		AC182	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227487.37	2269993.17	3.00
AC183		AC183	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227602.08	2269995.56	3.00
AC184		AC184	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227602.08	2270052.91	3.00
AC185		AC185	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227714.40	2270050.52	3.00
AC186		AC186	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227716.79	2269995.56	3.00
AC187		AC187	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227821.95	2270050.52	3.00
AC188		AC188	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227821.95	2269995.56	3.00
AC189		AC189	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227929.49	2270050.52	3.00
AC190		AC190	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227927.10	2269997.95	3.00
AC191		AC191	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228161.31	2270009.90	3.00
AC192		AC192	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228158.92	2269959.71	3.00
AC193		AC193	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228166.09	2269735.06	3.00
AC194		AC194	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228158.92	2269534.31	3.00
AC195		AC195	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228149.36	2269307.27	3.00
AC196		AC196	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6228142.19	2269154.32	3.00
AC197		AC197	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227487.37	2269680.09	3.00
AC198		AC198	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227575.79	2269658.59	3.00
AC199		AC199	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227678.56	2269617.96	3.00
AC200		AC200	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227757.42	2269577.33	3.00
AC201		AC201	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227810.00	2269660.98	3.00
AC202		AC202	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227807.61	2269613.18	3.00
AC203		AC203	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227922.32	2269660.98	3.00
AC204		AC204	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227829.12	2269522.36	3.00
AC205		AC205	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227924.71	2269383.75	3.00
AC206		AC206	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227864.96	2269433.94	3.00
AC207		AC207	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227800.44	2269484.12	3.00
AC208		AC208	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227747.86	2269527.14	3.00
AC209		AC209	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227654.66	2269570.16	3.00
AC210		AC210	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227568.62	2269608.40	3.00
AC211		AC211	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227496.93	2269627.52	3.00
AC212		AC212	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227425.23	2269660.98	3.00
AC213		AC213	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6227382.21	2269692.04	3.00
AC214		AC214	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	a	6226172.94	2269727.89	3.00

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)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

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)	

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Barrier(s)

Name	Sel.	M.	ID	Absorption	Z-Ext.	Cantilever	Height		Coordinates			
				left	right	horz.	vert.		Begin	End	x	y
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
							Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph)

Sound Level Spectra

Name		ID	Type	Oktave Spectrum (dB)											Source	
				Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)

RoadsGeo

Name	Height		Coordinates				Dist	LSlope
	Begin	End	x	y	z	Ground	(ft)	(%)
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		

APPENDIX 11.1:
CONSTRUCTION NOISE CALCULATIONS

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14577 - Arroyo Vista

CadnaA Noise Prediction Model: 14577-02_Construction.cna

Date: 02.05.23

Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rcvr - 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)
R1		R1	52.8	49.4	56.6	0.0	0.0	0.0		x	Total	5.00	r 6227063.78	2270948.36	5.00
R2		R2	47.2	43.7	50.9	0.0	0.0	0.0		x	Total	5.00	r 6228371.46	2271009.86	5.00
R3		R3	51.0	43.9	52.2	0.0	0.0	0.0		x	Total	5.00	r 6228303.46	2269214.00	5.00
R4		R4	50.3	42.6	51.1	0.0	0.0	0.0		x	Total	5.00	r 6228115.94	2268158.46	5.00
R5		R5	51.5	46.0	53.7	0.0	0.0	0.0		x	Total	5.00	r 6226736.83	2268160.29	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)

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)

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)

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)	
MainConstructionArea		CA1	115.6	15.6	15.6	58.0	-42.0	-42.0	PWL-Pt	115.6					0 a
RockCrushing		CA2	121.4	121.4	121.4	81.2	81.2	81.2	Lw	121.4					0. a

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
MainConstructionArea	CA1	0.00	a	6225585.73	2270877.17	0.00	0.00
				6228248.13	2270869.58	0.00	0.00
				6228215.15	2268213.75	0.00	0.00
				6228217.50	2267840.19	0.00	0.00
				6228189.03	2267840.19	0.00	0.00
				6228189.01	2268237.65	0.00	0.00
				6226224.57	2268230.22	0.00	0.00
				6226238.26	2269556.02	0.00	0.00
				6225574.20	2269557.22	0.00	0.00
RockCrushing	CA2	0.00	a	6225697.03	2270386.64	0.00	0.00
				6225774.07	2270354.09	0.00	0.00
				6225890.17	2270346.49	0.00	0.00
				6225901.02	2270241.24	0.00	0.00
				6225737.17	2269863.64	0.00	0.00
				6225595.03	2269922.23	0.00	0.00
				6225589.60	2270056.78	0.00	0.00
				6225596.11	2270210.86	0.00	0.00
				6225663.39	2270369.28	0.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.		Cantilever		Height		Coordinates			
				left	right			horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
							Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph))

