Appendix 9
Noise Technical Memo

TECHNICAL MEMORANDUM

DATE	September 18, 2014
TO	Sycamore Academy of Science and Cultural Arts
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FROM	Natalie Foley, Noise Specialist Fernando Sotelo, INCE, Senior Associate
SUBJECT	Noise and Vibration Technical Memorandum for the Proposed Sycamore Academy at 23151 Palomar Street in the City of Wildomar.
PROJECT NUMBER	SASC-01.2

This technical memorandum has been prepared to analyze potential noise and vibration impacts from the development and operation of the Sycamore Academy project. It evaluates the potential impacts from project-related construction and operation activities according to the noise and vibration criteria established by the State of California and the City of Wildomar.

Project Location and Description

The approximately 9.7-acre project site is at 23151 Palomar Street in the City of Wildomar. The proposed project would construct four "barn door" styled classroom buildings that would provide 22,560 building square feet of classroom space. The proposed project site plan is presented in Figure 1. An administration building of 2,350 building square feet and a multipurpose building of 2,940 square feet would also be built. In addition to the school buildings, the school campus would have a central landscaped courtyard, hardcourts and play area, and an outdoor amphitheater. The proposed natural turf field would encompass the southwestern half of the project site. Overall, the proposed school would accommodate approximately 594 K–8 students.

The project site is bounded by the adjacent World Harvest Church to the west, single-family residences and open space across Palomar Street to the north, open space to the east, and residences to the south. Figure 2 shows the location of the nearest sensitive receptors in the vicinity of the project site.

Noise and Vibration Setting

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

NOISE TERMINOLOGY AND DESCRIPTORS

The following are brief definitions of terminology used in this chapter:

Sound. A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

Noise. Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

Decibel (dB). A unitless measure of sound on a logarithmic scale.

A-Weighted Decibel (dBA). An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

Equivalent Continuous Noise Level (L_{eq}). The mean of the noise level, energy-averaged over the measurement period.

Community Noise Equivalent Level (CNEL). The energy-average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added during the period from 7:00 PM to 10:00 PM and 10 dB added during the period from 10:00 PM to 7:00 AM.

CHARACTERISTICS OF SOUND

When an object vibrates, it radiates part of its energy as acoustical pressure in the form of a sound wave. Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate the human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The normal range of human hearing extends from approximately 0 dBA (the threshold of detection) to 140 dBA (the threshold of pain).

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels.

Table 1 Change in Apparent Loudness

± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: Bies and Hansen 2009.

Sound is generated from a source and the decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as spreading loss or distance attenuation.

When sound is measured for distinct time intervals, the statistical distribution of the overall sound level during that period can be obtained. For example, L_{50} is the noise level that is exceeded 50 percent of the

time: half the time the noise exceeds this level and half the time it is less than this level. From a time perspective, this is the level that is exceeded 30 minutes in any given hour. Similarly, the L_{02}, L_{08}, and L_{25} values are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. The energy-equivalent sound level (L_{eq}) is the most common parameter associated with community noise measurements. The L_{eq} metric is a single-number noise descriptor of the energy-average sound level over a given period of time. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values are the minimum and maximum root-mean-square (RMS) noise levels, respectively, obtained over the stated measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and nighttime hours, state law requires that, for planning purposes and to account for this increased receptiveness of noise, an artificial decibel increment is to be added to quiet-time noise levels to calculate the 24-hour CNEL noise metric. These adjustment increments are +5 dB for sound levels between 7:00 PM to 10:00 PM and +10 dB between 10:00 PM and the following 7:00 AM.

PSYCHOLOGICAL AND PHYSIOLOGICAL EFFECTS OF NOISE

Exposure to high noise levels can affect the entire physiological system, with prolonged noise exposure in excess of 75 dBA increasing tension responses, thereby affecting blood pressure, heart performance, and nervous system functionality. Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in annoyance and interference (e.g., speech interruption/masking, sleep disturbance, hindrance of concentration).

Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level (SPL) number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from common sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans 2009.

VIBRATION TERMINOLOGY AND DESCRIPTORS

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities such as railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. Vibration displacement is the distance that a point on a surface moves from its original static position. The instantaneous speed that a point on a surface moves is the velocity, and the rate of change of the speed is the acceleration. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During project construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure. These types of vibration are best measured and described in terms of velocity and acceleration.

The three main types of waves associated with groundborne vibrations are surface or Rayleigh waves, compression or P-waves, and shear or S-waves.

» Surface or Rayleigh waves travel along the ground surface. They carry most of their energy along an expanding *cylindrical* wave front, similar to the ripples produced by throwing a rock into a lake. The particle motion is more or less perpendicular to the direction of propagation.

» Compression or P-waves are body waves that carry their energy along an expanding *spherical* wave front. The particle motion in these waves is longitudinal, in a push-pull motion. P-waves are analogous to airborne sound waves.

» Shear or S-waves are also body waves, carrying their energy along an expanding *spherical* wave front. Unlike P-waves, however, the particle motion is transverse, or perpendicular to the direction of propagation.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the

square root of the average of the squared amplitude of the signal. PPV and RMS are related to each other by the signal's crest factor. PPV is more appropriate for evaluating potential building damage, and RMS is typically more suitable for evaluating human response.

The units for PPV and RMS velocity are normally inches per second (in/sec). Often vibration is presented and discussed in dB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV and RMS velocity levels are in in/sec and all vibration levels are in dB relative to one microinch per second (abbreviated as VdB). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Even the more persistent Rayleigh waves decrease relatively quickly as they move away from the source of the vibration. Man-made vibration problems are, therefore, usually confined to short distances (500 to 600 feet or less) from the source (FTA 2006).

Construction operations generally include a wide range of activities that can generate groundborne vibration. In general, blasting and demolition of structures generate the highest vibrations. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary, depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, and differential settlement of pavement all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions. Trains generate substantial quantities of vibration due to their wheel-rail interactions, steel wheels, heavy loads, and engine operations.

Noise-Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration, including residential, school, hospital, places of worship, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety. The project site is currently undeveloped and vacant. The nearest noise-sensitive uses are single-family residences across Palomar Street along Harwood Lane and Wing Elm Circle to the north, and other scattered surrounding residences to the northeast, east, south, and west. For the purpose of this analysis, World Harvest Church is not considered noise sensitive since services and gatherings would take place on Sundays and evenings, outside of construction hours and the hours of operation of Sycamore Academy.

Existing Noise Environment

The project site is currently vacant. The densest residential properties are to the north across Palomar Street. Other surrounding residences are scattered, at varying distances from the project site, and do not have fences or sound walls separating them from the project location.

A measurement was taken by PlaceWorks staff to gain a representation of the typical sound level at the project location. The sound level meter was placed on the property line adjacent to World Harvest Church, approximately 100 feet from the curb of Palomar Street. Noise monitoring was performed using Larson-Davis Model 820 integrating/logging Sound Level Meter. The measurement instrument conforms to industry standards for Type I precision. The meter was field calibrated immediately prior to the first set of readings. The measurement began at 2:51 PM on Wednesday, September 10, 2014, and lasted for 15 minutes. Table 3 lists the measured existing noise level at the project site. Time history, Leq calculations, and field notes are included in Appendix A.

Table 3 Existing Noise Levels

Measurement	Location	Leq (dBA)	Lmax (dBA)
ST-1	Northwest property line, 100	52.1	64.8

Notes: Measurement taken by PlaceWorks staff on Wednesday, September 10, 2014, at 2:51 PM.
Noise measurement detailed output included in the Appendix A.

According to the noise measurement results presented in Table 3, the northern portion of the site adjacent to Palomar Street, during typical weekday afternoon traffic conditions, is exposed to daytime noise levels of up to 64.8 dBA L_{max}, with average levels around 52.1 dBA L_{eq}.

Regulatory Setting

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal, state, and local agencies have established standards and ordinances to control noise. Potential noise and vibration impacts were evaluated based on the City of Wildomar Municipal Code and General Plan to determine whether significant adverse noise and vibration impacts would result from construction and operation of the proposed project. The City's Noise Element and Noise Ordinance are included in Appendix B.

