Appendix 12
Noise Impact Analysis

VANTAGEPOINT CHURCH

Project No. PLN15-1174

INITIAL STUDY

Vantage Point Church

NOISE IMPACT ANALYSIS

CITY OF EASTVALE

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JUNE 20, 2016

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
I-15	Interstate 15
INCE	Institute of Noise Control Engineering
Leq	Equivalent continuous (average) sound level
Lmax	Maximum level measured over the time interval
Lmin	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Vantage Point Church
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Vantage Point Church development ("Project"). The Project site is located at the northeast corner of Archibald Avenue and Prado Basin Park Road in the City of Eastvale. The Project is proposed to include the development of a 1,200 seat church. This noise impact analysis was prepared to satisfy the City of Eastvale noise level standards and ensure that adequate noise mitigation measures are incorporated into the Project's development.

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 24 roadway segments surrounding the Project site were estimated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the focused Sunday traffic forecasts found in the *Vantage Point Church Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (1) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing Sunday conditions for both the with and without Project traffic conditions. The off-site traffic noise analysis shows that the Project noise level contributions will be *less than significant* under Existing Sunday with Project conditions.

ON-SITE TRAFFIC NOISE ANALYSIS

Using the Federal Highway Administration (FHWA) traffic noise prediction model and the parameters outlined in this report, the expected future exterior noise levels for the on-site buildings were calculated. The results of the on-site traffic noise level analysis indicate that the buildings facing Archibald Avenue will experience unmitigated exterior noise levels ranging from 64.4 to 67.8 dBA CNEL. No exterior noise mitigation is required to satisfy the City of Eastvale General Plan Noise Element, Table N-3, 70 dBA CNEL exterior noise level standards for institutional land use.

INTERIOR NOISE MITIGATION

To satisfy the City of Eastvale 50 dBA CNEL interior noise level criteria, buildings adjacent to Archibald Avenue will require a Noise Reduction (NR) of up to 17.8 dBA and a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning). In order to meet the City of Eastvale 50 dBA CNEL interior noise standards for institutional land use the Project shall provide the following or equivalent noise mitigation measures:

- Windows: All windows and sliding glass doors shall be well fitted, well weather-stripped assemblies and shall have the following minimum sound transmission class (STC) rating of 27.

  - While not required, this noise study recommends an interior noise level design goal of 40 dBA CNEL which can be obtained using upgraded windows with a minimum STC rating of 30 for all buildings.
- Doors: All exterior doors shall be well weather-stripped solid core assemblies at least one and three-fourths-inch thick.
- Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- Roof: Roof sheathing of wood construction shall be well fitted or caulked plywood of at least one-half inch thick. Ceilings shall be well fitted, fully sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

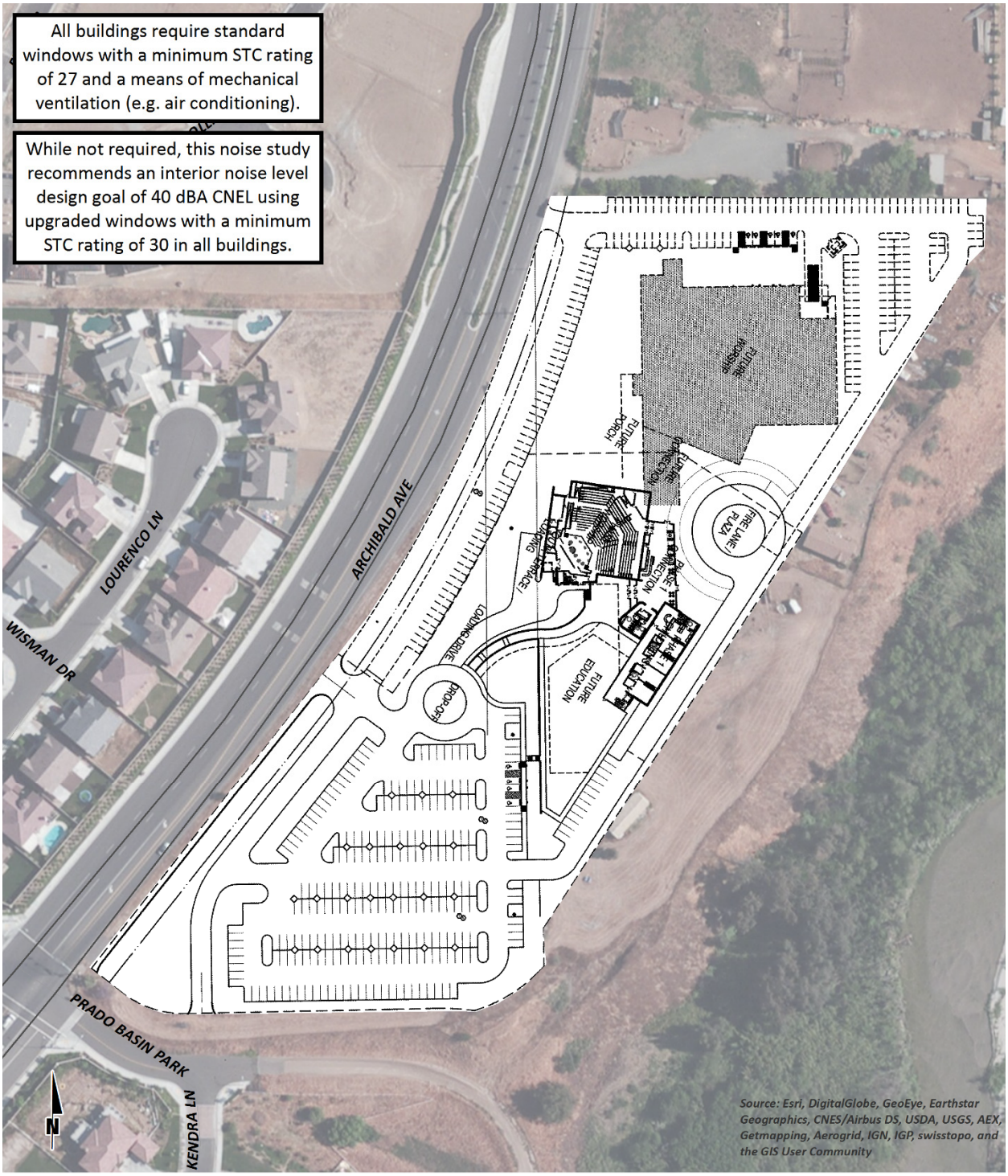
With the interior noise mitigation measures provided in this study, the proposed Project is expected to satisfy the City of Eastvale 50 dBA CNEL interior noise level standards for residential development.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the potential noise sources within the Vantage Point Church site, this analysis estimates the Project-related operational (stationary-source) noise levels at the nearby noise-sensitive receiver locations. The Project-related operational noise sources are expected to include: roof-top air conditioning units, parking lot vehicle movement activities, and play area activities.

The analysis shows that the Project-related operational noise levels will satisfy the City of Eastvale noise level standards at the off-site receiver locations in the Project study area. Further, this analysis demonstrates that the Project will not contribute an operational noise level impact to the existing ambient noise environment at any of the nearby sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the roof-top air conditioning units, parking lot vehicle movement activities, and play area activities will be *less than significant*.

EXHIBIT ES-A: SUMMARY OF RECOMMENDATIONS



CONSTRUCTION NOISE AND VIBRATION ANALYSIS

Construction noise represents a short-term increase on the ambient noise levels. Construction-related noise levels are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site. Using sample reference noise levels to represent the planned construction activities of the Vantage Point Church site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. To evaluate whether the Project will generate a substantial periodic increase in short-term noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (2) For the purposes of this analysis, the NIOSH construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

The Project-related short-term construction noise levels are expected to approach 72.5 dBA Leq and will satisfy the 85 dBA Leq threshold at all receiver locations. 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. The construction noise analysis presents a conservative, worst-case approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from the center of construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will actually be experienced at each receiver location.

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. Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec PPV at a distance of 25 feet. At distances ranging from 109 to 196 feet from the Project site, construction vibration velocity levels are expected to approach 0.0098 in/sec PPV. Based on the City of Eastvale vibration standard, the proposed Project construction activities will satisfy the vibration standard of 0.0787 in/sec PPV at all receiver locations during Project construction. Therefore, the Project-related vibration impacts at the nearby sensitive receiver locations represents a *less than significant* impact during the worst-case construction activities at the Project site boundary.

The vibration levels due to Project construction do not represent vibration levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (3) The peak Project-construction vibration levels approaching 0.0098 in/sec PPV will not exceed the FTA vibration levels for building damage at the residential homes near the Project site. Further, the impacts at

the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter. Construction at the Project site will be restricted to daytime hours consistent with City requirements thereby eliminating potential vibration impact during the sensitive nighttime hours.

CONSTRUCTION NOISE AND VIBRATION ABATEMENT MEASURES

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

- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May (City of Eastvale Municipal Code, Section 8.52.020). The Project construction supervisor shall ensure compliance with the note and the City shall conduct periodic inspection at its discretion.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site (i.e., to the eastern center) during all Project construction.
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May). The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

SUMMARY OF SIGNIFICANCE FINDINGS

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

TABLE ES-1: NOISE & VIBRATION IMPACT SIGNIFICANCE SUMMARY

Analysis	Report Section	Significance	
		Without Mitigation	With Mitigation
Off-Site Traffic Noise	7	*Less than significant*	*n/a*
On-Site Traffic Noise	8	*Less than significant*	*n/a*
Operational Noise	10	*Less than significant*	*n/a*
Construction Noise	11	*Less than significant*	*n/a*
Construction Vibration		*Less than significant*	*n/a*

"n/a" = No mitigation required since the impact will be less than significant.

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Vantage Point Church ("Project"). This noise study describes the proposed Project, provides information regarding noise fundamentals, outlines the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

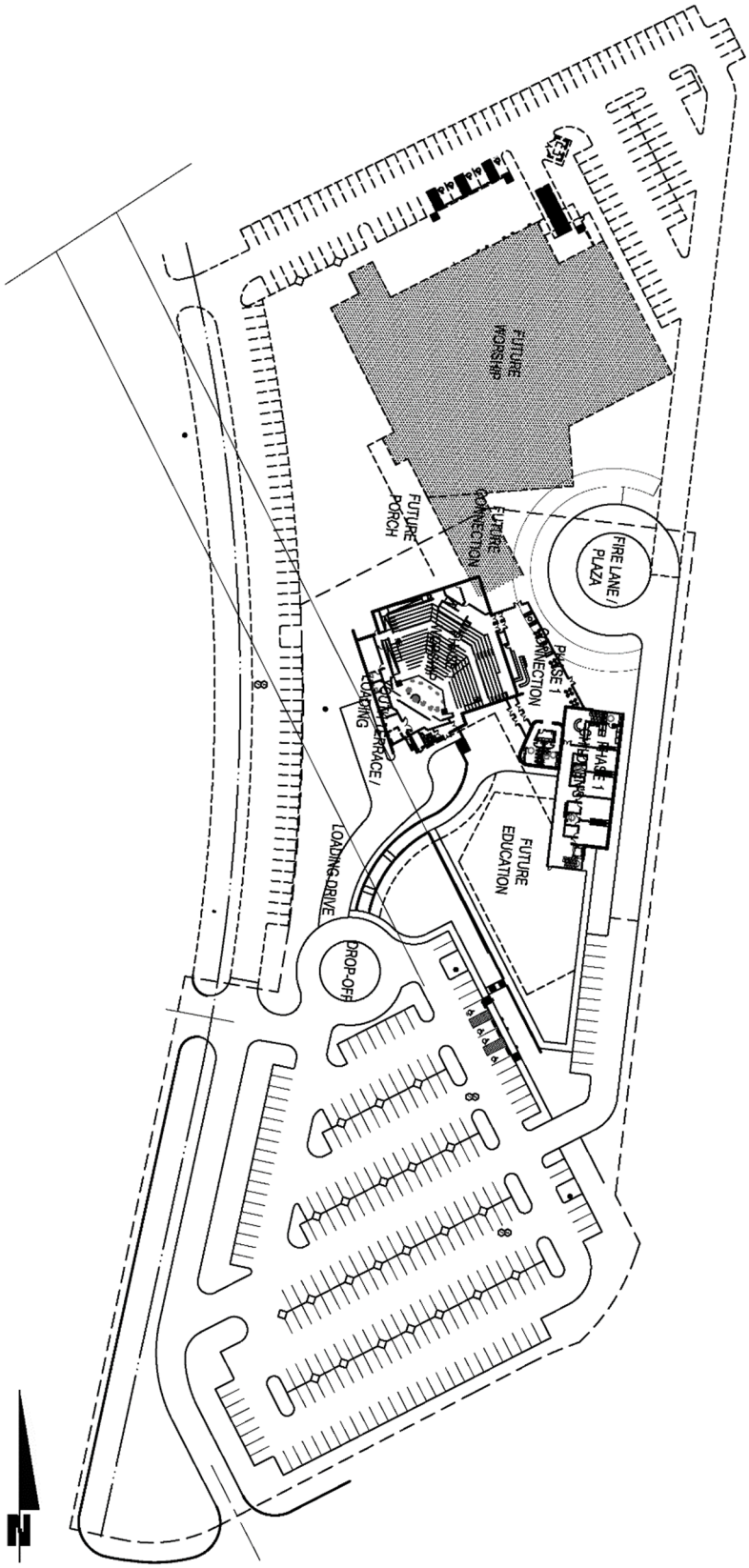
The proposed Vantage Point Church Project is located at the northeast corner of Archibald Avenue and Prado Basin Park Road in the City of Eastvale, as shown on Exhibit 1-A. Existing residential land uses in the Project study area are located north, west, and south of the Project site. Eastvale Equestrian is located adjacent to the northern Project site boundary, and the Santa Ana River is located east of the Project site. The Interstate 15 (I-15) Freeway is located approximately 2.06 miles east of the Project site, while Corona Municipal Airport is located roughly two and a half miles south of the Project site, and Chino Airport is located approximately three miles northwest of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to include the development of a 1,200 seat church, as shown on Exhibit 1-B. Additional uses within the Project site building include a café open to the public, bookstore, meeting spaces, playground area, and worship services. For the purposes of this report, it is assumed that the Project will be constructed by 2017 and reach full occupancy by 2025. The on-site Project-related noise sources are expected to include: roof-top air conditioning units, parking lot vehicle movement activities, and play area activities.

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. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (4) 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. (5) 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 (Leq). 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 (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

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

2.3.2 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.

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 increase noise levels.

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.

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for a particular 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 any and all of 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. (6)

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. (7)

2.7 COMMUNITY RESPONSE TO NOISE

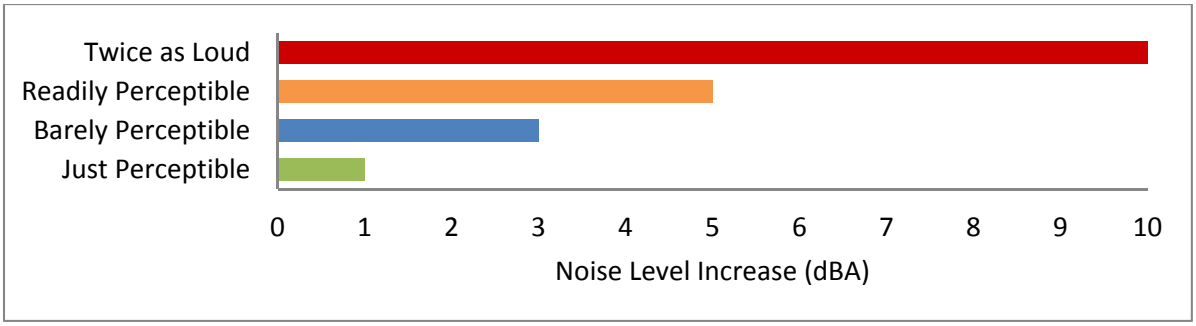
Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon each individual's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- 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. (8) 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. (8)

Despite this variability in behavior on an individual level, the population as a whole 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 are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (6)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



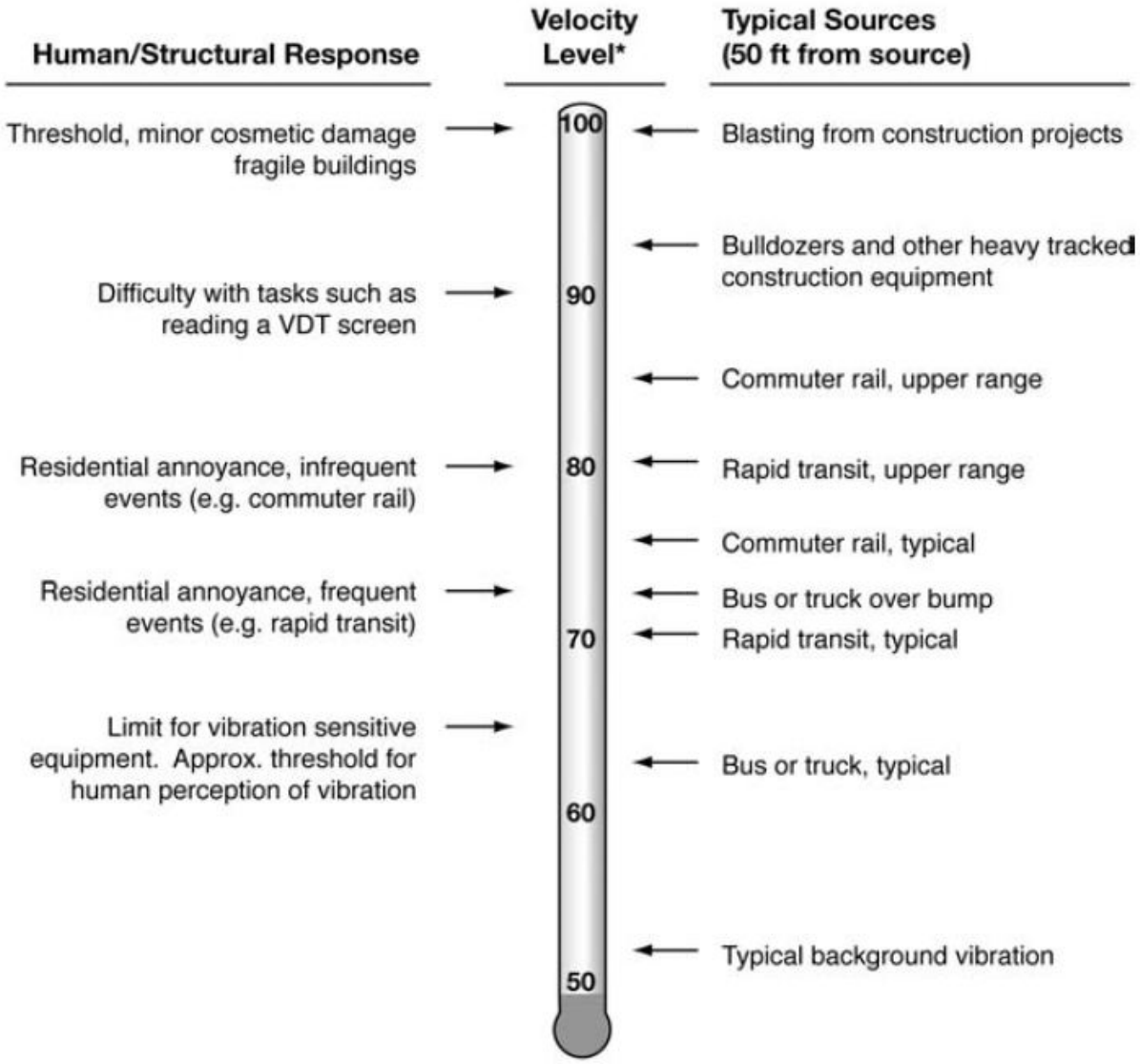
2.8 VIBRATION

According to the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (3), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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

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



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

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

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 fairly 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 according to guidelines adopted by the Governor's Office of Planning and Research. (9) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including the potential environmental noise impacts.