APPENDIX 11.2:
BLASTING NOISE CALCULATIONS

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14577 - Arroyo Vista

CadnaA Noise Prediction Model: 14577-02_Blasting.cna

Date: 04.04.23

Analyst: B. Maddux

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 Rcvr - 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)
R1		R1	61.1	61.1	67.8	0.0	0.0	0.0		x	Total	5.00	r 6227063.78	2270948.36	5.00
R2		R2	57.1	57.1	63.8	0.0	0.0	0.0		x	Total	5.00	r 6228371.46	2271009.86	5.00
R3		R3	62.4	62.4	69.1	0.0	0.0	0.0		x	Total	5.00	r 6228303.46	2269214.00	5.00
R4		R4	70.2	70.2	76.9	0.0	0.0	0.0		x	Total	5.00	r 6228115.94	2268158.46	5.00
R5		R5	61.8	61.8	68.5	0.0	0.0	0.0		x	Total	5.00	r 6226736.83	2268160.29	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)				(min)	(min)	(min)	
Blasting1		Blasting1	125.7	125.7	125.7	85.7	85.7	85.7	Lw	125.7					1 a
Blasting2		Blasting2	125.6	125.6	125.6	83.0	83.0	83.0	Lw	125.6					0. a
Blasting3		Blasting3	125.6	125.6	125.6	83.3	83.3	83.3	Lw	125.6					0. a
Blasting4		Blasting4	125.6	125.6	125.6	85.9	85.9	85.9	Lw	125.6					0. a

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
Blasting1	Blasting1	1.00	a	6227262.94	2270273.03	1.00	0.00
				6227364.94	2270151.50	1.00	0.00
				6227291.15	2269930.14	1.00	0.00
				6227226.05	2269880.23	1.00	0.00
				6227141.41	2269878.06	1.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6227045.93	2269895.42	1.00	0.00
				6226989.50	2270042.99	1.00	0.00
				6227011.20	2270138.48	1.00	0.00
				6227130.56	2270249.16	1.00	0.00
Blasting2	Blasting2	0.00	a	6226603.22	2269819.47	0.00	0.00
				6226640.11	2269802.11	0.00	0.00
				6226700.87	2269665.39	0.00	0.00
				6226650.96	2269489.61	0.00	0.00
				6226579.35	2269385.44	0.00	0.00
				6226505.56	2269346.38	0.00	0.00
				6226418.76	2269344.21	0.00	0.00
				6226334.12	2269376.76	0.00	0.00
				6226262.51	2269452.71	0.00	0.00
				6226177.87	2269580.75	0.00	0.00
				6226214.76	2269697.94	0.00	0.00
				6226260.34	2269799.94	0.00	0.00
				6226399.23	2269847.68	0.00	0.00
Blasting3	Blasting3	0.00	a	6227681.78	2268773.46	0.00	0.00
				6227566.76	2268740.91	0.00	0.00
				6227449.57	2268730.06	0.00	0.00
				6227323.70	2268740.91	0.00	0.00
				6227130.56	2268795.16	0.00	0.00
				6227026.40	2268847.25	0.00	0.00
				6227006.86	2268947.07	0.00	0.00
				6227084.99	2269079.45	0.00	0.00
				6227124.05	2269066.43	0.00	0.00
				6227197.84	2269088.13	0.00	0.00
				6227375.79	2269046.90	0.00	0.00
				6227445.23	2269064.26	0.00	0.00
				6227586.29	2269007.84	0.00	0.00
				6227670.93	2268875.46	0.00	0.00
Blasting4	Blasting4	0.00	a	6228046.36	2268241.78	0.00	0.00
				6227768.58	2268237.44	0.00	0.00
				6227696.97	2268269.99	0.00	0.00
				6227690.46	2268322.07	0.00	0.00
				6227696.97	2268460.96	0.00	0.00
				6227746.88	2268552.11	0.00	0.00
				6227794.62	2268567.30	0.00	0.00
				6227911.81	2268534.75	0.00	0.00
				6228044.19	2268467.47	0.00	0.00