APPLICABLE REGULATIONS

State of California

The State of California's noise insulation standards are codified in the California Building Standards Code. These noise standards are for new construction in California for the purposes of interior compatibility with exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential, schools, or hospitals, are near major transportation noises, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Title 24 of the California Code of Regulations (California Building Standards Code) requires school buildings to be designed to prevent the intrusion of exterior noise so that the interior community equivalent noise level (CNEL) attributable to exterior sources does not exceed 45 A-weighted decibels (dBA) in any school.

City of Wildomar Noise Element

The City of Wildomar currently relies on the Riverside County General Plan. The City is in the process of preparing its first General Plan, and a draft Noise Element was available at the time of the preparation of this analysis. Noise Element Policy N-14 requires that an acoustical specialist prepare a study for noise-sensitive areas where existing or projected exterior sound levels exceed 65 dBA CNEL.

Consistent with the County of Riverside Noise Element, the City's draft Noise Element provides a table for maximum residential sound levels measured as a 10-minute Leq. According to Policy N-16, Action N16-3, maximum noise levels not to be exceeded at a property line of a residential use are 65 dBA from 7 AM to 10 PM and 45 dBA from 10 PM to 7 AM. The Noise Element does not specify sound levels for other land uses.

Municipal Code

The City regulates noise through the City of Wildomar Municipal Code. Chapter 9.48 of the Municipal Code sets noise standards to protect the health, safety, and general welfare of Wildomar residents. However, it should be noted that these standards are derived from outdated standards of the County of Riverside. The county has modified its standards and is enforcing noise through the standards in its General Plan, which are consistent with the 65 dBA Leq daytime, and 45 dBA Leq nighttime noise standard described above. In addition, the City of Wildomar is currently updating its stationary noise standards through implementation of its General Plan per Policy N-16, as discussed above.

The City exempts schools from these noise standards, but for the purpose of CEQA analysis, the 65/45 dBA Leq standards are adopted to evaluate impact significance.

CONSTRUCTION NOISE

Section 9.48.020 prohibits construction activities during the hours between 6:00 PM and 6:00 AM during the months of June through September, and the hours between 6:00 PM and 7:00 AM during the months of October through May, if the construction is within one-quarter of a mile of an inhabited dwelling. Private construction projects one-quarter of a mile or more from an inhabited dwelling are exempt from noise regulations. For construction-related exceptions, an application shall be made to and considered by the Director of Building and Safety (Section 9.48.070).

Vibration

The Wildomar Municipal Code does not have any vibration standards. For the purpose of this analysis and consistent with common practice in the industry, the standards adopted by the Federal Transit Administration (FTA) to evaluate vibration from construction equipment are utilized. According to the FTA Noise and Vibration Impact Guidelines (FTA 2006), vibrations generated by project-related construction activities exceeding 0.2 peak particle velocity (PPV) in inches per second (in/sec) would be strong enough to cause vibration-induced architectural damage to typical wood-framed buildings. Residents in nearby structures may experience vibration-induced annoyance when project-related construction activities exceed the FTA's daytime vibration criteria of 78 VdB (vibration decibel).

Methodology

This noise technical study has been prepared to analyze potential short-term construction and long-term operational noise impacts related to the project. This technical study evaluated potential temporary noise and vibration impacts during construction of at the project site and evaluated long-term transportation and stationary noise impacts associated with the operation of the project. This study was prepared to meet noise criteria in the City of Wildomar Noise Element and Municipal Code.

THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would result in:

N-1 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.

N-2 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

N-3 A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

N-4 A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

N-5 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.

N-6 For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Traffic Noise Thresholds

Neither CEQA nor the City defines the magnitude of the increase in the ambient noise level at noise-sensitive receptors that would be considered to be a substantial increase. The traffic noise thresholds are based on human tolerance to noise (see Table 1) and are widely used for assessing traffic noise impacts. In general, people tend to compare intruding noise with the existing background noise. If the new noise is readily identifiable or considerably louder than the background, it has the potential to be objectionable or annoying (Caltrans 2009). Perceptible increases in noise levels generally refer to a change of 3 dBA or more, since this level has been found to be the perceptibility threshold for exterior noise environments. Barely perceptible noise increases refer to a change of between 1 and 3 dBA. This range of noise levels was found to be noticeable to sensitive people in laboratory environments. Noise increases of less than 1 dBA are typically inaudible to the human ear except under very quiet conditions in controlled environments.

In general, human sound perception is such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving of sound level. Only audible changes of 3 dBA or greater at sensitive receptors are considered potentially significant when noise levels exceed the compatibility criteria in Policy N-5 of the draft General Plan Noise Element. Project-related traffic noise would be substantial when the ambient noise environment along the roadway segments in the project's study area under with-project conditions increases by 3 dBA and exceeds 65 dBA CNEL.

Stationary Noise Thresholds

Consistent with the County of Riverside Noise Element, the City's draft Noise Element provides a table for maximum residential sound levels measured as a 10-minute L_{eq}. According to Policy N-16, Action N16-3 of the City's Draft General Plan Noise Element, maximum noise levels not to be exceeded at a property line of a residential use are 65 dBA from 7 AM to 10 PM and 45 dBA from 10 PM to 7 AM.

Noise Impact Analysis

CONSTRUCTION NOISE

Construction activities in the City of Wildomar are prohibited within the hours 6:00 PM and 6:00 AM during the months of June through September, and the hours between 6:00 PM and 7:00 AM during the months of October through May, if the construction is located within one-quarter of a mile from an inhabited dwelling (Section 9.48.020).

Noise levels generated during construction are based on the type of equipment operating and the amount of equipment operating at the same time. Sensitivity to noise is based on the location of the equipment relative to sensitive receptors, time of day, and the duration of the noise-generating activities. Two types of short-term noise impacts could occur during construction: (1) mobile-source noise from the transport of workers, material deliveries, and debris/soil hauling, and (2) stationary-source noise from use of construction equipment. For the purpose of this analysis and according to estimates provided by the project applicant, development at the site would require construction for approximately eight months.

Temporary noise impacts during construction are mostly related to demolition, grading, and building construction. Construction equipment can be considered to operate in two modes: stationary and mobile. Stationary equipment operates in one location for one or more days; mobile equipment moves around a construction site with variations in power settings and loads. To determine the energy-average L_{eq} sound level from the equipment's operation under varying power settings, the equipment's noise rating at a reference distance while operating at full power is adjusted by considering the duty cycle of the activity. Table 4 lists maximum construction equipment noise levels from a reference distance of 50 feet and the industry standard duty cycles for typical development activities.

Table 4 Construction Equipment Noise Levels

Equipment	Noise Level (dBA) at 50 feet	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%

Table 4 Construction Equipment Noise Levels

Equipment	Noise Level (dBA) at 50 feet	Typical Duty Cycle
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%

Source: Thalheimer 2000.
KVA = kilovolt amps

Each stage of construction has a different equipment mix, depending on the work to be accomplished during that stage. The noise produced at each stage is determined by combining the L_{eq} contributions from each piece of equipment used at a given time. Construction activities at the project site are not expected to include blasting or pile driving. In the construction of development projects, demolition and grading activities generate the highest noise levels since these phases require the use of the largest equipment.

Because of the effects of noise attenuation due to distance, the number and type of equipment, and the load and power requirements to accomplish tasks at each construction phase, construction activities would result in different noise levels at a given sensitive receptor. Heavy equipment, such as a dozer or a loader, can have maximum, short-duration noise levels in excess of 80 dBA at 50 feet from the equipment. Construction equipment noise would diminish at a rate of at least 6 dB per doubling distance as it propagated to offsite receptor locations. This distance attenuation, coupled with the fact that construction equipment noise is intermittent, means that the average noise levels at offsite, noise-sensitive receptors would be lower than the potential maximum levels because mobile construction equipment would move around the site with different load settings and power requirements.