3.2 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The 2014 State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (10) These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA Leq for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 CITY OF EASTVALE NOISE ELEMENT

The City of Eastvale has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of City of Eastvale from excessive exposure to noise. (11) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation and stationary noise sources. To protect the City of Eastvale residents from excessive noise, the Noise Element contains the following four goals:

N-1 *Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors and noise-sensitive uses of Eastvale.*

N-2 *Locate noise-tolerant land uses within areas irrevocably committed to land uses that are noise-producing, such as transportation corridors.*

N-3 *Ensure that noise sensitive uses do not encroach into areas needed by noise generating uses.*

N-4 *Locate noise sources away from existing noise sensitive land uses unless appropriate noise control measures are provided.*

3.3.1 LAND USE COMPATIBILITY

The noise criteria identified in the City of Eastvale Noise Element (Table N-3) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels

Table N-3 *Noise Compatibility by Land Use Designation* in the City of Eastvale General Plan provides guidelines to evaluate the acceptability of the transportation related noise level impacts. Institutional land use, such as the proposed church use of the Project, is considered *completely compatible* with exterior noise levels below 70 dBA CNEL and *tentatively compatible* with noise levels between 70 to 75 dBA CNEL. (11)

EXHIBIT 3-A: NOISE COMPATIBILITY BY LAND USE DESIGNATION

Land Use Designations	Completely Compatible	Tentatively Compatible	Normally Incompatible	Completely Incompatible
All Residential (Single- and Multi-Family)	Less than 60 dBA	60-70 dBA	70-75 dBA	Greater than 75 dBA
All Non-Residential (Commercial, Industrial & Institutional)	Less than 70 dBA	70-75 dBA	Greater than 75 dBA	(2)
Public Parks (Lands on which public parks are located or planned)	Less than 65 dBA	65-70 dBA	70-75 dBA	Greater than 75 dBA

(1) All noise levels shown in this table are designated CNEL.
(2) To be determined as part of the project review process.

Source: City of Eastvale General Plan Noise Element, Table N-3.

3.3.2 STATIONARY-SOURCE NOISE LEVEL STANDARDS

The City of Eastvale has identified exterior noise limits to control operational noise impacts associated with the development of the proposed Vantage Point Church Project. Table N-4 of the Noise Element *provides the City's standards for maximum exterior non-transportation noise levels to which land designated for residential land uses may be exposed for any 30-minute period on any day.* (11) For the purposes of this analysis, the noise generated by the roof-top air conditioning units, parking lot vehicle movement activities, and play area activities of the proposed Project will be evaluated based on the City's stationary source standards at the nearby residential land uses.

Table N-4 (shown on Exhibit 3-B) of the Noise Element requires an exterior noise level standard for the nearby noise-sensitive single-family residential land uses of 60 dBA Leq between the daytime hours of 7:00 a.m. and 10:00 p.m., and 50 dBA Leq between the nighttime hours of 10:00 p.m. to 7:00 a.m.

EXHIBIT 3-B: EXTERIOR NOISE LEVEL STANDARDS FOR NON-TRANSPORTATION NOISE

Land Use Type	Time Period	Maximum Noise Level (dBA)
Single-Family Homes and Duplexes	10 p.m. to 7 a.m.	50
	7 a.m. to 10 p.m.	60
Multiple Residential 3 or More Units Per Building (Triplex +)	10 p.m. to 7 a.m.	55
	7 a.m. to 10 p.m.	60

Source: City of Eastvale General Plan Noise Element, Table N-4.

3.3.3 VIBRATION LEVEL STANDARDS

The City of Eastvale General Plan Noise Element, Policy N-3, identifies a vibration level standard for sensitive land uses of 0.0787 inches per second peak particle velocity (PPV). Therefore, for the purposes of this analysis, the vibration level shall not exceed 0.0787 in/sec PPV at the nearby sensitive receiver locations. The construction vibration standards are provided on Table 3-1.

TABLE 3-1: VIBRATION LEVEL STANDARDS

City	Peak Particle Velocity (PPV) Standard (in/sec)
Eastvale[1]	0.0787

[1] Source: City of Eastvale General Plan Noise Element, Policy N-3.

3.4 CONSTRUCTION NOISE STANDARDS

The City of Eastvale has set restrictions to control noise impacts associated with the construction of the proposed Project. According to the City of Eastvale Municipal Code Section 8.52.020, construction activities are limited to the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May. (12) While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*.

3.4.1 CONSTRUCTION NOISE LEVEL THRESHOLD

To evaluate whether the Project will generate a substantial periodic increase in short-term noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (2) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (2) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations. Table 3-2 shows the construction noise level standards used in this analysis.

TABLE 3-2: CONSTRUCTION NOISE STANDARDS

City	Permitted Hours of Construction Activity	Construction Noise Level Threshold (dBA Leq)[2]
Eastvale[1]	6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May	85

[1] Source: Section 8.52.020 of the City of Eastvale Municipal Code (Appendix 3.1).
[2] Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.

4 SIGNIFICANCE CRITERIA

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

A. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

B. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

C. A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project; or

D. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.

E. For a project located within 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, expose people residing or working in the Project area to excessive noise levels.

F. For a project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

While the CEQA Guidelines and the City of Eastvale General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts under CEQA Guideline A, they do not define the levels at which increases are considered substantial for use under Guidelines B, C, and D. CEQA Guidelines E and F apply to nearby public and private airports, if any, and the Project's land use compatibility. However, the Project site is not located within two miles of a public airport or within the vicinity of a private airstrip, and therefore, would not expose people residing or working in the Project area to excessive noise levels. No further noise analysis is conducted in relation to Guidelines E and F.

Under CEQA Guidelines C and D, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers in order to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (13) Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. 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. With this in mind, the Federal Interagency

Committee on Noise (FICON) developed guidance to be used for the assessment of project-generated increases in noise levels that take into account the ambient noise level. (14) 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 (i.e., CNEL).

For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur even though the noise criteria might not be exceeded. Therefore, for the purpose of this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project related noise level increase is considered a significant impact when nearby noise-sensitive receivers are affected. According to the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if noise-sensitive receivers are affected, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF NOISE LEVEL INCREASES

Without Project Noise Level	Potential Significant Impact
< 60 dBA	5 dBA or more
60 - 65 dBA	3 dBA or more
> 65 dBA	1.5 dBA or more

Source: Federal Interagency Committee on Noise (FICON), 1992.

Based on the significance of noise impacts outlined below on Table 4-2, noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development:

OFF-SITE TRAFFIC NOISE

- If the off-site traffic noise levels at nearby noise-sensitive land uses adjacent to roadways conveying Project traffic:
    - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
    - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
    - already exceed 65 dBA CNEL, and the Project creates a community noise level impact of greater than 1.5 dBA CNEL (FICON, 1992.).

ON-SITE TRAFFIC NOISE

- If the on-site exterior noise levels exceed 70 dBA CNEL at the institutional uses within the Project site or if the interior noise levels exceed 50 dBA CNEL (City of Eastvale General Plan Noise Element, Table N-3).

OPERATIONAL NOISE

- If Project-related operational (stationary-source) noise levels exceed the exterior 60 dBA Leq daytime or 50 dBA Leq nighttime noise level standards at nearby sensitive receiver locations (City of Eastvale General Plan Noise Element, Table N-4).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
    - are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
    - range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase; or
    - already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities:
    - occur at any time other than the permitted hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May (Section 8.52.040 of the City of Eastvale Municipal Code); or
    - generate noise levels which exceed the 85 dBA Leq acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure).
- If short-term Project generated construction vibration levels exceed the City of Eastvale acceptable vibration standard of 0.0787 in/sec PPV at sensitive receiver locations (City of Eastvale General Plan, Policy N-3).

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	**Nighttime**
Off-Site Traffic Noise[1]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
	if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
	if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
On-Site Traffic Noise[2]	Exterior Noise Level Standards	70 dBA CNEL	
	Interior Noise Level Standards	55 dBA CNEL	
Operational Noise[3]	Exterior Noise Level Standards	60 dBA Leq	50 dBA Leq
Construction Noise & Vibration	6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May[4]		
	Noise Level Threshold[5]	85 dBA Leq	n/a
	Vibration Level Threshold[6]	0.0787 PPV	n/a

[1] Source: FICON, 1992.
[2] Source: City of Eastvale General Plan Noise Element, Table N-3.
[3] Source: City of Eastvale General Plan Noise Element, Table N-4.
[4] Source: Section 8.52.040 of the City of Eastvale Municipal Code (Appendix 3.1).
[5] Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.
[6] Source: City of Eastvale General Plan Noise Element, Policy N-3.
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.; "n/a" = No nighttime construction activity is permitted and therefore, no nighttime construction noise level threshold is identified; "PPV" = Peak particle velocity.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, six 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, June 1st, 2016. 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. (15)

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. To describe the existing noise environment, 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. In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess the potential Project-related noise level contributions.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

N

LEGEND:

▲ Noise Measurement Locations

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (Leq). The equivalent sound level (Leq) 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 described below:

- Location L1 represents the noise levels north of the Project site adjacent to existing residential homes and Eastvale Equestrian. The noise level measurements collected show an overall 24-hour exterior noise level of 69.8 dBA CNEL. The hourly noise levels measured at location L1 ranged from 60.8 to 66.8 dBA Leq during the daytime hours and from 52.2 to 69.8 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 65.0 dBA Leq with an average nighttime noise level of 62.7 dBA Leq.
- Location L2 represents the noise levels west of the Project site on Archibald Avenue adjacent to existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 71.1 dBA CNEL. The hourly noise levels measured at location L2 ranged from 62.9 to 68.8 dBA Leq during the daytime hours and from 56.1 to 69.2 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 66.6 dBA Leq with an average nighttime noise level of 63.9 dBA Leq.
- Location L3 represents the noise levels west of the Project site on Archibald Avenue adjacent to existing residential homes and south of location L2. The 24-hour CNEL indicates that the overall exterior noise level is 68.1 dBA CNEL. At location L3 the background ambient noise levels ranged from 64.3 to 70.5 dBA Leq during the daytime hours to levels of 56.9 to 71.0 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 68.1 dBA Leq with an average nighttime noise level of 65.5 dBA Leq.
- Located west of the Project site, location L4 represents the noise levels adjacent to the existing Meadowside residential community. The noise level measurements collected show an overall 24-hour exterior noise level of 76.0 dBA CNEL. The hourly noise levels measured at location L4 ranged from 68.0 to 74.2 dBA Leq during the daytime hours and from 59.2 to 74.3 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 71.6 dBA Leq with an average nighttime noise level of 68.8 dBA Leq.
- Location L5 represents the noise levels south of the Project site adjacent to and existing residential home on Kendra Lane. The 24-hour CNEL indicates that the overall exterior noise level is 68.0 dBA CNEL. At location L5 the background ambient noise levels ranged from 59.9 to 65.6 dBA Leq during the daytime hours to levels of 50.6 to 66.0 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 63.3 dBA Leq with an average nighttime noise level of 60.9 dBA Leq.
- Location L6 represents the noise levels near existing residential homes and the southern Project site boundary. The 24-hour CNEL indicates that the overall exterior noise level is 56.7 dBA CNEL. At location L6 the background ambient noise levels ranged from 49.6 to 56.7 dBA Leq during the daytime hours to levels of 41.2 to 53.1 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 54.1 dBA Leq with an average nighttime noise level of 48.6 dBA Leq.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network. This includes the auto and heavy truck activities on Archibald Avenue near the noise level measurement locations. The 24-hour existing noise level measurements shown on Table 5-1 present the worst-case existing unmitigated ambient noise conditions.

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

Location[1]	Distance To Project Boundary	Description	Energy Average Hourly Noise Level (dBA Leq)[2]		CNEL
			Daytime	Nighttime	
L1	570'	Located north of the Project site adjacent to existing residential homes and Eastvale Equestrian.	65.0	62.7	69.8
L2	105'	Located west of the Project site on Archibald Avenue adjacent to existing residential homes.	66.6	63.9	71.1
L3	112'	Located west of the Project site on Archibald Avenue adjacent to existing residential homes, south of location L2.	68.1	65.5	72.7
L4	105'	Located west of the Project site adjacent to the existing Meadowside residential community.	71.6	68.8	76.0
L5	75'	Located south of the Project site adjacent to an existing home on Kendra Lane.	63.3	60.9	68.0
L6	40'	Located south of the Project site near existing residential homes and the southern Project site boundary.	54.1	48.6	56.7

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average hourly levels. The long-term 24-hour measurement printouts 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.

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. (16) 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. (17) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 24 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications according to the City of Eastvale General Plan Circulation and Infrastructure Element, and the posted vehicle speeds. Soft site conditions were used to analyze the traffic noise impacts within the Project study area which account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (18)

The Existing Sunday average daily traffic volumes used for this study are presented on Table 6-2 and were provided by the *Vantage Point Church Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (1) Table 6-3 presents the time of day vehicle splits by vehicle type, and Table 6-4 presents the total traffic flow distributions (vehicle mixes) used in this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model based on roadway types.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Adjacent Land Use[1]	Distance From Centerline To Nearest Adjacent Land Use (Feet)[2]	Posted Speed Limit (mph)[3]
1	Hellman Av.	n/o Schleisman Rd.	Residential	50'	45
2	Hellman Av.	s/o Schleisman Rd.	Residential	50'	45
3	Hellman Av.	n/o Chandler St.	Residential	64'	45
4	Archibald Av.	n/o Schleisman Rd.	Residential	76'	50
5	Archibald Av.	s/o Schleisman Rd.	Residential	76'	50
6	Archibald Av.	n/o Chandler St.	Residential	76'	50
7	Archibald Av.	s/o Chandler St.	Residential	76'	50
8	Archibald Av.	n/o Driveway 1	Residential	76'	55
9	Archibald Av.	s/o Corbin Dr.	Residential	76'	55
10	River Rd.	n/o Bluff St.	Conservation	59'	55
11	River Rd.	s/o Bluff St.	Residential	59'	55
12	Harrison Av.	n/o Schleisman Rd.	Residential	50'	45
13	Harrison Av.	s/o Schleisman Rd.	Residential	50'	45
14	Harrison Av.	n/o Chandler St.	Residential	50'	45
15	Schleisman Rd.	w/o Hellman Av.	Residential	76'	45
16	Schleisman Rd.	e/o Hellman Av.	Residential	76'	45
17	Schleisman Rd.	w/o Archibald Av.	Residential	76'	45
18	Schleisman Rd.	e/o Archibald Av.	Residential	76'	45
19	Schleisman Rd.	w/o Harrison Av.	Residential	76'	45
20	Schleisman Rd.	e/o Harrison Av.	Residential	76'	45
21	Chandler St.	e/o Hellman Av.	Residential	64'	45
22	Chandler St.	w/o Archibald Av.	Residential	64'	45
23	Chandler St.	e/o Archibald Av.	Residential	50'	45
24	Chandler St.	w/o Harrison Av.	Residential	50'	45

[1] Source: City of Eastvale General Plan Land Use Map.
[2] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the City of Eastvale Circulation and Infrastructure Element.
[3] Posted speed limits.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic (1,000's)[1]	
			Existing	
			Without Project	With Project
1	Hellman Av.	n/o Schleisman Rd.	2.2	2.5
2	Hellman Av.	s/o Schleisman Rd.	2.5	2.9
3	Hellman Av.	n/o Chandler St.	2.1	2.5
4	Archibald Av.	n/o Schleisman Rd.	8.1	8.7
5	Archibald Av.	s/o Schleisman Rd.	8.1	9.3
6	Archibald Av.	n/o Chandler St.	5.0	6.4
7	Archibald Av.	s/o Chandler St.	5.0	7.9
8	Archibald Av.	n/o Driveway 1	5.0	5.8
9	Archibald Av.	s/o Corbin Dr.	4.3	4.9
10	River Rd.	n/o Bluff St.	5.5	5.9
11	River Rd.	s/o Bluff St.	4.1	4.4
12	Harrison Av.	n/o Schleisman Rd.	1.7	1.9
13	Harrison Av.	s/o Schleisman Rd.	2.7	3.1
14	Harrison Av.	n/o Chandler St.	1.5	2.3
15	Schleisman Rd.	w/o Hellman Av.	6.6	6.8
16	Schleisman Rd.	e/o Hellman Av.	7.7	7.8
17	Schleisman Rd.	w/o Archibald Av.	8.3	8.7
18	Schleisman Rd.	e/o Archibald Av.	6.1	6.3
19	Schleisman Rd.	w/o Harrison Av.	6.3	6.5
20	Schleisman Rd.	e/o Harrison Av.	4.7	5.1
21	Chandler St.	e/o Hellman Av.	1.9	2.4
22	Chandler St.	w/o Archibald Av.	2.5	3.0
23	Chandler St.	e/o Archibald Av.	1.7	2.7
24	Chandler St.	w/o Harrison Av.	1.7	2.6

[1] Source: Vantage Point Church Traffic Impact Analysis, Urban Crossroads, Inc., April 2016.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time Period	Vehicle Type		
	Autos	Medium Trucks	Heavy Trucks
Daytime (7:00 a.m. - 7:00 p.m.)	77.5%	84.8%	86.5%
Evening (7:00 p.m. - 10:00 p.m.)	12.9%	4.9%	2.7%
Nighttime (10:00 p.m. - 7:00 a.m.)	9.6%	10.3%	10.8%
Total:	100.0%	100.0%	100.0%

TABLE 6-4: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Roadway	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	97.42%	1.84%	0.74%	100.00%

6.3 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 6-5. Based on the City of Eastvale General Plan Circulation and Infrastructure Element, Figure C-1, Archibald Avenue is classified as 6-lane Urban Arterial. The maximum two-way traffic volumes at a level of service C, shown on Table 6-5, were obtained from Table C-1 of the City of Eastvale General Plan Circulation and Infrastructure Element and reflect future long-range traffic conditions needed to assess the future on-site traffic noise environment and to identify the appropriate noise mitigation measures that address the worst-case future noise conditions. (1) Soft site conditions were used to analyze the traffic noise impacts within the Project study area which account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (18)

Table 6-3 presents the time of day vehicle splits by vehicle type, and Table 6-4 presents the total traffic flow distributions (vehicle mixes) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model based on roadway types.

To predict the future noise environment at each building 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 building in relationship to Archibald Avenue as shown in Appendix 6.1.

TABLE 6-5: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification[1]	Maximum Two-Way Traffic Volume[2]	Speed (mph)[3]	Site Conditions
Archibald Av.	6	Urban Arterial	43,100	55	Soft

[1] Road classifications based upon the City of Eastvale Circulation and Infrastructure Element, Figure C-1.
[2] Source: City of Eastvale Circulation and Infrastructure Element, Table C-1.
[3] Posted speed limit on Archibald Avenue.
"mph" = Miles per hour.

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. All second floor receivers were located 14 feet above the proposed finished floor elevation.

6.4 VIBRATION ASSESSMENT

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

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-6. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-6: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

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7 OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on the focused *Vantage Point Church Traffic Impact Analysis*. (1) 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 (2016) Sunday Without / With Project Conditions: This scenario refers to the existing present-day Sunday noise conditions, without and with buildout of the proposed Project.

7.1 TRAFFIC NOISE CONTOURS

To quantify the Project's traffic noise impacts on the surrounding areas, the changes in traffic noise levels on 24 roadway segments surrounding the Project were calculated based on the changes in the average daily traffic volumes. The noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. Based on the noise impact significance criteria described in Section 4, a significant off-site traffic noise level impact occurs if the without Project noise levels at nearby noise-sensitive receivers:

- are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase, or:
- range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase, or;
- already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA.

Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not take into account the effect of any existing noise barriers or topography that may affect ambient noise levels. In addition, since the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contribution from any surrounding stationary noise sources within the Project study area. Tables 7-1 and 7-2 present a summary of the unmitigated exterior traffic noise levels for the 24 study area roadway segments analyzed from the without Project to the with Project conditions under Existing Sunday conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the two traffic scenarios.