For the purpose of analyzing the average future construction noise, it is assumed that all earthmoving equipment would operate at the center of the project site (center of activity) and at ground level. With the typical maximum noise levels generated by construction equipment and assuming the utilization factors in Table 4, the overall noise during each phase when all equipment is operating simultaneously was calculated at the nearest homes. World Harvest Church is not included as a noise-sensitive receptor since services and gatherings would take place outside of construction hours. These construction noise calculations are summarized in Table 5.

Table 5 Average Construction Noise Impacts(dBA L_{eq})

Sensitive Receptors	Demolition + Site Preparation	Demolition + Grading	Demolition + Utility Trenching	Building Construction	Paving + Architectural Finishes + Site Improvements	Site Paving	Finishing / Landscaping
Receptors E and F (435 feet away)	70	70	68	67	70	67	66
Receptors G, H, and I (470 feet away)	69	69	67	67	69	66	65
Receptor D, Receptor K (690 feet away)	66	66	64	63	66	63	62
Receptors A, B, and C (1000 feet away)	63	62	60	60	63	60	59

Notes: Calculations in Appendix C. Receptor locations shown in Figure 2.

Average noise levels during construction activities would range from 59 to 70 dBA L_{eq}. Construction activity would temporarily increase the ambient noise environment at nearby sensitive residential during the different construction phases of the project. Sound attenuation provided by topography at sensitive receptor locations, particularly at the homes north of Palomar Street, was not taken into account. Therefore, these estimates are conservative, since they do not take into consideration the attenuation provided. At times, noise from heavy equipment would be above the existing ambient noise and would be readily perceptible. However, noise from construction equipment would, at times, be overshadowed by traffic noise on Palomar Street. The overall construction would last for nine months; however, the loudest and more constant noise would occur during the demolition and grading phases, which would last for approximately two months. Subsequent phases would generate noise that would be sporadic and intermittent. Noise from construction activities at a given receptor would be sporadic and limited during the construction period. Because construction activity would occur during the daytime hours allowed by the City's Municipal Code, and because construction is temporary and short-term, noise impacts during construction would be less than significant.

Vibration Impacts

A project would normally have a significant effect on the environment if it would result in exposure of persons to or the generation of excessive groundborne vibration or groundborne noise levels. The following evaluates potential vibration during project construction and operation.

CONSTRUCTION VIBRATION

Construction activities can generate varying degrees of ground vibration depending on the type of construction and equipment. Construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings near the construction site varies depending on soil type, ground strata, and receptor building construction. Vibration can result in no perceptible effects at the lowest levels, to low rumbling sounds and perceptible vibrations at moderate

levels, to slight building damage at the highest levels. Ground vibration from construction activities rarely reaches levels that can significantly damage structures, but it can achieve the audible and perceptible ranges in buildings close to a construction site. Groundborne vibration would be generated during the demolition of existing structures, grading, and building construction phases. Unless there are large generators of vibration—such as pile drivers—or receptors in close proximity to construction equipment, vibration is generally only perceptible at structures when it rattles windows, picture frames, and other interior objects. Table 6 lists vibration levels for different types of construction equipment.

Table 6 Construction Equipment Vibration Levels

Equipment	Approximate RMS[1] Velocity Level at 25 Feet (VdB)	Approximate PPV Velocity at 25 Feet (in/sec)
Vibratory Roller	94	0.210
Large Bulldozer	87	0.089
Caisson Drilling	87	0.089
Loaded Trucks	86	0.076
Jackhammer	79	0.035
Small Bulldozer	58	0.003
FTA Criteria – Human Annoyance (Daytime)	78	—
FTA Criteria – Architectural Damage	—	0.200 Wood-Framed 0.500 Reinforced Masonry

Source: FTA 2006.
[1] RMS velocity calculated from vibration level (VdB) using the reference of 1 microinch/second and a crest factor of 4.

Vibration Annoyance

Vibration is typically not perceptible in outdoor environments, but it is sensed when objects inside structures generate noise, such as rattling windows or picture frames. Therefore, impacts are evaluated in terms of indoor receptors (FTA 2006). The nearest sensitive receptor structures subject to annoyance from construction activities are the single-family homes approximately 435 feet to the northeast across Palomar Street, approximately 470 feet to the east, and approximately 690 feet to the southeast and west.

Levels of vibration produced by construction equipment are based on the FTA's significance threshold for vibration annoyance of 78 VdB for barely perceptible levels of vibration during the daytime (under the premise that construction would be limited to daytime hours to comply with the City's municipal code). Table 7 shows the potential vibration levels (VdB) that can be generated by heavy construction equipment at receptors 435, 470, and 690 feet away from the center of construction activities and 110 feet away from the edge of construction activities (the closest homes to the project site). For the purpose of this analysis, vibration levels from excavators and loaders would be similar to the levels presented for bulldozers in Table 7.

Table 7 Construction Equipment Vibration Levels – Potential for Annoyance

Equipment	Vibration VdB at Distance (feet)			
	Receptors E and F (435 feet)	Receptors G, H, and I (470 feet)	Receptor D and Receptor K (690 feet)	Distance from Receptors E and F to edge of construction site (110 feet)
Vibratory Roller	69	69	65	81
Caisson Drill	62	62	58	74
Large bulldozer	62	62	58	74
Small bulldozer	33	33	29	45
Jackhammer	54	54	50	66
Loaded trucks	61	61	57	73

Notes: Threshold for vibration annoyance = 78 VdB. Receptor locations shown in Figure 2.

As shown in this table, construction activity at the nearest residential areas would exceed the 78 VdB threshold for vibration annoyance when large construction equipment is operating near the project site boundary. If vibratory rollers are used, they would have the potential to cause short-term annoyance when the equipment is operating at a distance of less than 160 feet from a sensitive receptor structure. However, vibration levels dissipate rapidly with distance, and construction equipment moves around the site. The vast majority of the time during the construction period, construction equipment would not exceed the vibration levels that are considered annoying at the nearest home, 110 feet from the site. At all other homes, vibration levels would be below levels that are considered annoying. Vibration would only have the potential to reach levels that are considered annoying for short, sporadic periods, when vibratory rollers are operating within 50 feet of the project site boundary nearest to the closest home. Therefore, vibration caused by the use of construction equipment at the project site would be less than significant, and no mitigation measures would be required.

Vibration-Induced Architectural Damage

In addition to vibration-induced annoyance, project-related construction vibration was evaluated for its potential to cause structural damage based on FTA's architectural damage criteria. The FTA threshold of 0.2 PPV inch per second is the point at which there is a risk of architectural damage to normal houses with plastered walls and ceilings. Table 8 shows the potential vibration levels (in PPV in inches/sec) that can be generated by heavy construction equipment at the nearest receptor, World Harvest Church, located as near as 70 feet away from the project site.

Table 8 Construction Equipment Vibration Levels – Potential for Architectural Damage

Equipment	Vibration PPV at Nearest Structure (Church building 70 feet)
Vibratory Roller	0.045
Large bulldozer	0.019
Caisson drilling	0.019
Loaded trucks	0.001
Jackhammer	0.007
Small bulldozer	0.016

Source: Placeworks, 2014.
Threshold for vibration damage = 0.20 PPV
Receptor location shown in Figure 2- Sensitive Receptors.

Typically, only construction equipment generating extremely high levels of vibration, such as pile drivers, has the potential for vibration-induced structural damage. No pile driving is expected to be required during construction. As shown on Table 8, project-related construction activities would not result in vibration levels at nearby sensitive structures that exceed the 0.2 PPV in/sec criteria for vibration-induced structural damage.

Operational Noise

The proposed project would construct a new K–8 school that would accommodate approximately 594 students. The proposed project would include various administrative and classroom facilities in addition to hard courts and athletic fields and surface parking lots. Temporary noise impacts would occur during construction. Long-term impacts would occur as a result of operational noise from project-related traffic and from stationary noise sources such as outdoor activities and heating, ventilation, and air conditioning (HVAC) units. The following discusses long-term impacts from project-related traffic and operations sources onto offsite uses, as well as compatibility between the proposed project and the existing land uses.

PROJECT-RELATED TRAFFIC

Traffic noise modeling results are based on average daily traffic volumes on roadway segments within the analysis conducted by PlaceWorks (2014). For each alternative, traffic noise was evaluated for existing and 2016 conditions. Traffic noise modeling was compiled for the following scenarios, according to the traffic study prepared for this project:

» Existing: Existing conditions without the proposed project.

» Existing with Project: Existing volumes plus the new traffic generated by the proposed project site.

» 2016 No Project: Corresponds to 2016 conditions without the proposed project.

» 2016 with Project: 2016 conditions traffic volumes plus the new traffic generated by the proposed project site.

The traffic noise levels for this project were estimated using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (RD-77-108). The FHWA model predicts noise levels through a series of adjustments to a reference sound level. These adjustments account for distances from the

roadway, traffic flows, vehicle speeds, car/truck mix, length of exposed roadway, and road width. The distances to the 70, 65, and 60 CNEL contours for selected roadway segments in the vicinity of proposed project site are included in Appendix D.

Tables 9 and 10 compare the noise levels at 50 feet from the centerline of each roadway segment without and with the project for existing and 2016 conditions. Tables 9 and 10 show the project's contributions with respect to Existing and 2016 conditions, respectively. Traffic noise increases over existing conditions due to the project range from 0.0 to 1.2 dBA. Traffic noise increases over 2016 conditions due to the project range from 0.0 to 1.0 dBA. A noise impact may occur if there is a noise increase of 3 dB or more from project-related traffic over existing conditions and the CNEL is 65 dBA or greater in the vicinity of noise-sensitive land uses. Project-related traffic noise impacts would be well below the thresholds for perceptible noise increases.

Table 9 Project-Related Traffic Noise, Existing Conditions

Roadway	Segment	CNEL at 50 feet (dBA)		Increase from Existing (dBA)
		No Project	With Project	
Palomar Street	North of Clinton Keith Road	66.0	66.3	0.3
Palomar Street	from Clinton Keith Road to city south boundary	66.4	67.6	1.2
Washington Avenue	from city south boundary to Calle del Oso Oro/ Nutmeg Street	64.5	64.9	0.4
Washington Avenue	South of Calle del Oso Oro/ Nutmeg Street	68.1	68.2	0.1
Clinton Keith Road	West of Palomar Street	67.8	68.0	0.2
Clinton Keith Road	from Palomar Street to Hidden Springs Road	67.4	67.7	0.3
Clinton Keith Road	from Hidden Springs Road to I-15	68.2	68.4	0.2
Clinton Keith Road	East of I-15	68.0	68.0	0.0
Calle del Oso Oro	West of Washington Avenue	65.8	65.8	0.0
Nutmeg Street	East of Washington Avenue	63.0	63.1	0.1

Source: FHWA Highway Traffic Noise Prediction Model based on traffic volumes provided by PlaceWorks, 2014. Calculations included in Appendix D.

Table 10 Project-Related Traffic Noise, 2016 Conditions

Roadway	Segment	CNEL at 50 feet (dBA)		Increase from Existing (dBA)
		No Project	With Project	
Palomar Street	North of Clinton Keith Road	67.4	67.6	0.2
Palomar Street	from Clinton Keith Road to city south boundary	67.0	68.0	1.0
Washington Avenue	from city south boundary to Calle del Oso Oro/ Nutmeg Street	67.4	67.6	0.2
Washington Avenue	South of Calle del Oso Oro/ Nutmeg Street	70.0	70.1	0.1
Clinton Keith Road	West of Palomar Street	66.1	67.1	1.0
Clinton Keith Road	from Palomar Street to Hidden Springs Road	68.1	68.4	0.3
Clinton Keith Road	from Hidden Springs Road to I-15	68.7	68.9	0.2
Clinton Keith Road	East of I-15	68.3	68.4	0.1
Calle del Oso Oro	West of Washington Avenue	67.2	67.3	0.1
Nutmeg Street	East of Washington Avenue	64.7	64.7	0.0

Source: FHWA Highway Traffic Noise Prediction Model based on traffic volumes provided by PlaceWorks, 2014. Calculations included in Appendix D.

Cumulative Impacts

Cumulative noise due to traffic would be significant where cumulative noise increases by 5 dB or more, the project's cumulative contribution is 3 dB or more, and the ambient noise levels exceed the 65 dBA CNEL noise compatibility standard in the vicinity of existing noise-sensitive land uses. Cumulative noise increases describe how much noise levels are projected to increase over existing conditions with the development of the proposed project and ambient growth and reasonable foreseeable projects. Cumulative increases in traffic noise levels were estimated by comparing the 2016 with-project scenarios to existing conditions. Table 11 shows that the cumulative noise increases in CNEL would not exceed 3.1 dBA, and the project contribution at any roadway segment would not exceed 1.2 dBA. The cumulative, offsite traffic noise contribution for the proposed project would not exceed the 3 dBA criteria for project increases, and impacts would be less than significant.

Table 11 Project Site Cumulative Traffic Noise

Roadway	Segment	CNEL at 50 feet (dBA)			
		Existing	2016 With Project	Overall Increase	Project Contribution
Palomar Street	North of Clinton Keith Road	66.0	67.6	1.6	0.3
Palomar Street	from Clinton Keith Road to city boundary	66.4	68.0	1.6	1.2
Washington Avenue	from city boundary to Calle del Oso Oro/ Nutmeg Street	64.5	67.6	3.1	0.4
Washington Avenue	South of Calle del Oso Oro/ Nutmeg Street	68.1	70.1	2.0	0.1
Clinton Keith Road	West of Palomar Street	67.8	67.1	0.6	0.2
Clinton Keith Road	from Palomar Street to Hidden Springs Road	67.4	68.4	1.0	0.3
Clinton Keith Road	from Hidden Springs Road to I-15	68.2	68.9	0.7	0.2
Clinton Keith Road	East of I-15	68.0	68.4	0.4	0.0
Calle del Oso Oro	West of Washington Avenue	65.8	67.3	1.5	0.0
Nutmeg Street	East of Washington Avenue	63.0	64.7	1.7	0.1

Source: FHWA Highway Traffic Noise Prediction Model based on traffic volumes provided by PlaceWorks, 2014. Calculations included in Appendix D.

OUTDOOR HARD COURTS

Noise from outdoor activities would occur from the use of the turf playfield, hard courts, and the quad area. The greatest concentration of students outdoors would be during recess and lunch periods, which are assumed would differ for the various grade levels. Noise at the playfields and hard courts would be highly variable during athletic use, recess, and lunch breaks depending on the level of activity at these areas. The field would not be rented out nor used at night, since there will be no lights. The nearest existing noise-sensitive receptors are the single-family homes across Palomar Street and other scattered surrounding residences to the east, south, and west. Noise levels for the playfield, hard courts, and quad area shown in Table 12 were modeled based on collected noise monitoring data.

Table 12 Noise Levels from Outdoor Activities at the Adjacent Residences

Outdoor Locations	Distance from Outdoor Areas to Receptor J[1]	L_{eq} Noise Levels (dBA) at Receptor J
Open Turf Field	330	29.6
Hard Courts	510	48.4
Play Structure	450	26.3
Combined Noise Levels	n/a	48.5

Source: Reference noise level for open turf field based on noise monitoring of youth soccer game at John A. Murdy Elementary School in the City of Garden Grove. Reference noise levels for hard court and play structure activities based on noise monitoring of playground at San Jose School in the City of West Covina.

[1] Based on center of general outdoor areas to the nearest residential property line.

As shown in the table, the combined noise level generated from use of the proposed school's turf field, hard courts, and play structure at the nearest residences to the southeast of the project site would be 48.5 dBA L_{eq}. At other residences farther away, these levels would be less, since noise dissipates approximately 6 dBA per doubling distance. Thus, the noise level generated from outdoor activity at the proposed school at the nearest residences would be below the City of Wildomar's daytime exterior noise level of 65 dBA. In addition, onsite outdoor activity would occur during the least noise-sensitive part of the day.