TABLE 7-1: EXISTING SUNDAY WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet)[2]		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Hellman Av.	n/o Schleisman Rd.	Residential	60.3	RW	RW	53
2	Hellman Av.	s/o Schleisman Rd.	Residential	60.9	RW	RW	57
3	Hellman Av.	n/o Chandler St.	Residential	58.7	RW	RW	RW
4	Archibald Av.	n/o Schleisman Rd.	Residential	65.0	RW	76	163
5	Archibald Av.	s/o Schleisman Rd.	Residential	65.0	RW	76	163
6	Archibald Av.	n/o Chandler St.	Residential	62.8	RW	RW	117
7	Archibald Av.	s/o Chandler St.	Residential	62.8	RW	RW	118
8	Archibald Av.	n/o Driveway 1	Residential	63.9	RW	RW	139
9	Archibald Av.	s/o Corbin Dr.	Residential	63.3	RW	RW	126
10	River Rd.	n/o Bluff St.	Conservation	65.6	RW	65	139
11	River Rd.	s/o Bluff St.	Residential	64.3	RW	RW	114
12	Harrison Av.	n/o Schleisman Rd.	Residential	59.1	RW	RW	RW
13	Harrison Av.	s/o Schleisman Rd.	Residential	61.3	RW	RW	61
14	Harrison Av.	n/o Chandler St.	Residential	58.6	RW	RW	RW
15	Schleisman Rd.	w/o Hellman Av.	Residential	62.9	RW	RW	118
16	Schleisman Rd.	e/o Hellman Av.	Residential	63.6	RW	RW	131
17	Schleisman Rd.	w/o Archibald Av.	Residential	63.9	RW	RW	139
18	Schleisman Rd.	e/o Archibald Av.	Residential	62.5	RW	RW	112
19	Schleisman Rd.	w/o Harrison Av.	Residential	62.7	RW	RW	116
20	Schleisman Rd.	e/o Harrison Av.	Residential	61.5	RW	RW	95
21	Chandler St.	e/o Hellman Av.	Residential	58.4	RW	RW	RW
22	Chandler St.	w/o Archibald Av.	Residential	59.5	RW	RW	RW
23	Chandler St.	e/o Archibald Av.	Residential	59.2	RW	RW	RW
24	Chandler St.	w/o Harrison Av.	Residential	59.2	RW	RW	RW

[1] Source: City of Eastvale General Plan Land Use Map.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING SUNDAY WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet)[2]		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Hellman Av.	n/o Schleisman Rd.	Residential	60.8	RW	RW	57
2	Hellman Av.	s/o Schleisman Rd.	Residential	61.5	RW	RW	63
3	Hellman Av.	n/o Chandler St.	Residential	59.6	RW	RW	RW
4	Archibald Av.	n/o Schleisman Rd.	Residential	65.3	RW	79	171
5	Archibald Av.	s/o Schleisman Rd.	Residential	65.6	RW	83	178
6	Archibald Av.	n/o Chandler St.	Residential	63.9	RW	RW	139
7	Archibald Av.	s/o Chandler St.	Residential	64.8	RW	RW	160
8	Archibald Av.	n/o Driveway 1	Residential	64.5	RW	RW	152
9	Archibald Av.	s/o Corbin Dr.	Residential	63.8	RW	RW	136
10	River Rd.	n/o Bluff St.	Conservation	65.9	RW	68	146
11	River Rd.	s/o Bluff St.	Residential	64.6	RW	RW	119
12	Harrison Av.	n/o Schleisman Rd.	Residential	59.6	RW	RW	RW
13	Harrison Av.	s/o Schleisman Rd.	Residential	61.8	RW	RW	66
14	Harrison Av.	n/o Chandler St.	Residential	60.5	RW	RW	54
15	Schleisman Rd.	w/o Hellman Av.	Residential	63.1	RW	RW	122
16	Schleisman Rd.	e/o Hellman Av.	Residential	63.6	RW	RW	133
17	Schleisman Rd.	w/o Archibald Av.	Residential	64.1	RW	RW	143
18	Schleisman Rd.	e/o Archibald Av.	Residential	62.7	RW	RW	115
19	Schleisman Rd.	w/o Harrison Av.	Residential	62.9	RW	RW	118
20	Schleisman Rd.	e/o Harrison Av.	Residential	61.8	RW	RW	100
21	Chandler St.	e/o Hellman Av.	Residential	59.3	RW	RW	RW
22	Chandler St.	w/o Archibald Av.	Residential	60.4	RW	RW	68
23	Chandler St.	e/o Archibald Av.	Residential	61.3	RW	RW	61
24	Chandler St.	w/o Harrison Av.	Residential	61.1	RW	RW	59

[1] Source: City of Eastvale General Plan Land Use Map.
[2] "RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING SUNDAY CONDITION PROJECT TRAFFIC NOISE LEVELS

Table 7-3 presents a comparison of the Existing Sunday without and with Project conditions CNEL noise levels. Table 7-1 presents the Existing Sunday without Project conditions noise level contours that are expected to range from 58.4 to 65.6 dBA CNEL. Table 7-2 presents the Existing Sunday with Project conditions noise level contours that are expected to range from 59.3 to 65.9 dBA CNEL. As shown on Table 7-3, the Project is expected to generate an exterior noise level increase of up to 2.1 dBA CNEL, and will satisfy the significance thresholds identified in Section 4 for all roadway segments. Therefore, the off-site Project-related traffic noise level increases are considered *less than significant* under Existing Sunday conditions.

TABLE 7-3: EXISTING SUNDAY OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Adjacent Land Use (dBA)			Threshold Exceeded?[2]
				Without Project	With Project	Project Addition	
1	Hellman Av.	n/o Schleisman Rd.	Residential	60.3	60.8	0.5	No
2	Hellman Av.	s/o Schleisman Rd.	Residential	60.9	61.5	0.6	No
3	Hellman Av.	n/o Chandler St.	Residential	58.7	59.6	0.9	No
4	Archibald Av.	n/o Schleisman Rd.	Residential	65.0	65.3	0.3	No
5	Archibald Av.	s/o Schleisman Rd.	Residential	65.0	65.6	0.6	No
6	Archibald Av.	n/o Chandler St.	Residential	62.8	63.9	1.1	No
7	Archibald Av.	s/o Chandler St.	Residential	62.8	64.8	2.0	No
8	Archibald Av.	n/o Driveway 1	Residential	63.9	64.5	0.6	No
9	Archibald Av.	s/o Corbin Dr.	Residential	63.3	63.8	0.5	No
10	River Rd.	n/o Bluff St.	Conservation	65.6	65.9	0.3	No
11	River Rd.	s/o Bluff St.	Residential	64.3	64.6	0.3	No
12	Harrison Av.	n/o Schleisman Rd.	Residential	59.1	59.6	0.5	No
13	Harrison Av.	s/o Schleisman Rd.	Residential	61.3	61.8	0.5	No
14	Harrison Av.	n/o Chandler St.	Residential	58.6	60.5	1.9	No
15	Schleisman Rd.	w/o Hellman Av.	Residential	62.9	63.1	0.2	No
16	Schleisman Rd.	e/o Hellman Av.	Residential	63.6	63.6	0.0	No
17	Schleisman Rd.	w/o Archibald Av.	Residential	63.9	64.1	0.2	No
18	Schleisman Rd.	e/o Archibald Av.	Residential	62.5	62.7	0.2	No
19	Schleisman Rd.	w/o Harrison Av.	Residential	62.7	62.9	0.2	No
20	Schleisman Rd.	e/o Harrison Av.	Residential	61.5	61.8	0.3	No
21	Chandler St.	e/o Hellman Av.	Residential	58.4	59.3	0.9	No
22	Chandler St.	w/o Archibald Av.	Residential	59.5	60.4	0.9	No
23	Chandler St.	e/o Archibald Av.	Residential	59.2	61.3	2.1	No
24	Chandler St.	w/o Harrison Av.	Residential	59.2	61.1	1.9	No

[1] Source: City of Eastvale General Plan Land Use Map.
[2] Significance Criteria (Section 4).

8 ON-SITE TRANSPORTATION NOISE IMPACTS

An 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 proposed Vantage Point Church Project. It is expected that the primary source of noise impacts to the Project site will be traffic noise from Archibald Avenue. The Project will also experience some background traffic noise impacts from the Project's internal streets, however, due to the low traffic volume/speeds, traffic noise from these roads will not make a significant contribution to the noise environment beyond of the right-of-way of the roadways.

8.1 ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model and the parameters outlined in Tables 6-3 to 6-5, the expected future exterior noise levels for the on-site buildings were calculated. Table 8-1 presents a summary of future exterior noise level impacts at the first floor façade of buildings facing Archibald Avenue. The on-site traffic noise level impacts indicate that the buildings facing Archibald Avenue will experience unmitigated exterior noise levels ranging from 64.4 to 67.8 dBA CNEL. No exterior noise mitigation is required to satisfy the City of Eastvale General Plan Noise Element, Table N-3, 70 dBA CNEL exterior noise level standards for institutional land use. The on-site traffic noise analysis calculations are provided in Appendix 8.1.

TABLE 8-1: EXTERIOR NOISE LEVELS (CNEL)

Building/ Outdoor Area	Roadway	Unmitigated Noise Level (dBA CNEL)	Threshold Exceeded?[1]
Future Worship	Archibald Av.	67.8	No
Phase 1 Worship	Archibald Av.	67.8	No
Upper Plaza	Archibald Av.	64.4	No
Future Education	Archibald Av.	64.8	No

[1] Does the unmitigated exterior noise level exceed the City of Eastvale General Plan Noise Element, Table N-3, 70 dBA CNEL criteria for institutional land use?

8.2 ON-SITE INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the City of Eastvale interior noise standards, future noise levels were calculated at the first and second floor building facades.

8.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building facade 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." 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 assembles free of cut outs or openings.

8.2.2 INTERIOR NOISE LEVEL ASSESSMENT

To provide the necessary interior noise level reduction, Tables 8-2 and 8-3 indicate that buildings facing Archibald Avenue will require a windows closed condition and a means of mechanical ventilation (e.g. air conditioning). Table 8-2 shows that the future unmitigated noise levels at the first floor building façade are expected to range from 64.8 to 67.8 dBA CNEL. The first floor interior noise level analysis shows that the City of Eastvale 50 dBA CNEL interior noise level standards can be satisfied using standard windows with a minimum STC rating of 27. Table 8-3 shows that the future noise levels at the second floor building façade are expected to range from 64.8 to 67.8 dBA CNEL, and standard windows with a minimum STC rating of 27 are required to satisfy the City of Eastvale 50 dBA CNEL interior noise level standards.

The interior noise analysis shows that with the recommended interior noise mitigation measures described in the Executive Summary the Project will satisfy the City of Eastvale 50 dBA CNEL interior noise level standards for residential development. While not required, this noise study recommends an interior noise level design goal of 40 dBA CNEL which can be obtained using upgraded windows with a minimum STC rating of 30 for all buildings.

TABLE 8-2: FIRST FLOOR INTERIOR NOISE IMPACTS (CNEL)

Building	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Estimated Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]
Future Worship	67.8	17.8	25.0	No	42.8
Phase 1 Worship	67.8	17.8	25.0	No	42.8
Upper Plaza	–[6]	–[6]	–[6]	–[6]	–[6]
Future Education	64.8	14.8	25.0	No	39.8

[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 50 dBA CNEL interior noise standards.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
[6] Receiver location represents an exterior area with no interior noise reduction required.

TABLE 8-3: SECOND FLOOR INTERIOR NOISE IMPACTS (CNEL)

Building	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Estimated Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]
Future Worship	67.7	17.7	25.0	No	42.7
Phase 1 Worship	67.8	17.8	25.0	No	42.8
Upper Plaza	–[6]	–[6]	–[6]	–[6]	–[6]
Future Education	64.8	14.8	25.0	No	39.8

[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 50 dBA CNEL interior noise standards.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
[6] Receiver location represents an exterior area with no interior noise reduction required.

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9 RECEIVER LOCATIONS

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

Sensitive receivers in the vicinity of the Project site include the existing single-family residential homes located at receiver locations R2 to R6. Receiver location R1 represents the Eastvale Equestrian use located north of the Project site. The closest sensitive receiver is represented by location R5 at a distance of approximately 109 feet south of the Project site boundary. 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.

R1: Located approximately 113 feet north of the Project site, R1 represents the existing Eastvale Equestrian use.

R2: Location R2 represents existing residential community located approximately 147 feet west of the Project site across Archibald Avenue. A 24-hour noise level measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing single-family residential homes located roughly 135 feet west of the Project site across Archibald Avenue. A 24-hour noise level measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing single-family residential homes located approximately 127 feet west of the Project site. A 24-hour noise level measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents an existing single-family residential community which is situated approximately 109 feet south of the Project site boundary across Prado Basin Park Road. A 24-hour noise level measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents the existing single-family residential homes located roughly 196 feet south of the Project site on Kendra Lane. A 24-hour noise level measurement was taken near this location, L6, to describe the existing ambient noise environment.

EXHIBIT 9-A: RECEIVER LOCATIONS

LEGEND:

- Receiver Locations
- Project Site Boundary
- Distance from receiver to Project site boundary (in feet)
- 6' Existing Barrier Height (in feet)
- Existing Barrier

10 OPERATIONAL IMPACTS

This section analyzes the potential operational noise impacts due to the Project's stationary noise sources on the off-site sensitive receiver locations identified in Section 9. Exhibit 10-A identifies the receiver locations and noise source locations used to assess the Project-related operational noise levels.

10.1 OPERATIONAL NOISE STANDARDS

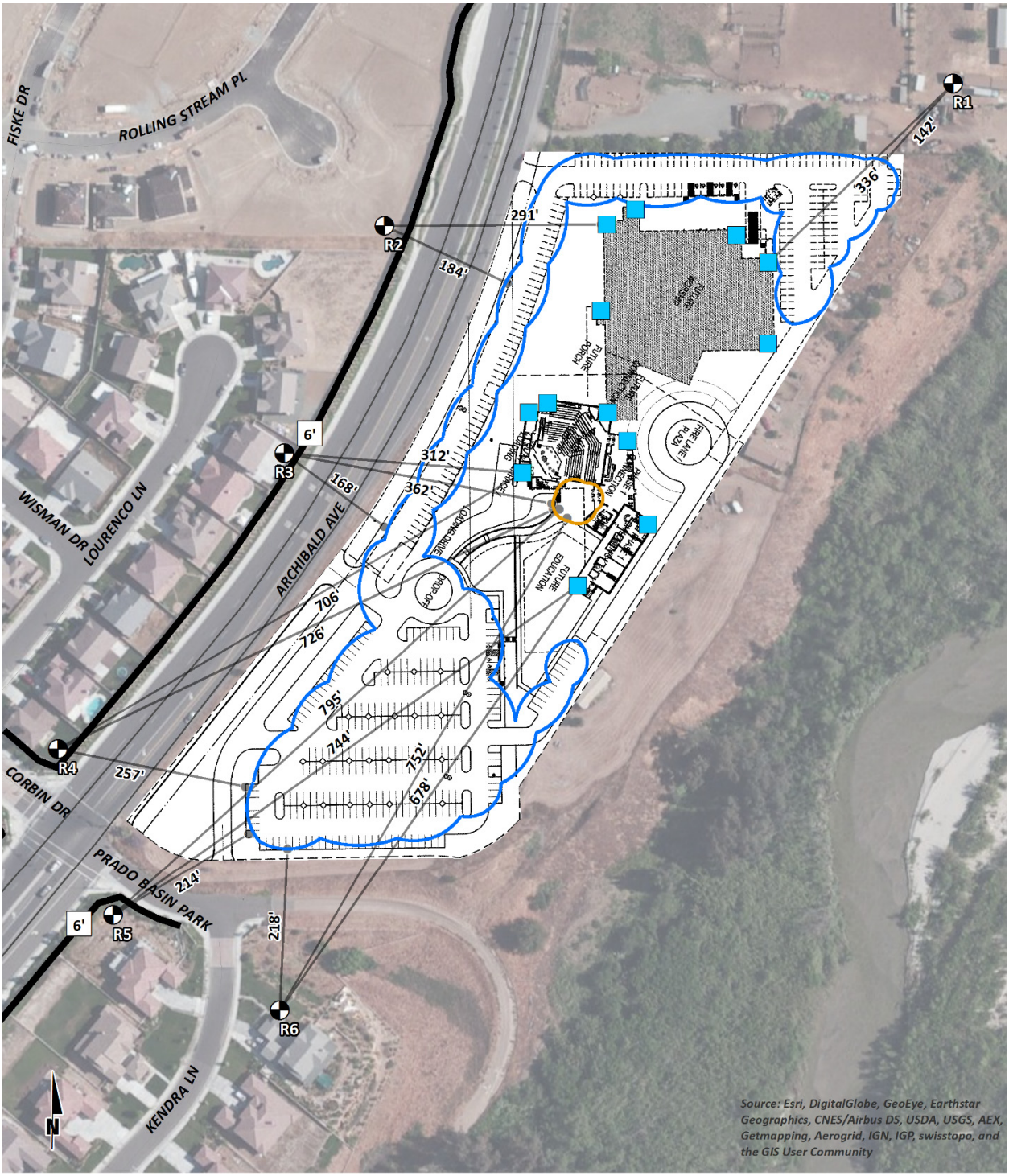
The City of Eastvale has identified exterior noise limits to control operational noise impacts associated with the development of the proposed Vantage Point Church Project. Table N-4 of the Noise Element *provides the City's standards for maximum exterior non-transportation noise levels to which land designated for residential land uses may be exposed for any 30-minute period on any day.* (11) For the purposes of this analysis, the noise generated by the roof-top air conditioning units, parking lot vehicle movement activities, and play area activities of the proposed Project will be evaluated based on the City's stationary source standards at the nearby residential land uses.

Table N-4 (previously shown on Exhibit 3-B) of the Noise Element requires an exterior noise level standard for the nearby noise-sensitive single-family residential land uses of 60 dBA Leq between the daytime hours of 7:00 a.m. and 10:00 p.m., and 50 dBA Leq between the nighttime hours of 10:00 p.m. to 7:00 a.m.

10.2 OPERATIONAL NOISE SOURCES

The Project is proposed to include the development of a 1,200 seat church, a café open to the public, bookstore, meeting spaces, playground area, and worship services. Exhibit 10-A shows the location of the on-site Project-related noise sources which are expected to include: roof-top air conditioning units, parking lot vehicle movement activities, and play area activities.

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS



LEGEND:

- Receiver Locations
- Roof-Top Air Conditioning Unit
- Parking Lot Vehicle Movements
- Play Area Activity
- 6' Existing Barrier Height (in feet)
- Existing Barrier
- Distance from receiver to center of noise source (in feet)

10.3 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 10-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top air conditioning units, parking lot vehicle movement activities, and play area activities all operating simultaneously. In reality, these noise level impacts will vary throughout the day.

TABLE 10-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Distance From Source (Feet)	Noise Source Height (Feet)	Hourly Activity (Min.)[4]	Noise Level (dBA Leq)	
					@ Ref. Dist.	@ 50 Feet
Roof-Top Air Conditioning Unit[1]	96:00:00	5'	25'	39	77.2	57.2
Parking Lot Vehicle Movement Activities[2]	00:10:00	20'	5'	60	62.9	56.9
Play Area Activities[3]	00:15:00	5'	4'	60	63.4	43.4

[1] As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.
[2] As measured by Urban Crossroads, Inc. on 9/15/2013 at the Water of Life Church parking lot during peak Sunday activity.
[3] As measured by Urban Crossroads, Inc. on 10/8/2014 at the Founders Park in Ladera Ranch.
[4] Anticipated duration (minutes within the hour) of noise activity during peak hourly conditions expected at the Project site.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

10.3.1 ROOF-TOP AIR CONDITIONING UNITS

In order to assess the impacts created by the roof-top air conditioning units at the Project site, reference noise levels measurements were taken at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a single mechanical roof-top air conditioning unit on the roof of an existing Walmart store. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. Using a uniform reference distance of 50 feet, the reference noise level noise level is 57.2 dBA Leq. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. The roof-top air condition units were observed to operate the most during the daytime hours, for a total of 39 minutes per hour, and are anticipated to operate during the daytime and nighttime hours at the Project site. For the purpose of this noise analysis, the air conditioning units are expected to be located on the roof at a noise elevation of 25 feet. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement.

10.3.2 PARKING LOT VEHICLE MOVEMENT ACTIVITIES

To determine the noise level impacts associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements at the at the Water of Life Church during peak worship services on Sunday, September 15th, 2013. The 10-minute noise level measurement indicates that the parking lot vehicle movements generates noise levels of 56.9 dBA Leq at a distance of 50 feet. The parking lot noise levels are mainly due to cars pulling in and out of spaces and car alarms sounding. Noise associated with parking lot vehicle movements is expected during the typical daytime, and nighttime conditions for the entire hour (60 minutes).