SCHOOL BELLS

The operation of the proposed project may include the use of buzzers or bells to signal the beginning and ending of classes. Bells would not sound before or after school hours. Noise generated by the buzzers or bells would occur a few times per day for a short periods (less than five seconds) during the daytime hours and would not substantially elevate average daytime noise levels in the vicinity of the proposed schools.

MECHANICAL EQUIPMENT

The City of Wildomar Municipal Code limits intrusive noise in the City. The mechanical equipment on the new facilities would comply with the City of Wildomar noise ordinance. In addition, noise from the equipment would likely be indistinguishable in the ambient noise environment due to traffic noise along Palomar Street and the noise attenuation due to the distance between the HVAC systems and nearby residences. Thus, noise impacts from mechanical equipment would be less than significant, and no mitigation measures are necessary.

PARKING LOTS AND STUDENT DROP-OFF/PICK-UP

Parking lots typically generate noise from car horns, car engines, brakes and tires, automatic lock beeps, car alarms, car radios, and people talking. Each of these individual noises lasts for a short time, and the highest magnitudes of noise are most likely to occur at the beginning and end of the school day, during student drop-off and pick-up when parking lots are most active and cars are driving by. For the majority of the daytime hours, school parking lots have little midday school-related traffic and are, therefore, quiet throughout a typical school day.

The proposed project would include vehicular access and a parking lot in the northeastern portion of the project site, along Palomar Street. There would also be a secondary lot and a tertiary, overflow lot to the southwest and west of the buildings. The overflow lot would occupy the same space as the hard courts. The space would not be used for both purposes simultaneously. The nearest sensitive receptors to these surface lots would be at distances of approximately 180 feet and 230 feet. Noise monitoring conducted at a community college surface parking lot, which included car drive-bys, engine starts, and door slamming, measured a noise level of 54 dBA L_{eq} within a distance of 50 feet.[1] Since the nearest homes and the primary lot "A" would be along Palomar Street away from the adjacent homes, the proposed surface lot would not exceed the City's noise standards. Noise from traffic on Palomar Street would generally overshadow noise from activities at the school parking lot. The adjacent homes to the south would experience noise increases due to vehicles idling and maneuvering at the parking lots, doors opening and closing, and voices in the parking lot areas and driveways, which would occur for short periods of approximately 10 to 20 minutes during student drop-off in the morning and student pick-up mid-afternoon. However, these periods are short term and would occur only during the daytime. According to measurements taken between during student drop-off at an elementary school, approximately 40 feet from the curb, the average noise level (L_{eq}) measured during the measurement period was 55.1dBA $L_{eq.}$ These levels would be short-term and

[1] Noise monitoring conducted by The Planning Center|DC&E on March 29, 2012 at Saddleback College in the City of Mission Viejo, CA.

would not exceed the 65 dBA L_{eq} daytime noise standard. Thus, noise associated with the proposed surface parking lot is not anticipated to substantially increase the ambient noise environment.

Noise and Land Use Compatibility

Noise-land use compatibility is determined by the future noise level forecast on a project site and the proposed land use on that site.

TRAFFIC NOISE

The project site would be primarily impacted by traffic noise from Palomar Street. To assess long-range future traffic noise conditions, an annual growth rate of 2 percent per year over existing traffic conditions was assumed over the daily traffic count of 5,679 taken in front of the project site on Palomar Street. For the purpose of evaluating buildout traffic conditions, a daily traffic volume of 8,405 was used, with the buildout street configuration of 6 lanes. Table 13 shows the long-range traffic noise contours calculated to evaluate long-range noise impacts to the project site.

Table 13 Long-Range Traffic Noise at Project Site

Roadway	Segment	Daily Traffic Volumes	Noise Level at 50 ft. (dBA CNEL)	DISTACE TO NOISE CONTOUR (FT.)		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
Palomar Street	Project site	8,405	69.7	48	102	221

Notes: Noise contour calculations included in Appendix "D".

The following evaluates future exterior and interior noise to the proposed school facilities.

EXTERIOR NOISE

The City's Draft Noise Element Policy N-14 requires that an acoustical specialist prepare a study for noise-sensitive areas where existing or projected exterior sound levels exceed 65 dBA CNEL. The Riverside County General Plan and the draft City of Wildomar General Plan Noise Element strive to achieve 65 dBA CNEL at outdoor use areas such as school playgrounds and ball courts. As shown on Figure 1, the project site plan would have all outdoor play areas in the western portions of the site, behind the school's building structures. The proposed hardcourts, quad areas and fields would be located beyond 400 feet from Palomar Street. The nearest outdoor central courts area would be located approximately 240 feet from Palomar Street, but it would be surrounded by the school building structures which would attenuate noise from traffic on Palomar Street.

As shown on Table 13 above, the 65 dBA CNEL noise contours from Palomar Street would be located 102 feet from the street centerline. This does not include the attenuation provided by the building structures. It is anticipated that with the attenuation of the school buildings, and due to the distance from the street to the nearest outdoor areas of at least 240 feet, all outdoor activity areas at the school would be well below the required 65 dBA CNEL exterior noise standard. No mitigation would be required to meet the exterior noise standard.

INTERIOR NOISE

The provisions of the California Code of Regulations specifies a noise standard of 45 dBA CNEL at classrooms. The interior noise level is the difference between the noise level at the building façade facing the road and the attenuation provided by the building structure. New buildings with conventional construction materials typically provide an interior noise reduction of 20 to 25 dBA. The magnitude of reduction is dependent on the size of window and door openings and the noise reduction capability of the windows and doors.

The nearest classroom buildings would be located 180 feet from the street—at this location, the noise level would be approximately 61 dBA CNEL. To meet the 45 dBA interior noise level standard, exterior-to-interior noise levels must be reduced by up to 16 dBA, which is less than the level provided by new building To meet the 45 dBA CNEL interior noise standard, construction with closed windows and fresh air supply systems with mechanical ventilation or air conditioning would be required. No upgraded construction materials would be required.

AIRPORT NOISE

There are no public airport runways within two miles of the project site. The nearest public airport is French Valley Airport, approximately 6.8 miles northeast (Airnav, Google Earth 2014). The nearest private airstrip is Skylark Field Airpark, approximately 4.4 miles northwest of the project site (Airnav, Google Earth 2014). Therefore, the proposed project would not expose students or staff to excessive noise levels.

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Appendix A
Noise Monitoring Output Sheets

ST-1 L_{eq} Calculation

Time	L_{eq}	Energy
14:51:22	52.4	173780.1
14:52:22	51.8	151356.1
14:53:22	50.5	112201.8
14:54:22	53.3	213796.2
14:55:22	50.2	104712.9
14:56:22	53.2	208929.6
14:57:22	50.9	123026.9
14:58:22	51.0	125892.5
14:59:22	50.3	107151.9
15:00:22	48.1	64565.42
15:01:22	49.8	95499.26
15:02:22	51.8	151356.1
15:03:22	53.1	204173.8
15:04:22	56.3	426579.5
15:05:22	52.0	158489.3

Total Sound Energy 2421512

L_{eq}	52.1

L_{max}	64.8

C:\LARDAV\SLMUTIL\10SEP_13.bin Interval Data

Date	Time	Duration	L_{eq}	SEL	L_{max}	L_{min}	$L_{(2)}$	$L_{(8)}$	$L_{(16)}$	$L_{(25)}$	$L_{(50)}$	$L_{(90)}$
10Sep 14	14:51:22	60	52.4	70.2	57.4	44.6	57.4	56.2	54.3	53.0	51.6	46.7
10Sep 14	14:52:22	60	51.8	69.6	57.0	41.6	56.5	55.1	54.0	53.2	50.7	43.8
10Sep 14	14:53:22	60	50.5	68.3	56.8	41.1	56.1	53.8	52.8	51.9	50.3	42.2
10Sep 14	14:54:22	60	53.3	71.1	57.4	46.8	57.0	56.5	55.8	54.9	52.3	49.5
10Sep 14	14:55:22	60	50.2	68.0	56.9	41.4	56.3	54.5	53.6	52.6	47.0	42.5
10Sep 14	14:56:22	60	53.2	71.0	57.6	47.6	57.1	56.3	55.4	54.4	52.4	48.8
10Sep 14	14:57:22	60	50.9	68.7	58.3	42.6	57.4	54.6	53.3	52.3	49.0	43.4
10Sep 14	14:58:22	60	51.0	68.8	54.9	46.5	54.7	53.9	53.1	52.2	50.4	47.4
10Sep 14	14:59:22	60	50.3	68.0	54.0	44.5	53.9	53.4	52.7	51.8	49.6	46.1
10Sep 14	15:00:22	60	48.1	65.9	54.1	41.9	53.6	51.6	50.5	49.4	46.7	43.1
10Sep 14	15:01:22	60	49.8	67.6	55.5	42.4	54.7	52.9	51.6	51.1	49.4	44.3
10Sep 14	15:02:22	60	51.8	69.6	57.5	41.8	57.5	56.3	54.6	53.1	49.8	44.0
10Sep 14	15:03:22	60	53.1	70.9	58.4	43.0	58.4	57.1	55.5	54.6	52.0	44.6
10Sep 14	15:04:22	60	56.3	74.1	64.8	45.4	64.4	61.5	58.2	55.8	53.1	47.1
10Sep 14	15:05:22	60	52.0	69.8	60.7	41.2	59.9	56.3	54.2	52.5	49.2	43.7
10Sep 14	15:06:22	0.8	56.1	54.9	56.7	55.7	56.7	56.7	56.7	56.6	56.1	55.7

C:\LARDAV\SLMUTIL\10SEP_13.bin Summary Data

Site: 3 Model: 820 Firmware rev: 1.634
Location:
Date: 10Sep 14 14:51:22

	Overall	Current
Run Time	00:15:00.8	00:00:00.0
Start Time	10Sep 14 14:51:22	11Sep 14 09:38:50
TWA: Leq	0.0	Leq 0.0
SEL	0.0	0.0
Lmax	64.8	0.0
Lmax Time	10Sep 14 15:04:34	- - - - - - 00:00:00
Lmin	41.1	0.0
Lmin Time	10Sep 14 14:53:54	- - - - - - 00:00:00
Peak	88.0	0.0
Peak Time	10Sep 14 14:51:25	- - - - - - 00:00:00
Unweighted Peak	97.5	0.0
Uwpk Time	10Sep 14 14:59:49	- - - - - - 00:00:00
Dose	0.0	0.0
Projected Dose	0.0	0.0
Threshold	80	80
Criterion	90	90

Ln values

L 2 = 57.7	L 8 = 55.7	L16 = 54.0
L25 = 53.0	L50 = 50.4	L90 = 44.4

Ldn	52.1	Overall Leq	52.1	00:15:00.8
Cnel	52.1	Event Leq	0.0	00:00:00.0
Sound Exposure	0	Background Leq	52.1	00:15:00.8
Overloads	0			
Pause Time	00:00.0			

Records:

Run/Stop	2	Daily	1
Event	0	Calibration	1
Interval	16	Time History	903

C:\LARDAV\SLMUTIL\10SEP_13.bin Time History Data
Sample Period (sec): 1.000

Date	Time	Level
10Sep 14	14:51:22	46.0
10Sep 14	14:51:23	46.1
10Sep 14	14:51:24	47.0
10Sep 14	14:51:25	54.3
10Sep 14	14:51:26	53.1
10Sep 14	14:51:27	51.7
10Sep 14	14:51:28	51.3
10Sep 14	14:51:29	51.3
10Sep 14	14:51:30	51.7
10Sep 14	14:51:31	52.4
10Sep 14	14:51:32	53.3
10Sep 14	14:51:33	53.9
10Sep 14	14:51:34	54.5
10Sep 14	14:51:35	55.2
10Sep 14	14:51:36	56.4
10Sep 14	14:51:37	56.8
10Sep 14	14:51:38	57.0
10Sep 14	14:51:39	57.3
10Sep 14	14:51:40	57.2
10Sep 14	14:51:41	56.2
10Sep 14	14:51:42	55.0
10Sep 14	14:51:43	53.9
10Sep 14	14:51:44	53.1
10Sep 14	14:51:45	52.3
10Sep 14	14:51:46	52.2
10Sep 14	14:51:47	52.2
10Sep 14	14:51:48	51.7
10Sep 14	14:51:49	50.3
10Sep 14	14:51:50	49.9
10Sep 14	14:51:51	49.9
10Sep 14	14:51:52	49.2
10Sep 14	14:51:53	49.1
10Sep 14	14:51:54	49.4
10Sep 14	14:51:55	50.9
10Sep 14	14:51:56	52.9
10Sep 14	14:51:57	52.4
10Sep 14	14:51:58	51.4
10Sep 14	14:51:59	52.0
10Sep 14	14:52:00	52.8
10Sep 14	14:52:01	52.8
10Sep 14	14:52:02	51.7
10Sep 14	14:52:03	52.7

10Sep 14	14:52:04	52.6
10Sep 14	14:52:05	51.2
10Sep 14	14:52:06	49.7
10Sep 14	14:52:07	48.5
10Sep 14	14:52:08	47.6
10Sep 14	14:52:09	48.1
10Sep 14	14:52:10	49.7
10Sep 14	14:52:11	50.3
10Sep 14	14:52:12	49.3
10Sep 14	14:52:13	47.3
10Sep 14	14:52:14	46.0
10Sep 14	14:52:15	45.0
10Sep 14	14:52:16	44.8
10Sep 14	14:52:17	46.0
10Sep 14	14:52:18	47.4
10Sep 14	14:52:19	49.6
10Sep 14	14:52:20	51.5
10Sep 14	14:52:21	52.0
10Sep 14	14:52:22	52.1
10Sep 14	14:52:23	52.1
10Sep 14	14:52:24	53.2
10Sep 14	14:52:25	54.9
10Sep 14	14:52:26	54.6
10Sep 14	14:52:27	53.6
10Sep 14	14:52:28	53.6
10Sep 14	14:52:29	53.5
10Sep 14	14:52:30	53.8
10Sep 14	14:52:31	53.6
10Sep 14	14:52:32	52.2
10Sep 14	14:52:33	50.7
10Sep 14	14:52:34	49.6
10Sep 14	14:52:35	49.8
10Sep 14	14:52:36	49.7
10Sep 14	14:52:37	48.2
10Sep 14	14:52:38	46.5
10Sep 14	14:52:39	45.3
10Sep 14	14:52:40	43.9
10Sep 14	14:52:41	42.9
10Sep 14	14:52:42	42.2
10Sep 14	14:52:43	41.7
10Sep 14	14:52:44	41.8
10Sep 14	14:52:45	42.4
10Sep 14	14:52:46	43.7
10Sep 14	14:52:47	45.2
10Sep 14	14:52:48	47.0
10Sep 14	14:52:49	49.2
10Sep 14	14:52:50	51.1

10Sep 14	14:52:51	51.0
10Sep 14	14:52:52	49.7
10Sep 14	14:52:53	49.0
10Sep 14	14:52:54	49.4
10Sep 14	14:52:55	51.3
10Sep 14	14:52:56	52.0
10Sep 14	14:52:57	53.1
10Sep 14	14:52:58	54.0
10Sep 14	14:52:59	54.6
10Sep 14	14:53:00	55.2
10Sep 14	14:53:01	56.0
10Sep 14	14:53:02	56.6
10Sep 14	14:53:03	56.8
10Sep 14	14:53:04	55.9
10Sep 14	14:53:05	54.5
10Sep 14	14:53:06	52.6
10Sep 14	14:53:07	50.6
10Sep 14	14:53:08	49.9
10Sep 14	14:53:09	50.1
10Sep 14	14:53:10	50.4
10Sep 14	14:53:11	51.7
10Sep 14	14:53:12	52.7
10Sep 14	14:53:13	52.3
10Sep 14	14:53:14	50.9
10Sep 14	14:53:15	50.4
10Sep 14	14:53:16	50.0
10Sep 14	14:53:17	50.7
10Sep 14	14:53:18	50.7
10Sep 14	14:53:19	49.2
10Sep 14	14:53:20	47.7
10Sep 14	14:53:21	47.5
10Sep 14	14:53:22	49.1
10Sep 14	14:53:23	50.8
10Sep 14	14:53:24	52.4
10Sep 14	14:53:25	54.6
10Sep 14	14:53:26	55.1
10Sep 14	14:53:27	53.6
10Sep 14	14:53:28	52.0
10Sep 14	14:53:29	51.0
10Sep 14	14:53:30	50.4
10Sep 14	14:53:31	50.4
10Sep 14	14:53:32	51.2
10Sep 14	14:53:33	52.6
10Sep 14	14:53:34	53.5
10Sep 14	14:53:35	52.1
10Sep 14	14:53:36	50.2
10Sep 14	14:53:37	48.9