10.3.3 PLAY AREA ACTIVITIES

To describe the potential noise level impacts associated with the Project's play area activities, a reference noise level measurement was collected on Wednesday, October 8th, 2014 at the Founders Park in the unincorporated community of Ladera Ranch in Orange County. The reference noise levels collected at the Founders Park are expected to reflect the noise level activities at the play area within the Project site, since the reference noise level measurement includes tot-lot activities, girls youth soccer, coaches shouting instructions, parents speaking on cell phones, kids playing on swing sets, cheering and clapping. At a uniform distance of 50 feet from the noise source, a reference noise level of 43.4 dBA Leq was measured. The park activities are estimated to operate for 60 minutes during the peak hour conditions.

10.4 OPERATIONAL NOISE LEVELS

Based upon the reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each of the sensitive receiver locations. The operational noise level calculations shown on Table 10-2 account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source and at a rate of 4.5 dBA for each doubling of distance from a line source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL_1):

$$SPL_2 = SPL_1 - 20\log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location. Table 10-2 indicates that the hourly noise levels associated with the roof-top air conditioning units, parking lot vehicle movement activities, and play area activities are expected to range from 33.0 to 43.1 dBA Leq at the sensitive off-site receiver locations. The operational noise level calculation worksheets are included in Appendix 10.1.

TABLE 10-2: PROJECT OPERATIONAL NOISE LEVELS (DBA LEQ)

Receiver Location[1]	Noise Sources[2]			Combined Operational Noise Levels (dBA Leq)[3]
	Roof-Top Air Conditioning Units	Parking Lot Vehicle Movements	Play Area Activities	
R1	38.8	41.1	-[4]	43.1
R2	35.1	33.9	-[4]	37.6
R3	34.3	34.5	18.8	37.5
R4	27.0	31.7	12.7	33.0
R5	26.5	32.9	11.9	33.8
R6	32.7	38.3	17.9	39.4

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 10-1.
[3] Calculations for each noise source are provided in Appendix 10.1.
[4] Receiver locations are not exposed to the noise source. No direct line of sight.

10.5 OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise standards, the Project-only operational noise levels are evaluated against the City of Eastvale exterior noise level standards. Table 10-3 shows the operational noise levels associated with the Vantage Point Church institutional land use will satisfy the noise level standards at the nearby sensitive residential receivers in the City of Eastvale. Therefore, since the Project will satisfy the noise level standards of the City of Eastvale, the Project-related operational noise levels will be *less than significant*.

TABLE 10-3: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Land Use	Project-Only Operational Noise Levels (dBA Leq)[2]	Noise Level Standards (dBA Leq)[3]		Threshold Exceeded?[4]	
			Daytime	Nighttime	Daytime	Nighttime
R1	Residential	43.1	60	50	No	No
R2	Residential	37.6	60	50	No	No
R3	Residential	37.5	60	50	No	No
R4	Residential	33.0	60	50	No	No
R5	Residential	33.8	60	50	No	No
R6	Residential	39.4	60	50	No	No

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Estimated Project stationary source noise levels as shown on Table 10-2.
[3] City of Eastvale exterior stationary-source noise level standards.
[4] Do the estimated Project stationary source noise levels exceed the noise standards on the affected land uses?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

10.6 PROJECT OPERATIONAL NOISE CONTRIBUTION

To describe the Project operational noise level contributions, the Project operational noise levels were combined with the existing ambient noise levels measurements for the off-site 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. (4) Instead, they must be logarithmically added using the following base equation:

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions. Noise levels that would be experienced at receiver locations when Project-source noise is added to the ambient daytime and nighttime conditions are presented on Tables 10-4 and 10-5, respectively.

As indicated in Table 10-4, the Project will contribute an operational noise level increase of up to 0.1 dBA Leq during the daytime hours at the existing sensitive receiver locations potentially impacted by the operation of the Project. Further, Table 10-5 shows that the Project will also contribute an operational noise level increase of up to 0.5 dBA Leq at the nearby sensitive receiver locations during the nighttime hours. Since the Project-related operational noise level contributions will satisfy the significance criteria discussed in Section 4, the increases at the sensitive receiver locations will be *less than significant*. On this basis, Project operational stationary-source noise would not result in a substantial temporary/periodic, or permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project, and impacts in these regards will be *less than significant*.

TABLE 10-4: DAYTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS (DBA LEQ)

Receiver Location[1]	Total Project Operational Noise Level (dBA Leq)[2]	Measurement Location[3]	Reference Ambient Noise Levels (dBA Leq)[4]	Combined Project and Ambient (dBA Leq)[5]	Project Contribution[6]	Threshold Exceeded?[7]
R1	43.1	L1	65.0	65.0	0.0	No
R2	37.6	L2	66.6	66.6	0.0	No
R3	37.5	L3	68.1	68.1	0.0	No
R4	33.0	L4	71.6	71.6	0.0	No
R5	33.8	L5	63.3	63.3	0.0	No
R6	39.4	L6	54.1	54.2	0.1	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 10-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.

TABLE 10-5: NIGHTTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS (DBA LEQ)

Receiver Location[1]	Total Project Operational Noise Level (dBA Leq)[2]	Measurement Location[3]	Reference Ambient Noise Levels (dBA Leq)[4]	Combined Project and Ambient (dBA Leq)[5]	Project Contribution[6]	Threshold Exceeded?[7]
R1	43.1	L1	62.7	62.7	0.0	No
R2	37.6	L2	63.9	63.9	0.0	No
R3	37.5	L3	65.5	65.5	0.0	No
R4	33.0	L4	68.8	68.8	0.0	No
R5	33.8	L5	60.9	60.9	0.0	No
R6	39.4	L6	48.6	49.1	0.5	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 10-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.

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11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the construction activity boundaries in relation to the nearby sensitive receiver locations.

11.1 CONSTRUCTION NOISE STANDARDS

The City of Eastvale has set restrictions to control noise impacts associated with the construction of the proposed Project. According to the City of Eastvale Municipal Code Section 8.52.020, construction activities are limited to the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May. (12) While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*.

To evaluate whether the Project will generate a substantial periodic increase in short-term noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (2) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (2) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

11.2 CONSTRUCTION NOISE LEVELS

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

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

- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the data used to support the construction emissions in the *Vantage Point Church Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (19)

11.3 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 11-1 provides a summary of the sixteen construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 11-1 have been adjusted to describe a common reference distance of 50 feet.

TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA Leq)	Reference Noise Levels @ 50 Feet (dBA Leq)[6]
1	Truck Pass-Bys & Dozer Activity[1]	30'	63.6	59.2
2	Dozer Activity[1]	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities[2]	30'	71.9	67.5
4	Foundation Trenching[2]	30'	72.6	68.2
5	Rough Grading Activities[2]	30'	77.9	73.5
6	Residential Framing[3]	30'	66.7	62.3
7	Water Truck Pass-By & Backup Alarm[4]	30'	76.3	71.9
8	Dozer Pass-By[4]	30'	84.0	79.6
9	Two Scrapers & Water Truck Pass-By[4]	30'	83.4	79.0
10	Two Scrapers Pass-By[4]	30'	83.7	79.3
11	Scraper, Water Truck, & Dozer Activity[4]	30'	79.7	75.3
12	Concrete Mixer Truck Movements[5]	50'	71.2	71.2
13	Concrete Paver Activities[5]	30'	70.0	65.6
14	Concrete Mixer Pour & Paving Activities[5]	30'	70.3	65.9
15	Concrete Mixer Backup Alarms & Air Brakes[5]	50'	71.6	71.6
16	Concrete Mixer Pour Activities[5]	50'	67.7	67.7

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[3] As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.
[4] As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations within an industrial construction site located in the City of Ontario.
[5] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[6] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

11.4 CONSTRUCTION NOISE ANALYSIS

Tables 11-2 to 11-7 show the Project construction stages and the reference construction noise levels used for each stage. Table 11-8 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations in the City of Eastvale. Based on the reference construction noise levels, the Project-related construction noise levels when the peak reference noise level is operating at a single point nearest the sensitive receiver location will range from 65.2 to 72.5 dBA Leq at the sensitive receiver locations in the City of Eastvale. The construction activity boundaries used in this analysis are based on the Project site boundaries, and therefore, represent a conservative approach since not all stages of Project construction will occur at the extent of the Project site.

TABLE 11-2: DEMOLITION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Dozer Pass-By	79.6
Peak Reference Noise Level at 50 Feet (dBA Leq):	79.6

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	113'	-7.1	0.0	72.5
R2	147'	-9.4	-5.0	65.2
R3	135'	-8.6	-5.0	65.9
R4	127'	-8.1	-5.0	66.5
R5	109'	-6.8	-5.0	67.8
R6	196'	-11.9	0.0	67.7

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[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.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 11-3: SITE PREPARATION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Rough Grading Activities	73.5
Two Scrapers & Water Truck Pass-By	79.0
Two Scrapers Pass-By	79.3
Peak Reference Noise Level at 50 Feet (dBA Leq):	79.3

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	113'	-7.1	0.0	72.2
R2	147'	-9.4	-5.0	64.9
R3	135'	-8.6	-5.0	65.6
R4	127'	-8.1	-5.0	66.2
R5	109'	-6.8	-5.0	67.5
R6	196'	-11.9	0.0	67.4

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[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.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 11-4: GRADING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Dozer Pass-By	79.6
Peak Reference Noise Level at 50 Feet (dBA Leq):	79.6

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	113'	-7.1	0.0	72.5
R2	147'	-9.4	-5.0	65.2
R3	135'	-8.6	-5.0	65.9
R4	127'	-8.1	-5.0	66.5
R5	109'	-6.8	-5.0	67.8
R6	196'	-11.9	0.0	67.7

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[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.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 11-5: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Peak Reference Noise Level at 50 Feet (dBA Leq):	68.2

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	113'	-7.1	0.0	61.1
R2	147'	-9.4	-5.0	53.8
R3	135'	-8.6	-5.0	54.5
R4	127'	-8.1	-5.0	55.1
R5	109'	-6.8	-5.0	56.4
R6	196'	-11.9	0.0	56.3

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[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.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 11-6: PAVING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Concrete Mixer Truck Movements	71.2
Concrete Paver Activities	65.6
Concrete Mixer Pour & Paving Activities	65.9
Concrete Mixer Backup Alarms & Air Brakes	71.6
Concrete Mixer Pour Activities	67.7
Peak Reference Noise Level at 50 Feet (dBA Leq):	71.6

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	113'	-7.1	0.0	64.5
R2	147'	-9.4	-5.0	57.2
R3	135'	-8.6	-5.0	58.0
R4	127'	-8.1	-5.0	58.5
R5	109'	-6.8	-5.0	59.8
R6	196'	-11.9	0.0	59.7

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[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.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 11-6: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA Leq)
Construction Vehicle Maintenance Activities	67.5
Peak Reference Noise Level at 50 Feet (dBA Leq):	67.5

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA Leq)[3]	Estimated Noise Barrier Attenuation (dBA Leq)[4]	Construction Noise Level (dBA Leq)
R1	113'	-7.1	0.0	60.4
R2	147'	-9.4	-5.0	53.1
R3	135'	-8.6	-5.0	53.8
R4	127'	-8.1	-5.0	54.4
R5	109'	-6.8	-5.0	55.7
R6	196'	-11.9	0.0	55.6

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[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.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

11.5 CONSTRUCTION NOISE THRESHOLDS OF SIGNIFICANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the Project site boundaries. As shown on Table 11-8, the unmitigated construction noise levels are expected to range from 65.2 to 72.5 dBA Leq at the receiver locations in the City of Eastvale. To control noise impacts associated with the construction of the proposed Project, the City of Eastvale has established limits to the hours of operation. The City of Eastvale Municipal Code indicates that construction activities are limited to the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May. (12) While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. To evaluate whether the Project will generate a substantial periodic increase in short-term noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the NIOSH. (2) For the purposes of this analysis, the NIOSH construction noise level threshold of 85 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level threshold of 85 dBA Leq over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

TABLE 11-8: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY (DBA LEQ)

Receiver Location[1]	Construction Phase Hourly Noise Level (dBA Leq)						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Peak Activity[2]
R1	72.5	72.2	72.5	61.1	64.5	60.4	72.5
R2	65.2	64.9	65.2	53.8	57.2	53.1	65.2
R3	65.9	65.6	65.9	54.5	58.0	53.8	65.9
R4	66.5	66.2	66.5	55.1	58.5	54.4	66.5
R5	67.8	67.5	67.8	56.4	59.8	55.7	67.8
R6	67.7	67.4	67.7	56.3	59.7	55.6	67.7

[1] Noise receiver locations are shown on Exhibit 9-A.
[2] Estimated construction noise levels during peak operating conditions.

Table 11-9 shows the peak construction noise levels at the potentially impacted receiver locations are expected to approach 72.5 dBA Leq which will satisfy the 85 dBA Leq significance threshold during temporary Project construction activities. The noise impact due to unmitigated Project construction noise levels is, therefore, considered a *less than significant* impact at all nearby sensitive receiver locations.

TABLE 11-9: CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA LEQ)

Receiver Location[1]	Construction Noise Levels (dBA Leq)		
	Peak Activity[2]	Threshold[3]	Threshold Exceeded?[4]
R1	72.5	85	No
R2	65.2	85	No
R3	65.9	85	No
R4	66.5	85	No
R5	67.8	85	No
R6	67.7	85	No

[1] Noise receiver locations are shown on Exhibit 9-A.
[2] Estimated construction noise levels during peak operating conditions, as shown on Table 11-8.
[3] Construction noise level threshold as shown on Table 4-2.
[4] Do the estimated Project construction noise levels meet the construction noise level thresholds?

11.6 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. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to building, the vibration is usually short-term and is not of sufficient magnitude to cause building damage. It is not expected that heavy equipment such as large bulldozers would operate close enough to any residences to cause a vibration impact.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-6 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-10 presents the expected Project related vibration levels at each of the sensitive receiver locations.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec PPV at a distance of 25 feet. At distances ranging from 109 to 196 feet from the Project site, construction vibration velocity levels are expected to approach 0.0098 in/sec PPV, as shown on Table 11-10. Based on the City of Eastvale vibration standard, the proposed Project construction activities will satisfy the vibration

standard of 0.0787 in/sec PPV at all receiver locations during Project construction. Therefore, the Project-related vibration impacts at the nearby sensitive receiver locations represents a *less than significant* impact during the worst-case construction activities at the Project site boundary.

The vibration levels due to Project construction do not represent vibration levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (3) The peak Project-construction vibration levels shown on Table 11-10, approaching 0.0098 in/sec PPV, will not exceed the FTA vibration levels for building damage at the residential homes near the Project site. Further, the impacts at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter. Construction at the Project site will be restricted to daytime hours consistent with City requirements thereby eliminating potential vibration impact during the sensitive nighttime hours.

TABLE 11-10: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance To Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration	
R1	113'	0.000	0.004	0.008	0.009	0.009	No
R2	147'	0.000	0.002	0.005	0.006	0.006	No
R3	135'	0.000	0.003	0.006	0.007	0.007	No
R4	127'	0.000	0.003	0.007	0.008	0.008	No
R5	109'	0.000	0.004	0.008	0.010	0.010	No
R6	196'	0.000	0.002	0.003	0.004	0.004	No

[1] Receiver locations are shown on Exhibit 9-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-6.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[4] Does the peak vibration exceed the maximum acceptable vibration threshold?

11.7 CONSTRUCTION NOISE AND VIBRATION ABATEMENT MEASURES

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

- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May (City of Eastvale Municipal Code, Section 8.52.020). The Project construction supervisor shall ensure compliance with the note and the City shall conduct periodic inspection at its discretion.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site (i.e., to the eastern center) during all Project construction.
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May). The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

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12 REFERENCES

1. **Urban Crossroads, Inc.** *Vantage Point Church Traffic Impact Analysis.* April 2016.
2. **National Institute for Occupational Safety and Health.** *Criteria for Recommended Standard: Occupational Noise Exposure.* June 1998.
3. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* May 2006. FTA-VA-90-1003-06.
4. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
5. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
6. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* June, 1995.
7. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
8. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
9. **Office of Planning and Research.** *State of California General Plan Guidlines 2003.* October 2003.
10. **State of California.** *2013 California Green Building Standards Code.* January 2014.
11. **City of Eastvale.** *General Plan Noise Element.* June 2012.
12. —. *Municipal Code, Section 8.52.020.*
13. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
14. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
15. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
16. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
17. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
18. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
19. **Urban Crossroads, Inc.** *Vantage Point Church Air Quality Impact Analysis.* May 2016.

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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 Vantage Point Church Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

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EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

CITY OF EASTVALE MUNICIPAL CODE

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CHAPTER 8.52. - NOISE REGULATION

Sec. 8.52.010. - Reserved.

Sec. 8.52.020. - Exemptions.

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

(1) Facilities owned or operated by or for a governmental agency;

(2) Capital improvement projects of a governmental agency;

(3) The maintenance or repair of public properties;

(4) 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;

(5) Public or private schools and school-sponsored activities;

(6) Agricultural operations on land designated agriculture in the city general plan, or land zoned A-l (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;

(7) Wind energy conversion systems (WECS), provided such systems comply with the WECS noise provisions of county Ordinance No. 348;

(8) Private construction projects located one-quarter of a mile or more from an inhabited dwelling;

(9) Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that construction does not occur between the hours of:

a. 6:00 p.m. and 6:00 a.m. during the months of June through September; and

b. 6:00 p.m. and 7:00 a.m. during the months of October through May;

(10) Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.;

(11) Motor vehicles, other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems;

(12) Heating and air conditioning equipment;

(13) 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;

(14) The discharge of firearms consistent with all state laws.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.030. - Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

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 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 defined as follows:

(1) The term, "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) The term "maximum sound level (Lmax)" means the maximum sound level measured on a sound level meter.

Governmental agency means the United States, the state, the county, any city within the county, any special district within the county or any combination of these agencies.

Land use permit means a discretionary permit issued by the city pursuant to title 120 (planning and zoning) of this Code.

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 in a motor vehicle.

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 city 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. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.040. - 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 the following table:

TABLE 1. SOUND LEVEL STANDARDS (dB Lmax)

General Plan Foundation Component				Maximum Decibel Level	
	Land Use Designation General Plan	Land Use Designation Name	Density	7:00 a.m. — 10:00 p.m.	10:00 p.m. — 7:00 a.m.
Community development					
	EDR	Estate density residential	2 acres	55	45
	VLDR	Very low-density residential	1 acre	55	45
	LDR	Low-density residential	½ acre	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
	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 acres	55	45
	VLDR	Very low-density residential	1 acre	55	45
	LDR	Low-density residential	½ acre	55	45
Rural					
	RR	Rural residential	5 acres	45	45
	RM	Rural mountainous	10 acres	45	45
	RD	Rural desert	10 acres	45	45
Agriculture					
	AG	Agriculture	10 acres	45	45
Open space					
	C	Conservation		45	45
	CH	Conservation habitat		45	45
	REC	Recreation		45	45
	RUR	Rural	20 acres	45	45
	W	Watershed		45	45
	MR	Mineral resources		75	45

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.050. - 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 8.52.080. 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 reverified. Sound level meters and calibration equipment shall be certified annually.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.060. - Special sound sources standards.

The general sound level standards set forth in section 8.52.040 apply to sound emanating from all sources, including the special sound sources set forth in this section, 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:

(1) *Motor vehicles.*

a. *Off-highway vehicles.*

1. 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.
2. No person shall operate an off-highway vehicle unless the noise emitted by the vehicle is not more than 96 dBA if the vehicle was manufactured on or after January 1, 1986, or is not more than 101 dBA if the vehicle was manufactured before January 1, 1986. For purposes of this subsection, emitted noise shall be measured a distance of 20 inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.

b. *Sound systems.* No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of 10:00 p.m. and 8:00 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 100 feet from the vehicle.

(2) *Power tools and equipment.* No person shall operate any power tools or equipment between the hours of 10:00 p.m. and 8:00 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 100 feet from the power tools or equipment.

(3) *Audio equipment.* No person shall operate any audio equipment, whether portable or not, between the hours of 10:00 p.m. and 8:00 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 100 feet from the equipment.

(4) *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:

a. Sound-amplifying equipment or live music is prohibited between the hours of 10:00 p.m. and 8:00 a.m.

b. 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 200 feet from the equipment or music.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.070. - Exceptions.