10Sep 14	14:53:38	46.9
10Sep 14	14:53:39	45.6
10Sep 14	14:53:40	44.0
10Sep 14	14:53:41	43.8
10Sep 14	14:53:42	43.3
10Sep 14	14:53:43	42.7
10Sep 14	14:53:44	42.3
10Sep 14	14:53:45	43.4
10Sep 14	14:53:46	45.1
10Sep 14	14:53:47	47.0
10Sep 14	14:53:48	46.1
10Sep 14	14:53:49	44.2
10Sep 14	14:53:50	43.3
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10Sep 14	15:02:57	48.5
10Sep 14	15:02:58	50.5
10Sep 14	15:02:59	52.7
10Sep 14	15:03:00	51.9
10Sep 14	15:03:01	53.0

10Sep 14	15:03:02	54.3
10Sep 14	15:03:03	57.0
10Sep 14	15:03:04	55.4
10Sep 14	15:03:05	54.7
10Sep 14	15:03:06	54.6
10Sep 14	15:03:07	56.4
10Sep 14	15:03:08	57.4
10Sep 14	15:03:09	57.0
10Sep 14	15:03:10	56.9
10Sep 14	15:03:11	56.1
10Sep 14	15:03:12	55.1
10Sep 14	15:03:13	54.7
10Sep 14	15:03:14	54.1
10Sep 14	15:03:15	53.8
10Sep 14	15:03:16	53.4
10Sep 14	15:03:17	52.2
10Sep 14	15:03:18	50.4
10Sep 14	15:03:19	49.3
10Sep 14	15:03:20	49.1
10Sep 14	15:03:21	49.4
10Sep 14	15:03:22	51.0
10Sep 14	15:03:23	51.4
10Sep 14	15:03:24	50.9
10Sep 14	15:03:25	50.1
10Sep 14	15:03:26	50.6
10Sep 14	15:03:27	52.2
10Sep 14	15:03:28	52.6
10Sep 14	15:03:29	53.0
10Sep 14	15:03:30	54.6
10Sep 14	15:03:31	55.3
10Sep 14	15:03:32	55.1
10Sep 14	15:03:33	54.9
10Sep 14	15:03:34	53.8
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10Sep 14	15:03:38	57.4
10Sep 14	15:03:39	58.3
10Sep 14	15:03:40	58.0
10Sep 14	15:03:41	57.4
10Sep 14	15:03:42	56.1
10Sep 14	15:03:43	55.1
10Sep 14	15:03:44	54.9
10Sep 14	15:03:45	53.7
10Sep 14	15:03:46	52.3
10Sep 14	15:03:47	51.8
10Sep 14	15:03:48	52.4

10Sep 14	15:03:49	54.3
10Sep 14	15:03:50	54.7
10Sep 14	15:03:51	54.3
10Sep 14	15:03:52	53.6
10Sep 14	15:03:53	51.5
10Sep 14	15:03:54	49.4
10Sep 14	15:03:55	47.9
10Sep 14	15:03:56	46.4
10Sep 14	15:03:57	45.1
10Sep 14	15:03:58	44.3
10Sep 14	15:03:59	43.5
10Sep 14	15:04:00	43.1
10Sep 14	15:04:01	43.2
10Sep 14	15:04:02	43.5
10Sep 14	15:04:03	43.9
10Sep 14	15:04:04	45.2
10Sep 14	15:04:05	47.1
10Sep 14	15:04:06	48.1
10Sep 14	15:04:07	50.7
10Sep 14	15:04:08	53.1
10Sep 14	15:04:09	57.3
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10Sep 14	15:04:15	50.8
10Sep 14	15:04:16	51.4
10Sep 14	15:04:17	50.5
10Sep 14	15:04:18	49.1
10Sep 14	15:04:19	48.3
10Sep 14	15:04:20	47.7
10Sep 14	15:04:21	47.5
10Sep 14	15:04:22	48.0
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10Sep 14	15:04:24	49.0
10Sep 14	15:04:25	50.3
10Sep 14	15:04:26	52.4
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10Sep 14	15:04:28	58.0
10Sep 14	15:04:29	58.9
10Sep 14	15:04:30	60.4
10Sep 14	15:04:31	61.7
10Sep 14	15:04:32	63.5
10Sep 14	15:04:33	64.5
10Sep 14	15:04:34	64.5
10Sep 14	15:04:35	62.9

10Sep 14	15:04:36	61.1
10Sep 14	15:04:37	59.3
10Sep 14	15:04:38	57.9
10Sep 14	15:04:39	56.5
10Sep 14	15:04:40	55.4
10Sep 14	15:04:41	54.9
10Sep 14	15:04:42	54.2
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10Sep 14	15:04:44	52.9
10Sep 14	15:04:45	52.7
10Sep 14	15:04:46	52.6
10Sep 14	15:04:47	52.6
10Sep 14	15:04:48	52.4
10Sep 14	15:04:49	52.4
10Sep 14	15:04:50	52.8
10Sep 14	15:04:51	53.1
10Sep 14	15:04:52	53.6
10Sep 14	15:04:53	53.4
10Sep 14	15:04:54	53.5
10Sep 14	15:04:55	53.0
10Sep 14	15:04:56	52.2
10Sep 14	15:04:57	51.8
10Sep 14	15:04:58	52.9
10Sep 14	15:04:59	53.8
10Sep 14	15:05:00	52.4
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10Sep 14	15:05:03	47.9
10Sep 14	15:05:04	46.5
10Sep 14	15:05:05	46.8
10Sep 14	15:05:06	45.9
10Sep 14	15:05:07	45.5
10Sep 14	15:05:08	46.6
10Sep 14	15:05:09	46.6
10Sep 14	15:05:10	48.0
10Sep 14	15:05:11	50.2
10Sep 14	15:05:12	52.8
10Sep 14	15:05:13	54.9
10Sep 14	15:05:14	56.1
10Sep 14	15:05:15	56.4
10Sep 14	15:05:16	55.8
10Sep 14	15:05:17	54.3
10Sep 14	15:05:18	53.4
10Sep 14	15:05:19	53.4
10Sep 14	15:05:20	52.0
10Sep 14	15:05:21	50.6
10Sep 14	15:05:22	49.2