Exceptions may be requested from the standards set forth in section 8.52.040 or 8.52.060 and may be characterized as construction-related, single-event or continuous event exceptions.

(1) *Application and processing.*

a. *Construction-related exceptions.* An application for a construction-related exception shall be made to and considered by the city on forms provided by the city and shall be accompanied by the appropriate filing fee. No public hearing is required.

b. *Single-event exceptions.* An application for a single-event exception shall be made to and considered by the city on forms provided by the planning department and shall be accompanied by the appropriate filing fee. No public hearing is required.

c. *Continuous-event exceptions.* An application for a continuous-event exception shall be made to the city on forms provided by the planning department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous-event exception, the city shall set the matter for public hearing before the planning commission, notice of which shall be given as provided in the Eastvale Municipal Code. Notwithstanding the exceptions set forth in this section, an application for a continuous-event 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.

(2) *Requirements for approval.* The appropriate decision making 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 decision-making 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.

(3) *Appeals.* The city's decision on an application for a construction-related exception is considered final. The city's decision on an application for a single-event exception is considered final. After making a decision on an application for a continuous-event exception, the appropriate decision-making body or officer shall mail notice of the decision to the applicant. Within ten calendar days after the mailing of such notice, the applicant or an interested person may appeal the decision to the city council. Upon receipt of an appeal and payment of the appropriate appeal fee, the city clerk shall set the matter for hearing not less than five days nor more than 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 city council shall render its decision within 30 days after the appeal hearing is closed.

(4) *Effect of a pending continuous-event exception application.* For a period of 180 days from the effective date of the ordinance from which this chapter is derived, 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-event exception has been filed to sanction the sound and if a decision on the application is pending.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.080. - Enforcement.

The chief of police and planning director shall have the primary responsibility for enforcing this chapter; provided, however, the chief of police and planning director may be assisted by the public health department. Violations shall be prosecuted as described in section 8.52.100, but nothing in this chapter shall prevent the chief of police, planning director or the department of public health from engaging in efforts to obtain voluntary compliance by means of warnings, notices or educational programs.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.090. - Duty to cooperate.

No person shall refuse to cooperate with, or obstruct, the enforcement officials identified in section 8.52.080 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. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.100. - Violations and penalties.

Any person who violates any provision of this chapter once or twice within a 180-day period shall be guilty of an infraction. Any person who violates any provision of this chapter more than twice within a 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:

(1) For the first violation within a 180-day period, the minimum mandatory fine shall be $500.00.
(2) For the second violation within a 180-day period, the minimum mandatory fine shall be $750.00.
(3) For any further violations within a 180-day period, the minimum mandatory fine shall be $1,000.00 or imprisonment in the county jail for a period not exceeding six months, or both.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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L1
33, 56' 14.285800", 117, 35' 34.231500"

L1_E
33, 56' 14.285800", 117, 35' 34.231500"

L1_N
33, 56' 14.285800", 117, 35' 34.231500"

L1_S
33, 56' 14.285800", 117, 35' 34.231500"

L1_SW
33, 56' 14.285800", 117, 35' 34.231500"

L2
33, 56' 6.842600", 117, 35' 37.252800"

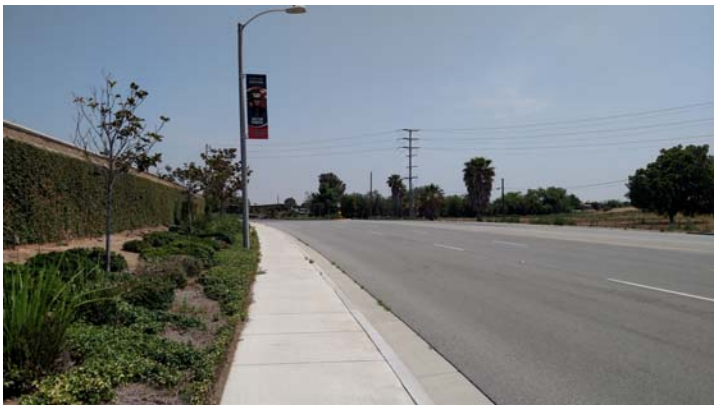
L2_E
33, 56' 6.842600", 117, 35' 37.252800"

L2_NE
33, 56' 6.842600", 117, 35' 37.252800"

L2_S
33, 56' 6.842600", 117, 35' 37.252800"

L3
33, 56' 4.741500", 117, 35' 38.653500"

L3_E
33, 56' 4.741500", 117, 35' 38.653500"



L3_NE
33, 56' 4.741500", 117, 35' 38.653500"

L3_S
33, 56' 4.741500", 117, 35' 38.653500"

L4
33, 56' 0.635300", 117, 35' 42.059300"

L4_E
33, 56' 0.635300", 117, 35' 42.059300"

L4_NE
33, 56' 0.635300", 117, 35' 42.059300"

L4_S
33, 56' 0.635300", 117, 35' 42.059300"

L5
33, 55' 59.303200", 117, 35' 38.900700"

L5_E
33, 55' 59.207100", 117, 35' 41.455000"

L5_N
33, 55' 59.207100", 117, 35' 41.455000"

L5_SW
33, 55' 59.207100", 117, 35' 41.455000"

L5_W
33, 55' 59.207100", 117, 35' 41.455000"

L6
33, 55' 59.303200", 117, 35' 38.900700"

L6_E
33, 55' 59.303200", 117, 35' 38.900700"

L6_NW
33, 55' 59.303200", 117, 35' 38.900700"

L6_W
33, 55' 59.303200", 117, 35' 38.900700"

Site
33, 56' 3.038600", 117, 35' 40.466300"

StudyArea_ExistingBarrier
33, 56' 1.885000", 117, 35' 41.482500"

StudyArea_ExistingBarrier2
33, 56' 1.885000", 117, 35' 41.482500"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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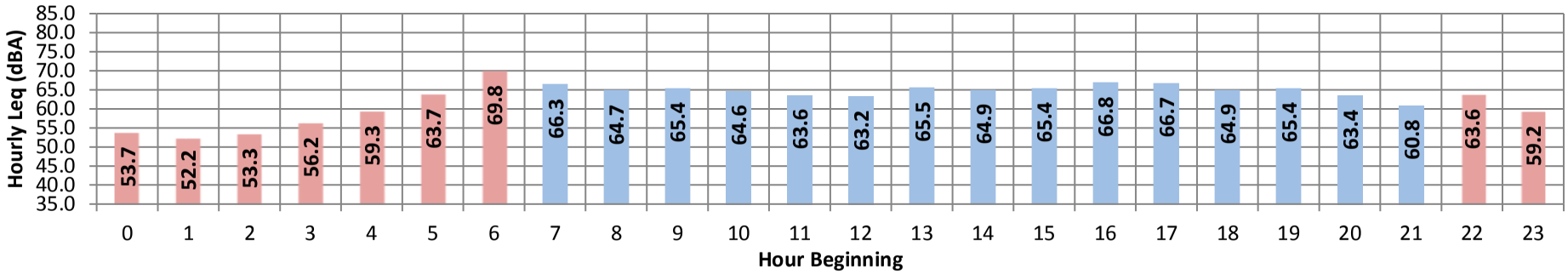
24-Hour Noise Level Measurement Summary

Project Name:	Vantage Point Church	*JN:*	10283	*Energy Average Leq*		*24-Hour*
Location:	L1 - Located north of the Project site adjacent to existing residential homes and Eastvale Equestrian.	*Analyst:*	A. Wolfe	*Day*	*Night*	*CNEL*
		Date:	6/1/2016	65.0	62.7	69.8

Hourly Leq dBA Readings (unadjusted)



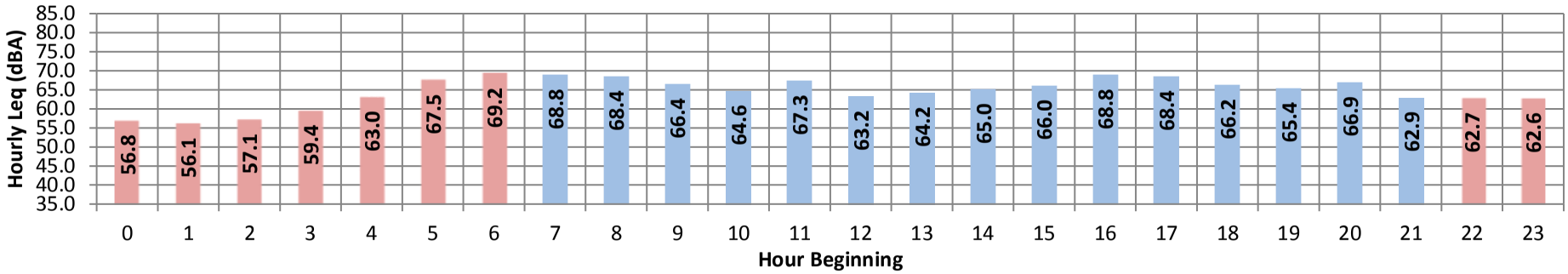
Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	60.8	77.8	41.7	70.0	68.0	66.0	65.0	61.0	56.0	47.0	46.0	44.0
	Max	66.8	90.9	47.5	77.0	74.0	71.0	70.0	66.0	63.0	54.0	52.0	50.0
Energy Average:		65.0	Average:		74.4	71.9	69.1	67.7	64.1	59.7	51.0	49.3	46.9
Night	Min	52.2	74.0	37.6	64.0	62.0	57.0	54.0	45.0	40.0	37.0	37.0	37.0
	Max	69.8	98.3	43.0	77.0	73.0	71.0	69.0	66.0	62.0	52.0	49.0	45.0
Energy Average:		62.7	Average:		69.6	66.9	63.6	61.6	54.6	48.9	42.3	41.4	40.2
Hourly Summary													
Night	0	53.7	75.7	39.0	65.0	63.0	60.0	57.0	47.0	42.0	39.0	39.0	39.0
	1	52.2	74.0	38.8	64.0	62.0	57.0	54.0	45.0	42.0	40.0	40.0	39.0
	2	53.3	74.2	37.6	65.0	63.0	59.0	56.0	45.0	40.0	37.0	37.0	37.0
	3	56.2	76.1	37.6	68.0	65.0	62.0	60.0	51.0	44.0	37.0	37.0	37.0
	4	59.3	77.1	37.6	70.0	68.0	65.0	64.0	57.0	49.0	39.0	38.0	37.0
	5	63.7	83.0	40.7	73.0	71.0	69.0	67.0	64.0	59.0	49.0	47.0	43.0
	6	69.8	98.3	42.0	77.0	73.0	71.0	69.0	66.0	62.0	52.0	49.0	45.0
Day	7	66.3	89.8	41.7	75.0	73.0	70.0	69.0	66.0	62.0	53.0	50.0	46.0
	8	64.7	80.3	42.7	74.0	72.0	69.0	68.0	65.0	61.0	51.0	49.0	46.0
	9	65.4	85.8	45.6	75.0	73.0	70.0	68.0	64.0	60.0	52.0	50.0	47.0
	10	64.6	90.9	45.9	74.0	71.0	68.0	67.0	63.0	58.0	50.0	49.0	47.0
	11	63.6	81.5	44.1	74.0	72.0	69.0	67.0	63.0	58.0	49.0	48.0	46.0
	12	63.2	81.8	44.2	73.0	71.0	68.0	67.0	63.0	59.0	50.0	49.0	46.0
	13	65.5	89.5	44.5	75.0	73.0	70.0	68.0	64.0	59.0	51.0	49.0	47.0
	14	64.9	85.9	46.7	75.0	72.0	69.0	68.0	65.0	61.0	52.0	50.0	48.0
	15	65.4	82.3	47.0	75.0	73.0	70.0	69.0	65.0	61.0	53.0	51.0	49.0
	16	66.8	88.2	46.9	76.0	73.0	70.0	69.0	66.0	63.0	53.0	52.0	49.0
	17	66.7	84.8	47.5	77.0	74.0	71.0	70.0	66.0	63.0	54.0	52.0	50.0
	18	64.9	86.6	46.4	75.0	72.0	69.0	68.0	65.0	60.0	51.0	50.0	48.0
	19	65.4	90.3	45.3	75.0	72.0	69.0	67.0	63.0	58.0	50.0	48.0	46.0
	20	63.4	86.4	44.6	73.0	70.0	68.0	66.0	63.0	57.0	49.0	47.0	45.0
	21	60.8	77.8	43.5	70.0	68.0	66.0	65.0	61.0	56.0	47.0	46.0	44.0
Night	22	63.6	91.7	43.0	73.0	69.0	65.0	64.0	59.0	53.0	45.0	44.0	44.0
	23	59.2	78.7	40.7	71.0	68.0	64.0	63.0	57.0	49.0	43.0	42.0	41.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name:	Vantage Point Church	*JN:*	10283	*Energy Average Leq*		*24-Hour*
Location:	L2 - Located west of the Project site on Archibald Avenue adjacent to existing residential homes.	*Analyst:*	A. Wolfe	*Day*	*Night*	*CNEL*
		Date:	6/1/2016	66.6	63.9	71.1

Hourly Leq dBA Readings (unadjusted)



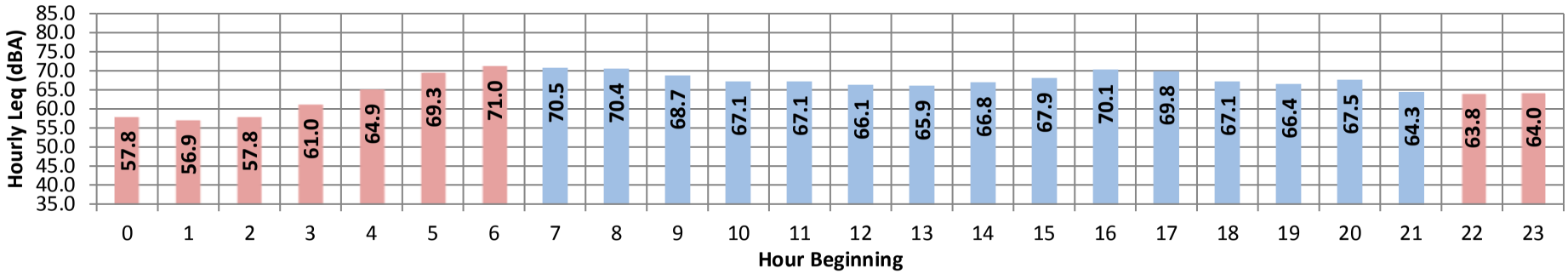
Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	62.9	77.9	44.9	71.0	70.0	68.0	67.0	63.0	57.0	47.0	46.0	45.0
	Max	68.8	98.6	47.4	78.0	76.0	74.0	73.0	69.0	65.0	51.0	49.0	48.0
Energy Average:		66.6	Average:		75.1	73.1	70.9	69.6	65.5	60.7	48.9	47.5	46.6
Night	Min	56.1	76.9	44.5	67.0	65.0	60.0	56.0	46.0	45.0	44.0	44.0	44.0
	Max	69.2	91.7	46.6	78.0	76.0	74.0	72.0	69.0	65.0	51.0	48.0	47.0
Energy Average:		63.9	Average:		72.0	69.7	66.9	64.7	57.1	51.3	46.3	45.4	45.0
Hourly Summary													
Night	0	56.8	83.4	45.0	68.0	66.0	63.0	60.0	48.0	46.0	45.0	45.0	45.0
	1	56.1	76.9	44.8	67.0	65.0	63.0	61.0	51.0	45.0	45.0	45.0	44.0
	2	57.1	84.5	44.5	68.0	65.0	60.0	56.0	46.0	45.0	44.0	44.0	44.0
	3	59.4	78.6	44.5	72.0	69.0	66.0	63.0	52.0	45.0	44.0	44.0	44.0
	4	63.0	83.6	44.5	73.0	71.0	69.0	67.0	61.0	50.0	45.0	44.0	44.0
	5	67.5	91.7	44.9	76.0	74.0	72.0	71.0	67.0	62.0	48.0	46.0	45.0
	6	69.2	90.7	45.0	78.0	76.0	74.0	72.0	69.0	65.0	51.0	48.0	46.0
Day	7	68.8	86.2	44.9	77.0	75.0	74.0	73.0	69.0	65.0	50.0	47.0	45.0
	8	68.4	88.7	45.4	77.0	75.0	73.0	72.0	68.0	64.0	49.0	47.0	46.0
	9	66.4	82.6	46.0	76.0	74.0	72.0	70.0	66.0	61.0	49.0	47.0	46.0
	10	64.6	81.5	47.4	73.0	72.0	70.0	69.0	65.0	59.0	50.0	49.0	48.0
	11	67.3	98.6	45.8	75.0	72.0	69.0	68.0	63.0	58.0	47.0	47.0	46.0
	12	63.2	78.6	45.7	73.0	71.0	69.0	67.0	63.0	58.0	47.0	46.0	46.0
	13	64.2	84.7	46.0	74.0	71.0	69.0	68.0	64.0	59.0	48.0	47.0	46.0
	14	65.0	86.4	46.7	74.0	72.0	70.0	69.0	65.0	60.0	49.0	47.0	47.0
	15	66.0	83.7	46.7	75.0	74.0	71.0	70.0	66.0	61.0	49.0	48.0	47.0
	16	68.8	91.7	47.2	78.0	75.0	73.0	72.0	68.0	64.0	50.0	49.0	47.0
	17	68.4	90.2	46.5	78.0	76.0	73.0	72.0	68.0	64.0	51.0	49.0	47.0
	18	66.2	89.0	46.6	75.0	73.0	71.0	70.0	66.0	62.0	50.0	48.0	47.0
	19	65.4	84.8	46.6	75.0	73.0	71.0	69.0	65.0	60.0	48.0	47.0	47.0
	20	66.9	92.7	46.6	76.0	73.0	70.0	68.0	64.0	58.0	48.0	47.0	47.0
	21	62.9	77.9	46.6	71.0	70.0	68.0	67.0	63.0	57.0	48.0	47.0	47.0
Night	22	62.7	84.4	46.6	73.0	71.0	68.0	67.0	61.0	54.0	48.0	47.0	47.0
	23	62.6	86.5	46.1	73.0	70.0	67.0	65.0	59.0	50.0	47.0	46.0	46.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name:	Vantage Point Church	*JN:*	10283	*Energy Average Leq*		*24-Hour*
Location:	L3 - Located west of the Project site on Archibald Avenue adjacent to existing residential homes, south of location L2.	*Analyst:*	A. Wolfe	*Day*	*Night*	*CNEL*
		Date:	6/1/2016	68.1	65.5	72.7

Hourly Leq dBA Readings (unadjusted)



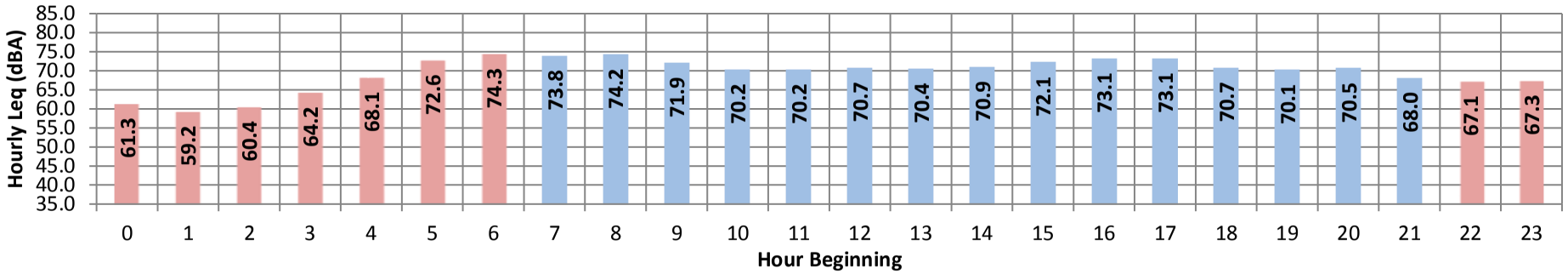
Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	64.3	81.1	39.6	73.0	72.0	70.0	69.0	65.0	58.0	46.0	44.0	42.0
	Max	70.5	94.2	45.0	79.0	77.0	75.0	75.0	71.0	67.0	52.0	49.0	46.0
Energy Average:		68.1	Average:		76.5	74.8	72.7	71.5	67.7	62.7	48.5	46.3	43.9
Night	Min	56.9	76.0	37.8	69.0	67.0	62.0	58.0	43.0	39.0	37.0	37.0	37.0
	Max	71.0	92.5	42.6	80.0	78.0	76.0	75.0	71.0	67.0	52.0	48.0	43.0
Energy Average:		65.5	Average:		73.8	71.6	68.4	66.4	57.8	49.8	42.3	41.3	39.3
Hourly Summary													
Night	0	57.8	82.3	39.5	70.0	68.0	65.0	62.0	47.0	42.0	40.0	40.0	39.0
	1	56.9	76.0	37.8	69.0	67.0	62.0	60.0	52.0	40.0	39.0	39.0	38.0
	2	57.8	83.5	37.8	70.0	67.0	62.0	58.0	43.0	39.0	37.0	37.0	37.0
	3	61.0	80.4	37.8	73.0	71.0	68.0	66.0	52.0	42.0	37.0	37.0	37.0
	4	64.9	84.3	37.8	75.0	73.0	71.0	69.0	63.0	51.0	39.0	39.0	37.0
	5	69.3	92.5	39.2	78.0	76.0	74.0	73.0	69.0	64.0	48.0	45.0	39.0
	6	71.0	91.2	39.5	80.0	78.0	76.0	75.0	71.0	67.0	52.0	48.0	42.0
Day	7	70.5	85.9	39.6	78.0	77.0	75.0	75.0	71.0	67.0	51.0	47.0	42.0
	8	70.4	91.7	40.8	79.0	77.0	75.0	74.0	71.0	66.0	50.0	46.0	43.0
	9	68.7	84.9	42.7	78.0	76.0	74.0	73.0	69.0	64.0	48.0	46.0	44.0
	10	67.1	82.3	44.5	76.0	74.0	73.0	71.0	68.0	62.0	49.0	48.0	46.0
	11	67.1	87.2	42.3	77.0	75.0	72.0	71.0	66.0	61.0	47.0	45.0	43.0
	12	66.1	81.3	40.8	75.0	74.0	72.0	70.0	66.0	61.0	46.0	44.0	42.0
	13	65.9	85.1	40.8	75.0	73.0	71.0	70.0	66.0	61.0	47.0	45.0	42.0
	14	66.8	88.1	40.9	76.0	74.0	72.0	71.0	67.0	62.0	48.0	46.0	43.0
	15	67.9	85.7	43.0	77.0	75.0	73.0	72.0	68.0	64.0	50.0	47.0	45.0
	16	70.1	92.4	45.0	79.0	77.0	74.0	73.0	70.0	66.0	51.0	49.0	46.0
	17	69.8	94.2	44.1	78.0	76.0	74.0	73.0	69.0	65.0	52.0	49.0	45.0
	18	67.1	84.7	43.7	76.0	74.0	72.0	71.0	67.0	63.0	49.0	47.0	45.0
	19	66.4	85.9	43.5	75.0	74.0	72.0	70.0	66.0	60.0	47.0	46.0	44.0
	20	67.5	94.0	43.5	76.0	74.0	71.0	70.0	66.0	60.0	47.0	45.0	44.0
	21	64.3	81.1	43.3	73.0	72.0	70.0	69.0	65.0	58.0	46.0	45.0	44.0
Night	22	63.8	84.0	42.6	74.0	72.0	69.0	68.0	63.0	54.0	45.0	44.0	43.0
	23	64.0	87.9	41.8	75.0	72.0	69.0	67.0	60.0	49.0	44.0	43.0	42.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name:	Vantage Point Church	*JN:*	10283	*Energy Average Leq*		*24-Hour*
Location:	L4 - Located west of the Project site adjacent to the existing Meadowside residential community.	*Analyst:*	A. Wolfe	*Day*	*Night*	*CNEL*
		Date:	6/1/2016	71.6	68.8	76.0

Hourly Leq dBA Readings (unadjusted)



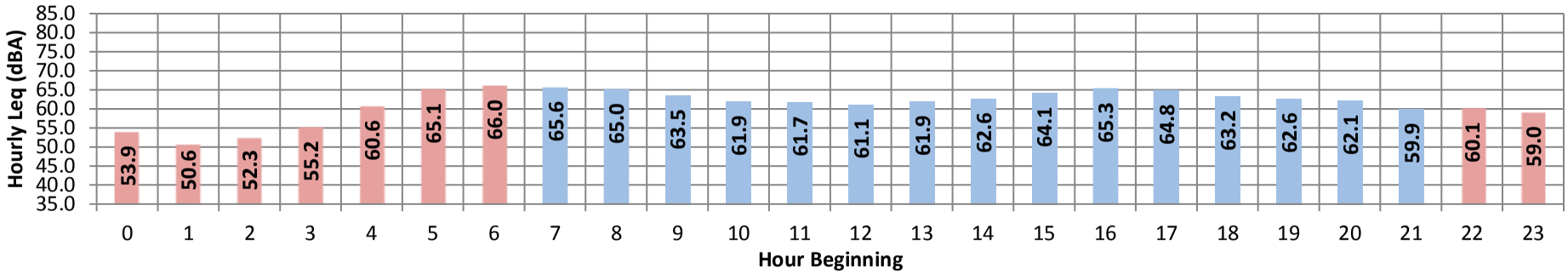
Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	68.0	82.6	43.2	76.0	75.0	73.0	72.0	69.0	63.0	50.0	48.0	46.0
	Max	74.2	97.6	49.0	82.0	80.0	79.0	78.0	75.0	70.0	58.0	56.0	51.0
Energy Average:		71.6	Average:		79.9	78.2	76.3	75.1	71.5	66.7	54.7	51.9	47.7
Night	Min	59.2	78.2	36.9	72.0	70.0	65.0	61.0	48.0	39.0	37.0	37.0	37.0
	Max	74.3	95.1	43.7	82.0	81.0	79.0	78.0	75.0	71.0	59.0	55.0	48.0
Energy Average:		68.8	Average:		76.6	74.7	71.8	69.7	62.3	54.0	44.4	42.8	40.6
Hourly Summary													
Night	0	61.3	86.5	40.5	73.0	71.0	68.0	66.0	53.0	45.0	41.0	41.0	41.0
	1	59.2	78.2	37.0	72.0	70.0	65.0	61.0	56.0	41.0	38.0	38.0	37.0
	2	60.4	85.9	37.0	73.0	70.0	66.0	62.0	48.0	39.0	37.0	37.0	37.0
	3	64.2	84.3	36.9	76.0	74.0	71.0	69.0	58.0	48.0	38.0	38.0	37.0
	4	68.1	88.7	37.0	78.0	76.0	74.0	73.0	67.0	59.0	40.0	38.0	37.0
	5	72.6	95.1	38.8	81.0	80.0	78.0	76.0	73.0	68.0	54.0	48.0	41.0
	6	74.3	94.0	42.0	82.0	81.0	79.0	78.0	75.0	71.0	59.0	55.0	48.0
Day	7	73.8	87.6	44.0	81.0	80.0	79.0	78.0	75.0	70.0	58.0	56.0	50.0
	8	74.2	97.6	43.2	82.0	80.0	79.0	77.0	74.0	70.0	58.0	54.0	48.0
	9	71.9	87.4	43.5	81.0	80.0	77.0	76.0	72.0	67.0	56.0	53.0	47.0
	10	70.2	85.2	44.5	79.0	77.0	75.0	74.0	71.0	66.0	54.0	51.0	46.0
	11	70.2	89.1	43.4	79.0	78.0	75.0	74.0	70.0	65.0	54.0	51.0	47.0
	12	70.7	88.8	43.5	80.0	78.0	76.0	75.0	71.0	66.0	53.0	50.0	47.0
	13	70.4	86.3	44.1	79.0	77.0	76.0	74.0	71.0	66.0	53.0	50.0	47.0
	14	70.9	87.5	44.8	80.0	78.0	76.0	75.0	71.0	67.0	54.0	51.0	46.0
	15	72.1	92.3	45.9	81.0	79.0	77.0	76.0	72.0	67.0	56.0	52.0	47.0
	16	73.1	92.3	49.0	81.0	79.0	78.0	77.0	73.0	69.0	58.0	55.0	51.0
	17	73.1	94.9	46.9	82.0	80.0	78.0	77.0	73.0	69.0	57.0	53.0	50.0
	18	70.7	88.0	46.1	79.0	78.0	76.0	75.0	71.0	67.0	55.0	53.0	49.0
	19	70.1	89.8	45.0	79.0	77.0	75.0	74.0	70.0	65.0	53.0	51.0	48.0
	20	70.5	93.6	45.5	80.0	77.0	75.0	73.0	69.0	64.0	52.0	50.0	47.0
	21	68.0	82.6	45.8	76.0	75.0	73.0	72.0	69.0	63.0	50.0	48.0	46.0
Night	22	67.1	86.4	43.7	76.0	75.0	73.0	71.0	67.0	60.0	48.0	46.0	45.0
	23	67.3	90.1	41.5	78.0	75.0	72.0	71.0	64.0	55.0	45.0	44.0	42.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name:	Vantage Point Church	*JN:*	10283	*Energy Average Leq*		*24-Hour*
Location:	L5 - Located south of the Project site adjacent to an existing home on Kendra Lane.	*Analyst:*	A. Wolfe	*Day*	*Night*	*CNEL*
		Date:	6/1/2016	63.3	60.9	68.0

Hourly Leq dBA Readings (unadjusted)



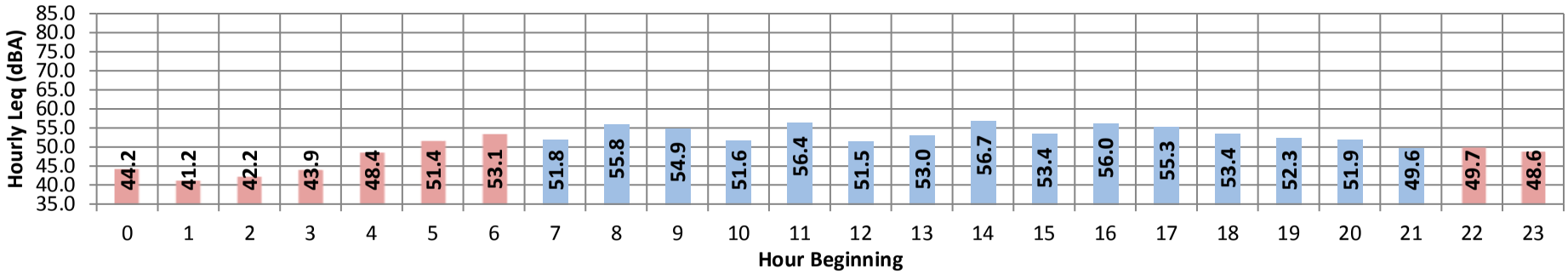
Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	59.9	74.5	37.9	68.0	67.0	65.0	64.0	61.0	55.0	46.0	44.0	42.0
	Max	65.6	88.8	44.8	74.0	72.0	70.0	69.0	67.0	63.0	52.0	49.0	47.0
Energy Average:		63.3	Average:		71.8	69.9	67.7	66.6	63.2	58.9	48.7	46.8	44.3
Night	Min	50.6	69.6	37.8	63.0	61.0	56.0	53.0	44.0	41.0	38.0	38.0	38.0
	Max	66.0	83.5	43.1	75.0	72.0	70.0	69.0	66.0	63.0	51.0	48.0	44.0
Energy Average:		60.9	Average:		69.0	66.4	63.3	61.3	54.4	49.6	43.6	42.2	40.7
Hourly Summary													
Night	0	53.9	75.6	39.6	65.0	63.0	60.0	57.0	47.0	44.0	42.0	41.0	40.0
	1	50.6	69.6	37.9	63.0	61.0	56.0	53.0	45.0	42.0	40.0	39.0	38.0
	2	52.3	75.3	37.8	65.0	62.0	57.0	54.0	44.0	41.0	38.0	38.0	38.0
	3	55.2	74.6	41.3	67.0	65.0	61.0	58.0	49.0	44.0	43.0	42.0	41.0
	4	60.6	77.6	37.9	71.0	69.0	67.0	65.0	59.0	51.0	40.0	39.0	38.0
	5	65.1	83.5	39.8	74.0	71.0	70.0	69.0	65.0	61.0	49.0	45.0	41.0
	6	66.0	83.1	41.9	75.0	72.0	70.0	69.0	66.0	63.0	51.0	48.0	44.0
Day	7	65.6	80.8	37.9	73.0	71.0	70.0	69.0	67.0	63.0	52.0	49.0	42.0
	8	65.0	84.8	40.3	74.0	72.0	69.0	68.0	65.0	62.0	51.0	48.0	44.0
	9	63.5	77.6	42.1	73.0	71.0	69.0	68.0	64.0	59.0	48.0	46.0	43.0
	10	61.9	78.2	43.6	70.0	69.0	67.0	66.0	62.0	58.0	49.0	47.0	45.0
	11	61.7	76.4	42.2	71.0	69.0	67.0	66.0	62.0	57.0	47.0	46.0	44.0
	12	61.1	79.0	41.2	70.0	68.0	66.0	65.0	61.0	57.0	46.0	44.0	42.0
	13	61.9	79.1	41.0	72.0	70.0	67.0	65.0	62.0	57.0	47.0	45.0	43.0
	14	62.6	77.3	41.8	71.0	69.0	67.0	66.0	63.0	59.0	49.0	47.0	44.0
	15	64.1	80.6	43.6	73.0	71.0	69.0	67.0	64.0	61.0	50.0	48.0	46.0
	16	65.3	88.8	44.8	74.0	71.0	69.0	68.0	65.0	62.0	51.0	49.0	47.0
	17	64.8	85.4	44.7	73.0	72.0	69.0	68.0	65.0	62.0	51.0	49.0	46.0
	18	63.2	83.2	43.8	72.0	70.0	68.0	67.0	64.0	59.0	49.0	47.0	45.0
	19	62.6	86.2	43.6	71.0	69.0	67.0	66.0	62.0	57.0	48.0	46.0	45.0
	20	62.1	82.3	44.2	72.0	69.0	67.0	66.0	61.0	55.0	47.0	46.0	45.0
	21	59.9	74.5	43.8	68.0	67.0	65.0	64.0	61.0	55.0	46.0	45.0	44.0
Night	22	60.1	80.9	43.1	70.0	67.0	65.0	64.0	59.0	52.0	45.0	45.0	44.0
	23	59.0	77.5	41.9	71.0	68.0	64.0	63.0	56.0	48.0	44.0	43.0	42.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Project Name:	Vantage Point Church	*JN:*	10283	*Energy Average Leq*		*24-Hour*
Location:	L6 - Located south of the Project site near existing residential homes and the southern Project site boundary.	*Analyst:*	A. Wolfe	*Day*	*Night*	*CNEL*
		Date:	6/1/2016	54.1	48.6	56.7

Hourly Leq dBA Readings (unadjusted)



Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	49.6	62.3	37.2	57.0	56.0	53.0	52.0	49.0	47.0	42.0	41.0	39.0
	Max	56.7	82.1	45.0	72.0	64.0	60.0	58.0	55.0	52.0	48.0	47.0	46.0
Energy Average:		54.1	Average:		63.8	60.4	56.9	55.1	51.6	49.0	44.5	43.6	42.4
Night	Min	41.2	57.9	36.6	51.0	49.0	45.0	43.0	40.0	38.0	37.0	37.0	37.0
	Max	53.1	71.5	41.9	62.0	60.0	58.0	56.0	53.0	50.0	43.0	43.0	42.0
Energy Average:		48.6	Average:		56.4	54.3	51.3	49.7	45.8	43.0	39.6	39.2	38.3
Hourly Summary													
Night	0	44.2	65.8	37.6	52.0	51.0	49.0	47.0	43.0	41.0	39.0	39.0	38.0
	1	41.2	57.9	37.1	51.0	49.0	45.0	43.0	40.0	38.0	37.0	37.0	37.0
	2	42.2	60.4	36.9	52.0	50.0	47.0	45.0	40.0	38.0	37.0	37.0	37.0
	3	43.9	61.0	36.6	54.0	51.0	49.0	48.0	42.0	39.0	37.0	37.0	37.0
	4	48.4	66.2	37.1	59.0	57.0	53.0	51.0	47.0	42.0	37.0	37.0	37.0
	5	51.4	70.2	37.1	60.0	58.0	56.0	54.0	51.0	48.0	41.0	40.0	37.0
	6	53.1	71.5	37.2	62.0	60.0	58.0	56.0	53.0	50.0	43.0	41.0	39.0
Day	7	51.8	66.9	37.2	60.0	58.0	56.0	55.0	52.0	49.0	42.0	41.0	39.0
	8	55.8	79.0	38.5	69.0	64.0	59.0	57.0	51.0	48.0	42.0	41.0	40.0
	9	54.9	81.1	40.0	69.0	63.0	57.0	55.0	51.0	48.0	43.0	42.0	40.0
	10	51.6	68.3	41.0	61.0	59.0	56.0	54.0	51.0	48.0	44.0	43.0	42.0
	11	56.4	80.1	40.1	72.0	61.0	57.0	55.0	50.0	47.0	43.0	42.0	41.0
	12	51.5	72.4	39.7	61.0	59.0	54.0	52.0	49.0	47.0	43.0	42.0	41.0
	13	53.0	73.5	41.1	62.0	60.0	57.0	55.0	51.0	49.0	44.0	43.0	42.0
	14	56.7	82.1	41.8	71.0	64.0	59.0	56.0	52.0	50.0	45.0	44.0	43.0
	15	53.4	68.6	43.1	62.0	60.0	58.0	56.0	53.0	51.0	46.0	45.0	44.0
	16	56.0	79.9	45.0	64.0	63.0	60.0	58.0	55.0	52.0	48.0	47.0	46.0
	17	55.3	76.1	43.4	65.0	62.0	59.0	57.0	54.0	52.0	48.0	47.0	44.0
	18	53.4	73.1	43.8	62.0	60.0	57.0	56.0	53.0	50.0	46.0	45.0	45.0
	19	52.3	75.0	42.8	60.0	58.0	56.0	55.0	52.0	49.0	45.0	44.0	43.0
	20	51.9	72.5	43.0	62.0	59.0	55.0	53.0	50.0	48.0	44.0	44.0	43.0
	21	49.6	62.3	42.5	57.0	56.0	53.0	52.0	50.0	47.0	44.0	44.0	43.0
Night	22	49.7	70.5	41.9	59.0	57.0	53.0	52.0	49.0	46.0	43.0	43.0	42.0
	23	48.6	67.2	40.1	59.0	56.0	52.0	51.0	47.0	45.0	42.0	42.0	41.0

URBAN CROSSROADS

APPENDIX 6.1:

SITE PLAN

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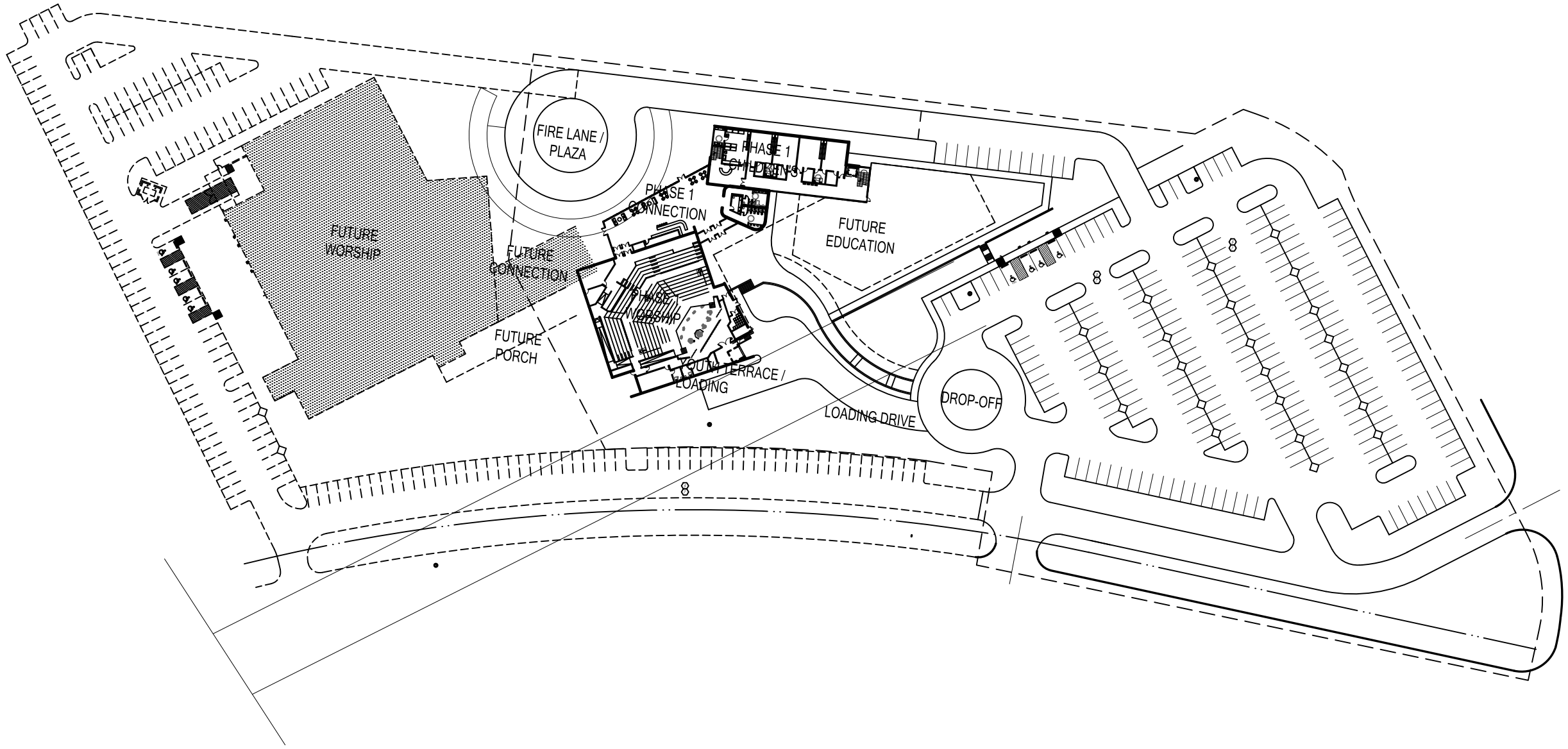
EASEMENTS

(5) AN EASEMENT FOR POLES, AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT RECORDED JANUARY 28, 1954 IN BOOK 1549, PAGE(S) 191 OF OFFICIAL RECORDS, IN FAVOR OF CALIFORNIA ELECTRIC POWER COMPANY.

(7) AN EASEMENT FOR RIGHTS OF WAY, AND RIGHTS INCIDENTAL THERETO, AS SET FORTH IN A DOCUMENT RECORDED FEBRUARY 7, 1992, AS INSTRUMENT NO. 43980 OF OFFICIAL RECORDS, IN FAVOR OF SOUTHERN CALIFORNIA EDISON, A CORPORATION.



PRELIMINARY SITE PLAN

Vantage Point Church
Eastvale, California

Job #:	15270
File Name:	
Date:	2016-04-01
Drawn by:	KLW - LEB

0 50 100 200 Feet

gff

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Hellman Av.	*Job Number:*	10283
Road Segment:	n/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,210	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	221	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-8.51	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-25.75	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-29.70	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:	59.1	57.2	55.4	49.3	58.0	58.6
Medium Trucks:	52.8	51.3	45.0	43.4	51.9	52.1
Heavy Trucks:	53.7	52.3	43.2	44.5	52.8	53.0
Vehicle Noise:	60.9	59.2	56.0	51.3	59.9	60.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	23	49	106
CNEL:	11	24	53	113

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Hellman Av.	*Job Number:*	10283
Road Segment:	s/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-7.97	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-25.21	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-29.17	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:	59.6	57.7	55.9	49.9	58.5	59.1
Medium Trucks:	53.4	51.9	45.5	44.0	52.4	52.7
Heavy Trucks:	54.2	52.8	43.8	45.0	53.4	53.5
Vehicle Noise:	61.4	59.7	56.5	51.9	60.4	60.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	25	53	115
CNEL:	12	27	57	123

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Hellman Av.	*Job Number:*	10283
Road Segment:	n/o Chandler St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,060	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	206	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-8.81	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-26.05	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-30.01	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.5	55.6	53.8	47.7	56.4	57.0
Medium Trucks:	51.2	49.7	43.4	41.8	50.3	50.5
Heavy Trucks:	52.1	50.7	41.6	42.9	51.2	51.3
Vehicle Noise:	59.3	57.6	54.4	49.7	58.3	58.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	23	49	106
CNEL:	11	24	53	113

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	n/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,140 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	814 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.30	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	81.00	-20.54	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-24.50	-1.84	-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:	63.8	61.9	60.2	54.1	62.7	63.4
Medium Trucks:	57.4	55.9	49.5	48.0	56.5	56.7
Heavy Trucks:	57.8	56.4	47.4	48.6	57.0	57.1
Vehicle Noise:	65.5	63.8	60.7	56.0	64.5	65.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	71	152	327
CNEL:	35	76	163	352

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	s/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,140 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	814 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.30	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	81.00	-20.54	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-24.50	-1.84	-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:	63.8	61.9	60.2	54.1	62.7	63.4
Medium Trucks:	57.4	55.9	49.5	48.0	56.5	56.7
Heavy Trucks:	57.8	56.4	47.4	48.6	57.0	57.1
Vehicle Noise:	65.5	63.8	60.7	56.0	64.5	65.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	71	152	327
CNEL:	35	76	163	352

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	n/o Chandler St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,970 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	497 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-5.45	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	81.00	-22.68	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-26.64	-1.84	-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:	61.7	59.8	58.0	52.0	60.6	61.2
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	55.7	54.3	45.2	46.5	54.8	55.0
Vehicle Noise:	63.4	61.6	58.6	53.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	51	109	236
CNEL:	25	55	117	253

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	s/o Chandler St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,980	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	498	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-5.44	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	81.00	-22.67	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-26.63	-1.84	-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:	61.7	59.8	58.0	52.0	60.6	61.2
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	55.7	54.3	45.2	46.5	54.9	55.0
Vehicle Noise:	63.4	61.7	58.6	53.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	51	109	236
CNEL:	25	55	118	253

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	n/o Driveway 1		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	500 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-5.83	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-23.07	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-27.03	-1.84	-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:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	56.3	54.8	48.4	46.9	55.3	55.6
Heavy Trucks:	56.3	54.9	45.9	47.1	55.5	55.6
Vehicle Noise:	64.5	62.7	59.8	54.9	63.4	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	60	129	278
CNEL:	30	64	139	299

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	s/o Corbin Dr.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,330	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	433	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-6.46	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-23.70	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-27.65	-1.84	-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:	62.3	60.4	58.6	52.5	61.2	61.8
Medium Trucks:	55.7	54.2	47.8	46.3	54.7	54.9
Heavy Trucks:	55.7	54.3	45.2	46.5	54.8	55.0
Vehicle Noise:	63.8	62.1	59.1	54.3	62.8	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	25	54	117	252
CNEL:	27	58	126	271

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	River Rd.	*Job Number:*	10283
Road Segment:	n/o Bluff St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,540 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	554 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-5.39	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-22.63	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-26.58	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.6	62.7	60.9	54.9	63.5	64.1
Medium Trucks:	58.0	56.5	50.1	48.6	57.0	57.3
Heavy Trucks:	58.0	56.6	47.6	48.8	57.2	57.3
Vehicle Noise:	66.2	64.4	61.4	56.6	65.1	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	60	129	279
CNEL:	30	65	139	300

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	River Rd.	*Job Number:*	10283
Road Segment:	s/o Bluff St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,110 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	411 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-6.68	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-23.92	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-27.88	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.3	61.4	59.6	53.6	62.2	62.8
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	56.0
Heavy Trucks:	56.7	55.3	46.3	47.5	55.9	56.0
Vehicle Noise:	64.9	63.1	60.1	55.3	63.8	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	49	106	229
CNEL:	25	53	114	246

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Harrison Av.	*Job Number:*	10283
Road Segment:	n/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,680	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	168	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-9.70	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-26.94	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-30.89	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:	57.9	56.0	54.2	48.2	56.8	57.4
Medium Trucks:	51.7	50.1	43.8	42.2	50.7	50.9
Heavy Trucks:	52.5	51.1	42.0	43.3	51.6	51.8
Vehicle Noise:	59.7	58.0	54.8	50.1	58.7	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	41	88
CNEL:	9	20	44	94

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Harrison Av.	*Job Number:*	10283
Road Segment:	s/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,730 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	273 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-7.59	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-24.83	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-28.78	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:	60.0	58.1	56.3	50.3	58.9	59.5
Medium Trucks:	53.8	52.3	45.9	44.3	52.8	53.0
Heavy Trucks:	54.6	53.2	44.1	45.4	53.8	53.9
Vehicle Noise:	61.8	60.1	56.9	52.3	60.8	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	26	57	122
CNEL:	13	28	61	131

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Harrison Av.	*Job Number:*	10283
Road Segment:	n/o Chandler St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,470 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	147 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-10.28	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-27.52	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-31.47	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:	57.3	55.4	53.6	47.6	56.2	56.8
Medium Trucks:	51.1	49.6	43.2	41.7	50.1	50.4
Heavy Trucks:	51.9	50.5	41.5	42.7	51.1	51.2
Vehicle Noise:	59.1	57.4	54.2	49.6	58.1	58.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	8	17	37	81
CNEL:	9	19	40	86

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	w/o Hellman Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,560 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	656 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.78	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-21.02	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.98	-1.84	-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:	61.6	59.7	58.0	51.9	60.5	61.1
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	56.2	54.8	45.8	47.0	55.4	55.5
Vehicle Noise:	63.5	61.7	58.6	53.9	62.4	62.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	51	110	238
CNEL:	26	55	118	255

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	e/o Hellman Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,650	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	765	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.11	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-20.35	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.31	-1.84	-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:	62.3	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	56.1	54.5	48.2	46.6	55.1	55.3
Heavy Trucks:	56.9	55.5	46.4	47.7	56.0	56.2
Vehicle Noise:	64.1	62.4	59.2	54.6	63.1	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	26	57	122	264
CNEL:	28	61	131	283

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	w/o Archibald Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,330 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	833 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.74	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-19.98	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.94	-1.84	-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:	62.7	60.8	59.0	52.9	61.6	62.2
Medium Trucks:	56.4	54.9	48.6	47.0	55.5	55.7
Heavy Trucks:	57.3	55.8	46.8	48.1	56.4	56.5
Vehicle Noise:	64.5	62.8	59.6	54.9	63.5	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	60	130	279
CNEL:	30	64	139	299

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	e/o Archibald Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,050 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	605 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.13	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-21.37	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.33	-1.84	-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:	61.3	59.4	57.6	51.6	60.2	60.8
Medium Trucks:	55.0	53.5	47.2	45.6	54.1	54.3
Heavy Trucks:	55.9	54.5	45.4	46.7	55.0	55.2
Vehicle Noise:	63.1	61.4	58.2	53.5	62.1	62.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	49	105	225
CNEL:	24	52	112	242

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	w/o Harrison Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,320 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	632 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.94	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-21.18	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.14	-1.84	-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:	61.5	59.6	57.8	51.7	60.4	61.0
Medium Trucks:	55.2	53.7	47.4	45.8	54.3	54.5
Heavy Trucks:	56.1	54.7	45.6	46.9	55.2	55.3
Vehicle Noise:	63.3	61.6	58.4	53.7	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	50	108	232
CNEL:	25	54	116	249

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	e/o Harrison Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,740 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	474 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.19	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-22.43	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-26.39	-1.84	-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:	60.2	58.3	56.5	50.5	59.1	59.7
Medium Trucks:	54.0	52.5	46.1	44.6	53.0	53.3
Heavy Trucks:	54.8	53.4	44.4	45.6	54.0	54.1
Vehicle Noise:	62.1	60.3	57.2	52.5	61.0	61.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	19	41	89	192
CNEL:	21	44	95	206

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Chandler St.	*Job Number:*	10283
Road Segment:	e/o Hellman Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,890	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	189	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-9.19	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-26.42	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-30.38	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.1	55.2	53.4	47.4	56.0	56.6
Medium Trucks:	50.9	49.3	43.0	41.4	49.9	50.1
Heavy Trucks:	51.7	50.3	41.2	42.5	50.8	51.0
Vehicle Noise:	58.9	57.2	54.0	49.4	57.9	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	22	46	100
CNEL:	11	23	50	107

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Chandler St.	*Job Number:*	10283
Road Segment:	w/o Archibald Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,480	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	248	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-8.01	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-25.24	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-29.20	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.3	56.4	54.6	48.5	57.2	57.8
Medium Trucks:	52.0	50.5	44.2	42.6	51.1	51.3
Heavy Trucks:	52.9	51.5	42.4	43.7	52.0	52.2
Vehicle Noise:	60.1	58.4	55.2	50.5	59.1	59.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	26	56	120
CNEL:	13	28	60	128

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Chandler St.	*Job Number:*	10283
Road Segment:	e/o Archibald Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,690	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	169	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-9.67	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-26.91	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-30.87	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:	57.9	56.0	54.2	48.2	56.8	57.4
Medium Trucks:	51.7	50.2	43.8	42.3	50.7	51.0
Heavy Trucks:	52.5	51.1	42.1	43.3	51.7	51.8
Vehicle Noise:	59.7	58.0	54.8	50.2	58.7	59.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	41	88
CNEL:	9	20	44	95

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing Without Project	*Project Name:*	Vantage Point Church
Road Name:	Chandler St.	*Job Number:*	10283
Road Segment:	w/o Harrison Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,720	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	172	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-9.60	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-26.83	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-30.79	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:	58.0	56.1	54.3	48.3	56.9	57.5
Medium Trucks:	51.8	50.2	43.9	42.3	50.8	51.0
Heavy Trucks:	52.6	51.2	42.1	43.4	51.7	51.9
Vehicle Noise:	59.8	58.1	54.9	50.2	58.8	59.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	42	89
CNEL:	10	21	45	96

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Hellman Av.	*Job Number:*	10283
Road Segment:	n/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,470	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	247	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-8.02	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-25.26	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-29.22	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:	59.5	57.6	55.9	49.8	58.5	59.1
Medium Trucks:	53.3	51.8	45.5	43.9	52.4	52.6
Heavy Trucks:	54.2	52.7	43.7	45.0	53.3	53.4
Vehicle Noise:	61.4	59.6	56.5	51.8	60.4	60.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	25	53	114
CNEL:	12	26	57	122

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Hellman Av.	*Job Number:*	10283
Road Segment:	s/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,860	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	286	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-7.39	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-24.63	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-28.58	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:	60.2	58.3	56.5	50.5	59.1	59.7
Medium Trucks:	54.0	52.5	46.1	44.5	53.0	53.2
Heavy Trucks:	54.8	53.4	44.3	45.6	54.0	54.1
Vehicle Noise:	62.0	60.3	57.1	52.5	61.0	61.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	27	58	126
CNEL:	13	29	63	135

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Hellman Av.	*Job Number:*	10283
Road Segment:	n/o Chandler St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,540	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	254	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	58	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	64.0	feet
Centerline Dist. to Observer:	64.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-7.90	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-25.14	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-29.10	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.4	56.5	54.7	48.7	57.3	57.9
Medium Trucks:	52.1	50.6	44.3	42.7	51.2	51.4
Heavy Trucks:	53.0	51.6	42.5	43.8	52.1	52.3
Vehicle Noise:	60.2	58.5	55.3	50.6	59.2	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	26	56	122
CNEL:	13	28	61	130

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	n/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	870 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.01	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	81.00	-20.25	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-24.21	-1.84	-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:	64.1	62.2	60.5	54.4	63.0	63.6
Medium Trucks:	57.7	56.2	49.8	48.3	56.8	57.0
Heavy Trucks:	58.1	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	65.8	64.1	61.0	56.3	64.8	65.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	34	74	159	342
CNEL:	37	79	171	368

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	s/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,290	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	929	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.73	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	81.00	-19.97	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-23.92	-1.84	-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:	64.4	62.5	60.8	54.7	63.3	63.9
Medium Trucks:	58.0	56.5	50.1	48.6	57.0	57.3
Heavy Trucks:	58.4	57.0	48.0	49.2	57.6	57.7
Vehicle Noise:	66.1	64.4	61.3	56.5	65.1	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	77	166	357
CNEL:	38	83	178	384

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	n/o Chandler St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,380	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	638	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.36	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	81.00	-21.60	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-25.55	-1.84	-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:	62.8	60.9	59.1	53.1	61.7	62.3
Medium Trucks:	56.4	54.9	48.5	46.9	55.4	55.6
Heavy Trucks:	56.8	55.4	46.3	47.6	55.9	56.1
Vehicle Noise:	64.5	62.7	59.7	54.9	63.5	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	60	129	278
CNEL:	30	64	139	299

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	s/o Chandler St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	790	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.43	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	81.00	-20.67	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-24.63	-1.84	-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:	63.7	61.8	60.1	54.0	62.6	63.2
Medium Trucks:	57.3	55.8	49.4	47.9	56.3	56.6
Heavy Trucks:	57.7	56.3	47.3	48.5	56.9	57.0
Vehicle Noise:	65.4	63.7	60.6	55.8	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	32	69	149	321
CNEL:	34	74	160	345

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	n/o Driveway 1		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,761 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	576 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-5.22	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-22.46	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-26.41	-1.84	-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:	63.5	61.6	59.8	53.8	62.4	63.0
Medium Trucks:	56.9	55.4	49.0	47.5	56.0	56.2
Heavy Trucks:	56.9	55.5	46.5	47.7	56.1	56.2
Vehicle Noise:	65.1	63.3	60.4	55.5	64.1	64.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	66	142	305
CNEL:	33	71	152	328

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Road Segment:	s/o Corbin Dr.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,850	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	485	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-5.97	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-23.20	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-27.16	-1.84	-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:	62.8	60.9	59.1	53.0	61.7	62.3
Medium Trucks:	56.2	54.7	48.3	46.7	55.2	55.4
Heavy Trucks:	56.2	54.8	45.7	47.0	55.3	55.5
Vehicle Noise:	64.3	62.6	59.6	54.8	63.3	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	27	59	126	272
CNEL:	29	63	136	293

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	River Rd.	*Job Number:*	10283
Road Segment:	n/o Bluff St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,930 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	593 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-5.09	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-22.33	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-26.29	-0.60	-1.20	*-5.35*	0.000	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	63.0	61.2	55.1	63.8	64.4
Medium Trucks:	58.3	56.8	50.4	48.9	57.3	57.6
Heavy Trucks:	58.3	56.9	47.9	49.1	57.5	57.6
Vehicle Noise:	66.5	64.7	61.7	56.9	65.4	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	135	292
CNEL:	31	68	146	314

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	River Rd.	*Job Number:*	10283
Road Segment:	s/o Bluff St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,370 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	437 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-6.42	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-23.66	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-27.61	-0.60	-1.20	*-5.35*	0.000	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	61.6	59.9	53.8	62.4	63.1
Medium Trucks:	56.9	55.4	49.1	47.5	56.0	56.2
Heavy Trucks:	57.0	55.6	46.5	47.8	56.1	56.3
Vehicle Noise:	65.1	63.4	60.4	55.5	64.1	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	51	111	238
CNEL:	26	55	119	256

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Harrison Av.	*Job Number:*	10283
Road Segment:	n/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,870 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	187 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-9.23	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-26.47	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-30.43	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:	58.3	56.4	54.7	48.6	57.2	57.8
Medium Trucks:	52.1	50.6	44.2	42.7	51.2	51.4
Heavy Trucks:	53.0	51.5	42.5	43.8	52.1	52.2
Vehicle Noise:	60.2	58.4	55.3	50.6	59.2	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	20	44	95
CNEL:	10	22	47	101

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Harrison Av.	*Job Number:*	10283
Road Segment:	s/o Schleisman Rd.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,090 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	309 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-7.05	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-24.29	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-28.25	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:	60.5	58.6	56.9	50.8	59.4	60.0
Medium Trucks:	54.3	52.8	46.4	44.9	53.3	53.6
Heavy Trucks:	55.1	53.7	44.7	45.9	54.3	54.4
Vehicle Noise:	62.4	60.6	57.5	52.8	61.3	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	28	61	132
CNEL:	14	31	66	142

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Harrison Av.	*Job Number:*	10283
Road Segment:	n/o Chandler St.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,290	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	229	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-8.35	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-25.59	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-29.55	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:	59.2	57.3	55.6	49.5	58.1	58.7
Medium Trucks:	53.0	51.5	45.1	43.6	52.0	52.3
Heavy Trucks:	53.8	52.4	43.4	44.6	53.0	53.1
Vehicle Noise:	61.1	59.3	56.2	51.5	60.0	60.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	23	50	108
CNEL:	12	25	54	116

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	w/o Hellman Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,820	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	682	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.61	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-20.85	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.81	-1.84	-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:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	55.6	54.0	47.7	46.1	54.6	54.8
Heavy Trucks:	56.4	55.0	45.9	47.2	55.5	55.7
Vehicle Noise:	63.6	61.9	58.7	54.1	62.6	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	53	113	244
CNEL:	26	56	122	262

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	e/o Hellman Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,790	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	779	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.04	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-20.27	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.23	-1.84	-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:	62.4	60.5	58.7	52.7	61.3	61.9
Medium Trucks:	56.1	54.6	48.3	46.7	55.2	55.4
Heavy Trucks:	57.0	55.6	46.5	47.8	56.1	56.3
Vehicle Noise:	64.2	62.5	59.3	54.6	63.2	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	27	57	124	267
CNEL:	29	62	133	286

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	w/o Archibald Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	870	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	78	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.56	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-19.79	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.75	-1.84	-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:	62.9	61.0	59.2	53.1	61.8	62.4
Medium Trucks:	56.6	55.1	48.7	47.2	55.7	55.9
Heavy Trucks:	57.5	56.0	47.0	48.3	56.6	56.7
Vehicle Noise:	64.7	62.9	59.8	55.1	63.7	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	62	133	287
CNEL:	31	66	143	308

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	e/o Archibald Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,310 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	631 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.95	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-21.19	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.14	-1.84	-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:	61.5	59.6	57.8	51.7	60.4	61.0
Medium Trucks:	55.2	53.7	47.3	45.8	54.3	54.5
Heavy Trucks:	56.1	54.6	45.6	46.9	55.2	55.3
Vehicle Noise:	63.3	61.6	58.4	53.7	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	50	108	232
CNEL:	25	54	115	249

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	w/o Harrison Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	650 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.82	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-21.06	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.02	-1.84	-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:	61.6	59.7	57.9	51.9	60.5	61.1
Medium Trucks:	55.3	53.8	47.5	45.9	54.4	54.6
Heavy Trucks:	56.2	54.8	45.7	47.0	55.3	55.5
Vehicle Noise:	63.4	61.7	58.5	53.9	62.4	62.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	51	110	236
CNEL:	25	55	118	254

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Schleisman Rd.	*Job Number:*	10283
Road Segment:	e/o Harrison Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,120 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	512 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.86	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	79.45	-22.10	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-26.05	-1.84	-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:	60.5	58.6	56.9	50.8	59.5	60.1
Medium Trucks:	54.3	52.8	46.4	44.9	53.4	53.6
Heavy Trucks:	55.2	53.7	44.7	45.9	54.3	54.4
Vehicle Noise:	62.4	60.6	57.5	52.8	61.4	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	20	43	94	202
CNEL:	22	47	100	216

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Chandler St.	*Job Number:*	10283
Road Segment:	e/o Hellman Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,360 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	236 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-8.22	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-25.46	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-29.42	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.1	56.2	54.4	48.3	57.0	57.6
Medium Trucks:	51.8	50.3	43.9	42.4	50.9	51.1
Heavy Trucks:	52.7	51.2	42.2	43.5	51.8	51.9
Vehicle Noise:	59.9	58.1	55.0	50.3	58.9	59.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	25	54	116
CNEL:	12	27	58	124

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Chandler St.	*Job Number:*	10283
Road Segment:	w/o Archibald Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,040 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	304 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-7.12	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-24.36	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-28.32	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.2	57.3	55.5	49.4	58.1	58.7
Medium Trucks:	52.9	51.4	45.0	43.5	52.0	52.2
Heavy Trucks:	53.8	52.3	43.3	44.6	52.9	53.0
Vehicle Noise:	61.0	59.2	56.1	51.4	60.0	60.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	64	137
CNEL:	15	32	68	147

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Chandler St.	*Job Number:*	10283
Road Segment:	e/o Archibald Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,730	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	273	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-7.59	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-24.83	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-28.78	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:	60.0	58.1	56.3	50.3	58.9	59.5
Medium Trucks:	53.8	52.3	45.9	44.3	52.8	53.0
Heavy Trucks:	54.6	53.2	44.1	45.4	53.8	53.9
Vehicle Noise:	61.8	60.1	56.9	52.3	60.8	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	26	57	122
CNEL:	13	28	61	131

Thursday, June 16, 2016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario:	Existing With Project	*Project Name:*	Vantage Point Church
Road Name:	Chandler St.	*Job Number:*	10283
Road Segment:	w/o Harrison Av.		

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,620 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	262 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*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:	68.46	-7.77	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-25.01	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-28.96	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:	59.8	57.9	56.1	50.1	58.7	59.3
Medium Trucks:	53.6	52.1	45.7	44.2	52.6	52.9
Heavy Trucks:	54.4	53.0	44.0	45.2	53.6	53.7
Vehicle Noise:	61.6	59.9	56.8	52.1	60.6	61.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	26	55	118
CNEL:	13	27	59	127

Thursday, June 16, 2016

APPENDIX 8.1:

ON-SITE TRAFFIC NOISE CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Lot No:	Future Worship	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,310	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	161.0	feet
Centerline Dist. to Observer:	161.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.285
Medium Trucks:	156.228
Heavy Trucks:	156.234

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	3.52	-7.53	-1.20	*-4.82*	0.000	0.000
Medium Trucks:	79.85	-13.72	-7.53	-1.20	*-4.89*	0.000	0.000
Heavy Trucks:	83.81	-17.67	-7.53	-1.20	*-5.06*	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:	67.5	65.6	63.9	57.8	66.4	67.0
Medium Trucks:	57.4	55.9	49.5	48.0	56.5	56.7
Heavy Trucks:	57.4	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	68.3	66.5	64.1	58.6	67.2	67.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	65.6	63.9	57.8	66.4	67.0
Medium Trucks:	57.4	55.9	49.5	48.0	56.5	56.7
Heavy Trucks:	57.4	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	68.3	66.5	64.1	58.6	67.2	67.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Lot No:	Phase 1 Worship	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,310	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	160.0	feet
Centerline Dist. to Observer:	160.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	155.255
Medium Trucks:	155.198
Heavy Trucks:	155.203

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	3.52	-7.48	-1.20	*-4.82*	0.000	0.000
Medium Trucks:	79.85	-13.72	-7.48	-1.20	*-4.89*	0.000	0.000
Heavy Trucks:	83.81	-17.67	-7.48	-1.20	*-5.06*	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:	67.6	65.7	63.9	57.8	66.5	67.1
Medium Trucks:	57.5	55.9	49.6	48.0	56.5	56.7
Heavy Trucks:	57.5	56.0	47.0	48.3	56.6	56.7
Vehicle Noise:	68.3	66.5	64.1	58.7	67.3	67.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.6	65.7	63.9	57.8	66.5	67.1
Medium Trucks:	57.5	55.9	49.6	48.0	56.5	56.7
Heavy Trucks:	57.5	56.0	47.0	48.3	56.6	56.7
Vehicle Noise:	68.3	66.5	64.1	58.7	67.3	67.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Lot No:	Upper Plaza	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,310	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	255.0	feet
Centerline Dist. to Observer:	265.0	feet
Barrier Distance to Observer:	10.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	262.162
Medium Trucks:	262.128
Heavy Trucks:	262.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	3.52	-10.90	-1.20	*-1.11*	0.000	0.000
Medium Trucks:	79.85	-13.72	-10.90	-1.20	*-1.15*	0.000	0.000
Heavy Trucks:	83.81	-17.67	-10.90	-1.20	*-1.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.2	62.3	60.5	54.4	63.1	63.7
Medium Trucks:	54.0	52.5	46.2	44.6	53.1	53.3
Heavy Trucks:	54.0	52.6	43.6	44.8	53.2	53.3
Vehicle Noise:	64.9	63.1	60.7	55.3	63.9	64.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.2	62.3	60.5	54.4	63.1	63.7
Medium Trucks:	54.0	52.5	46.2	44.6	53.1	53.3
Heavy Trucks:	54.0	52.6	43.6	44.8	53.2	53.3
Vehicle Noise:	64.9	63.1	60.7	55.3	63.9	64.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Lot No:	Future Education	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,310	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	248.0	feet
Centerline Dist. to Observer:	248.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	244.965
Medium Trucks:	244.929
Heavy Trucks:	244.933

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	3.52	-10.46	-1.20	*-4.84*	0.000	0.000
Medium Trucks:	79.85	-13.72	-10.45	-1.20	*-4.89*	0.000	0.000
Heavy Trucks:	83.81	-17.67	-10.45	-1.20	*-5.00*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.6	62.7	60.9	54.9	63.5	64.1
Medium Trucks:	54.5	53.0	46.6	45.1	53.5	53.8
Heavy Trucks:	54.5	53.1	44.0	45.3	53.6	53.8
Vehicle Noise:	65.4	63.5	61.2	55.7	64.3	64.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.6	62.7	60.9	54.9	63.5	64.1
Medium Trucks:	54.5	53.0	46.6	45.1	53.5	53.8
Heavy Trucks:	54.5	53.1	44.0	45.3	53.6	53.8
Vehicle Noise:	65.4	63.5	61.2	55.7	64.3	64.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Lot No:	Future Worship	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,310	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	161.0	feet
Centerline Dist. to Observer:	161.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.831
Medium Trucks:	156.643
Heavy Trucks:	156.320

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	3.52	-7.55	-1.20	*-13.10*	0.000	0.000
Medium Trucks:	79.85	-13.72	-7.54	-1.20	*-13.30*	0.000	0.000
Heavy Trucks:	83.81	-17.67	-7.53	-1.20	*-13.78*	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:	67.5	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	57.4	55.9	49.5	48.0	56.4	56.7
Heavy Trucks:	57.4	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	68.3	66.4	64.1	58.6	67.2	67.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	57.4	55.9	49.5	48.0	56.4	56.7
Heavy Trucks:	57.4	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	68.3	66.4	64.1	58.6	67.2	67.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Lot No:	Phase 1 Worship	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,310	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	160.0	feet
Centerline Dist. to Observer:	160.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	155.804
Medium Trucks:	155.615
Heavy Trucks:	155.290

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	3.52	-7.51	-1.20	*-13.10*	0.000	0.000
Medium Trucks:	79.85	-13.72	-7.50	-1.20	*-13.30*	0.000	0.000
Heavy Trucks:	83.81	-17.67	-7.49	-1.20	*-13.78*	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:	67.5	65.6	63.9	57.8	66.4	67.0
Medium Trucks:	57.4	55.9	49.6	48.0	56.5	56.7
Heavy Trucks:	57.5	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	68.3	66.5	64.1	58.7	67.3	67.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	65.6	63.9	57.8	66.4	67.0
Medium Trucks:	57.4	55.9	49.6	48.0	56.5	56.7
Heavy Trucks:	57.5	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	68.3	66.5	64.1	58.7	67.3	67.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Lot No:	Upper Plaza	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,310	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	255.0	feet
Centerline Dist. to Observer:	265.0	feet
Barrier Distance to Observer:	10.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	262.488
Medium Trucks:	262.376
Heavy Trucks:	262.183

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	3.52	-10.91	-1.20	*-6.69*	0.000	0.000
Medium Trucks:	79.85	-13.72	-10.90	-1.20	*-6.81*	0.000	0.000
Heavy Trucks:	83.81	-17.67	-10.90	-1.20	*-7.11*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.1	62.2	60.5	54.4	63.0	63.7
Medium Trucks:	54.0	52.5	46.2	44.6	53.1	53.3
Heavy Trucks:	54.0	52.6	43.6	44.8	53.2	53.3
Vehicle Noise:	64.9	63.1	60.7	55.3	63.9	64.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.1	62.2	60.5	54.4	63.0	63.7
Medium Trucks:	54.0	52.5	46.2	44.6	53.1	53.3
Heavy Trucks:	54.0	52.6	43.6	44.8	53.2	53.3
Vehicle Noise:	64.9	63.1	60.7	55.3	63.9	64.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	Vantage Point Church
Road Name:	Archibald Av.	*Job Number:*	10283
Lot No:	Future Education	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,310	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	78	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	248.0	feet
Centerline Dist. to Observer:	248.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	14.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Barrier Elevation:	0.0	feet
Road Grade:	0.0%	

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	245.314
Medium Trucks:	245.194
Heavy Trucks:	244.988

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	72.73	3.52	-10.46	-1.20	*-13.31*	0.000	0.000
Medium Trucks:	79.85	-13.72	-10.46	-1.20	*-13.44*	0.000	0.000
Heavy Trucks:	83.81	-17.67	-10.46	-1.20	*-13.75*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.6	62.7	60.9	54.9	63.5	64.1
Medium Trucks:	54.5	53.0	46.6	45.1	53.5	53.8
Heavy Trucks:	54.5	53.1	44.0	45.3	53.6	53.8
Vehicle Noise:	65.4	63.5	61.2	55.7	64.3	64.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.6	62.7	60.9	54.9	63.5	64.1
Medium Trucks:	54.5	53.0	46.6	45.1	53.5	53.8
Heavy Trucks:	54.5	53.1	44.0	45.3	53.6	53.8
Vehicle Noise:	65.4	63.5	61.2	55.7	64.3	64.8

APPENDIX 10.1:

OPERATIONAL NOISE CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R1**
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	336.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	336.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	336.0	-36.5	-36.5	-36.5	-36.5	-36.5	-36.5
Shielding (Barrier Attenuation)	336.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		40.7	-36.5	-36.5	-36.5	-36.5	-36.5
39 Minute Hourly Adjustment		**38.8**	**-38.4**	**-38.4**	**-38.4**	**-38.4**	**-38.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R1**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	142.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	142.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	62.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	142.0	-21.8	-21.8	-21.8	-21.8	-21.8	-21.8
Shielding (Barrier Attenuation)	142.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		41.1	-21.8	-21.8	-21.8	-21.8	-21.8
60 Minute Hourly Adjustment		**41.1**	**-21.8**	**-21.8**	**-21.8**	**-21.8**	**-21.8**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R2**
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	291.0 feet		***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	281.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	291.0	-35.3	-35.3	-35.3	-35.3	-35.3	-35.3
Shielding (Barrier Attenuation)	281.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
Raw (Distance + Barrier)		37.0	-40.2	-40.2	-40.2	-40.2	-40.2
39 Minute Hourly Adjustment		**35.1**	**-42.1**	**-42.1**	**-42.1**	**-42.1**	**-42.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R2**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	184.0 feet		***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	174.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	62.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	184.0	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Shielding (Barrier Attenuation)	174.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		33.9	-29.0	-29.0	-29.0	-29.0	-29.0
60 Minute Hourly Adjustment		**33.9**	**-29.0**	**-29.0**	**-29.0**	**-29.0**	**-29.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R3**
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	312.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	302.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	312.0	-35.9	-35.9	-35.9	-35.9	-35.9	-35.9
Shielding (Barrier Attenuation)	302.0	-5.1	-5.1	-5.1	-5.1	-5.1	-5.1
Raw (Distance + Barrier)		36.2	-41.0	-41.0	-41.0	-41.0	-41.0
39 Minute Hourly Adjustment		**34.3**	**-42.9**	**-42.9**	**-42.9**	**-42.9**	**-42.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R3**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	168.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	158.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	62.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	168.0	-22.9	-22.9	-22.9	-22.9	-22.9	-22.9
Shielding (Barrier Attenuation)	158.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		34.5	-28.4	-28.4	-28.4	-28.4	-28.4
60 Minute Hourly Adjustment		**34.5**	**-28.4**	**-28.4**	**-28.4**	**-28.4**	**-28.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R3**
Source: Play Area Activity
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	362.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	352.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	4.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	362.0	-39.1	-39.1	-39.1	-39.1	-39.1	-39.1
Shielding (Barrier Attenuation)	352.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		18.8	-44.6	-44.6	-44.6	-44.6	-44.6
60 Minute Hourly Adjustment		**18.8**	**-44.6**	**-44.6**	**-44.6**	**-44.6**	**-44.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R4**
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	706.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	696.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	706.0	-43.0	-43.0	-43.0	-43.0	-43.0	-43.0
Shielding (Barrier Attenuation)	696.0	-5.3	-5.3	-5.3	-5.3	-5.3	-5.3
Raw (Distance + Barrier)		28.9	-48.3	-48.3	-48.3	-48.3	-48.3
39 Minute Hourly Adjustment		**27.0**	**-50.2**	**-50.2**	**-50.2**	**-50.2**	**-50.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R4**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	257.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	247.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	62.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	257.0	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
Shielding (Barrier Attenuation)	247.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		31.7	-31.2	-31.2	-31.2	-31.2	-31.2
60 Minute Hourly Adjustment		**31.7**	**-31.2**	**-31.2**	**-31.2**	**-31.2**	**-31.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R4**
Source: Play Area Activity
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	726.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	716.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	4.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	726.0	-45.2	-45.2	-45.2	-45.2	-45.2	-45.2
Shielding (Barrier Attenuation)	716.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		12.7	-50.7	-50.7	-50.7	-50.7	-50.7
60 Minute Hourly Adjustment		**12.7**	**-50.7**	**-50.7**	**-50.7**	**-50.7**	**-50.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R5**
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	744.0 feet		***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	734.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	744.0	-43.5	-43.5	-43.5	-43.5	-43.5	-43.5
Shielding (Barrier Attenuation)	734.0	-5.3	-5.3	-5.3	-5.3	-5.3	-5.3
Raw (Distance + Barrier)		28.4	-48.8	-48.8	-48.8	-48.8	-48.8
39 Minute Hourly Adjustment		**26.5**	**-50.7**	**-50.7**	**-50.7**	**-50.7**	**-50.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R5**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	214.0 feet		***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	204.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	62.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	214.0	-24.5	-24.5	-24.5	-24.5	-24.5	-24.5
Shielding (Barrier Attenuation)	204.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		32.9	-30.0	-30.0	-30.0	-30.0	-30.0
60 Minute Hourly Adjustment		**32.9**	**-30.0**	**-30.0**	**-30.0**	**-30.0**	**-30.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R5**
Source: Play Area Activity
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	795.0 feet		***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	785.0 feet		*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	10.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	4.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	795.0	-46.0	-46.0	-46.0	-46.0	-46.0	-46.0
Shielding (Barrier Attenuation)	785.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		11.9	-51.5	-51.5	-51.5	-51.5	-51.5
60 Minute Hourly Adjustment		**11.9**	**-51.5**	**-51.5**	**-51.5**	**-51.5**	**-51.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R6**
Source: Roof-Top Air Conditioning Units
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	678.0 feet		***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	678.0 feet		*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet		*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet		*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet		*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	678.0	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6
Shielding (Barrier Attenuation)	678.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.6	-42.6	-42.6	-42.6	-42.6	-42.6
39 Minute Hourly Adjustment		**32.7**	**-44.5**	**-44.5**	**-44.5**	**-44.5**	**-44.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R6**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	218.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	218.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	62.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	218.0	-24.6	-24.6	-24.6	-24.6	-24.6	-24.6
Shielding (Barrier Attenuation)	218.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		38.3	-24.6	-24.6	-24.6	-24.6	-24.6
60 Minute Hourly Adjustment		**38.3**	**-24.6**	**-24.6**	**-24.6**	**-24.6**	**-24.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

6/20/2016

Observer Location: **R6**
Source: Play Area Activity
Condition: Operational

Project Name: Vantage Point Church
Job Number: 10283
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	752.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	752.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	4.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	752.0	-45.5	-45.5	-45.5	-45.5	-45.5	-45.5
Shielding (Barrier Attenuation)	752.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		17.9	-45.5	-45.5	-45.5	-45.5	-45.5
60 Minute Hourly Adjustment		**17.9**	**-45.5**	**-45.5**	**-45.5**	**-45.5**	**-45.5**