10Sep 14	15:05:23	48.3
10Sep 14	15:05:24	48.2
10Sep 14	15:05:25	48.9
10Sep 14	15:05:26	49.5
10Sep 14	15:05:27	50.9
10Sep 14	15:05:28	52.3
10Sep 14	15:05:29	50.8
10Sep 14	15:05:30	49.9
10Sep 14	15:05:31	50.4
10Sep 14	15:05:32	53.3
10Sep 14	15:05:33	54.5
10Sep 14	15:05:34	52.3
10Sep 14	15:05:35	49.9
10Sep 14	15:05:36	48.6
10Sep 14	15:05:37	48.9
10Sep 14	15:05:38	50.7
10Sep 14	15:05:39	50.6
10Sep 14	15:05:40	48.9
10Sep 14	15:05:41	48.1
10Sep 14	15:05:42	48.4
10Sep 14	15:05:43	49.6
10Sep 14	15:05:44	49.2
10Sep 14	15:05:45	47.1
10Sep 14	15:05:46	45.3
10Sep 14	15:05:47	43.7
10Sep 14	15:05:48	42.8
10Sep 14	15:05:49	42.2
10Sep 14	15:05:50	41.7
10Sep 14	15:05:51	41.3
10Sep 14	15:05:52	41.4
10Sep 14	15:05:53	43.6
10Sep 14	15:05:54	45.1
10Sep 14	15:05:55	45.4
10Sep 14	15:05:56	47.7
10Sep 14	15:05:57	54.2
10Sep 14	15:05:58	53.8
10Sep 14	15:05:59	54.1
10Sep 14	15:06:00	53.3
10Sep 14	15:06:01	51.1
10Sep 14	15:06:02	49.0
10Sep 14	15:06:03	47.4
10Sep 14	15:06:04	46.4
10Sep 14	15:06:05	46.5
10Sep 14	15:06:06	47.3
10Sep 14	15:06:07	46.9
10Sep 14	15:06:08	46.8
10Sep 14	15:06:09	48.1

10Sep 14	15:06:10	48.4
10Sep 14	15:06:11	49.5
10Sep 14	15:06:12	51.1
10Sep 14	15:06:13	52.7
10Sep 14	15:06:14	53.9
10Sep 14	15:06:15	54.9
10Sep 14	15:06:16	55.6
10Sep 14	15:06:17	57.0
10Sep 14	15:06:18	59.9
10Sep 14	15:06:19	60.1
10Sep 14	15:06:20	58.6
10Sep 14	15:06:21	57.3

C:\LARDAV\SLMUTIL\10SEP_13.bin Time History Data
Sample Period (sec): 1.000

Date	Time	Level
10Sep 14	15:06:22	56.1

Appendix B
City of Wildomar Noise Standards

City of Wildomar Municipal Code

Chapter 9.48 NOISE REGULATION

9.48.010 Intent.

At certain levels, sound becomes noise and may jeopardize the health, safety or general welfare of the City of Wildomar residents and degrade their quality of life. Pursuant to its police power, the City Council declares that noise shall be regulated in the manner described in this chapter. This chapter is intended to establish City-wide standards regulating noise. This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act and no such thresholds are established. (Ord. 18 § 2, 2008, RCC § 9.52.010)

9.48.020 Exemptions.

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

A. Facilities owned or operated by or for a governmental agency;

B. Capital improvement projects of a governmental agency;

C. The maintenance or repair of public properties;

D. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile;

E. Public or private schools and school-sponsored activities;

F. Agricultural operations on land designated “agriculture” in the 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;

G. Wind energy conversion systems (WECS), provided such systems comply with the WECS noise provisions of Title 17;

H. Private construction projects located one-quarter of a mile or more from an inhabited dwelling;

I. Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that:

1. Construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September, and

2. Construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May;

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

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

L. Heating and air conditioning equipment;

M. Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety, and welfare;

N. The discharge of firearms consistent with all state laws. (Ord. 18 § 2, 2008, RCC § 9.52.020)

9.48.030 Definitions.

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

"Audio equipment" means a television, stereo, radio, tape player, compact disc player, mp3 player, iPod 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 as defined below:

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

2. "Maximum sound level (L_{max})" means the maximum sound level measured on a sound level meter.

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

"Land use permit" means a discretionary permit issued by the City pursuant to Title 17.

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

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

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

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

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

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

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

"Sensitive receptor" means a land use that is identified as sensitive to noise in the noise element of the 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. 18 § 2, 2008, RCC § 9.52.030)

9.48.040 General sound level standards.

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

TABLE 1

Sound Level Standards (Db L_{max})

GENERAL PLAN FOUNDATION COMPONENT	**GENERAL PLAN LAND USE DESIGNATION**	**GENERAL PLAN LAND USE DESIGNATION NAME**	**DENSITY**	**MAXIMUM DECIBEL LEVEL**	
				7 am—10 pm	10 pm—7 am
Community Development	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
	MDR	Medium Density Residential	2—5	55	45
	MHDR	Medium High Density Residential	5—8	55	45
	HDR	High Density Residential	8—14	55	45

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

	MR	Mineral Resources		75	45

(Ord. 18 § 2, 2008, RCC § 9.52.040)

9.48.050 Sound level measurement methodology.

Sound level measurements may be made anywhere within the boundaries of an occupied property. The actual location of a sound level measurement shall be at the discretion of the enforcement officials identified in Section 9.48.080 of this chapter. Sound level measurements shall be made with a sound level meter. Immediately before a measurement is made, the sound level meter shall be calibrated utilizing an acoustical calibrator meeting the standards of the American National Standards Institute. Following a sound level measurement, the calibration of the sound level meter shall be re-verified. Sound level meters and calibration equipment shall be certified annually. (Ord. 18 § 2, 2008, RCC § 9.52.050)

9.48.060 Special sound sources standards.

The general sound level standards set forth in Section 9.48.040 of this chapter apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards, the failure to comply with which constitutes separate violations of this chapter:

A. Motor Vehicles.

1. Off-Highway Vehicles.

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

b. No person shall operate an off-highway vehicle unless the noise emitted by the vehicle is not more than 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.

2. 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.

B. 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.

C. 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.

D. Sound-Amplifying Equipment and Live Music. No person shall install, use or operate sound-amplifying equipment, or perform, or allow to be performed, live music unless such activities comply with the following requirements. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control:

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

2. Sound emanating from sound-amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than 200 feet from the equipment or music. (Ord. 18 § 2, 2008, RCC § 9.52.060)

9.48.070 Exceptions.

Exceptions may be requested from the standards set forth in Section 9.48.040 or 9.48.060 of this chapter and may be characterized as construction-related, single-event or continuous-events exceptions.

A. Application and Processing.

1. Construction-Related Exceptions. An application for a construction-related exception shall be made to and considered by the Director of Building and Safety on forms provided by the Building and Safety Department and shall be accompanied by the appropriate filing fee. No public hearing is required.

2. Single-Event Exceptions. An application for a single-event exception shall be made to and considered by the Planning Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. No public hearing is required.

3. Continuous-Events Exceptions. An application for a continuous-events exception shall be made to the Planning Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous-events exception, the Planning Director shall set the matter for public hearing before the Planning Commission, notice of which shall be given as provided in Title 17. Notwithstanding the above, an application for a continuous-events exception that is associated with an application for a land use permit shall be processed concurrently with the land use permit in the same manner that the land use permit is required to be processed.

B. Requirements for Approval. The appropriate 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.

C. Appeals. The Director of Building and Safety's decision on an application for a construction-related exception is considered final. The Planning Director's decision on an application for a single-event exception is considered final. After making a decision on an application for a continuous-events exception, the appropriate decision-making body or officer shall mail notice of the decision to the applicant. Within 10 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.

D. Effect of a Pending Continuous-Events Exception Application. For a period of 180 days from the effective date of the ordinance codified in this chapter, no person creating any sound prohibited by this chapter shall be considered in violation of this chapter if the sound is related to a use that is operating pursuant to an approved land use permit, if an application for a continuous-events exception has been filed to sanction the sound and if a decision on the application is pending. (Ord. 18 § 2, 2008, RCC § 9.52.070)

9.48.080 Enforcement.

The Chief of Police and Code Enforcement Department shall have the primary responsibility for enforcing this chapter; provided, however, the Chief of Police and Code Enforcement Department may be assisted by the Public Health Department. Violations shall be prosecuted as described in Section 9.48.100 of this chapter, but nothing in this chapter shall prevent the Chief of Police, Code Enforcement or the Department of Public Health from engaging in efforts to obtain voluntary compliance by means of warnings, notices, or educational programs. (Ord. 18 § 2, 2008, RCC § 9.52.080)

9.48.090 Duty to cooperate.

No person shall refuse to cooperate with, or obstruct, the enforcement officials identified in Section 9.48.080 of this chapter when they are engaged in the process of enforcing the provisions of this chapter. This duty to cooperate may require a person to extinguish a sound source so that it can be determined whether sound emanating from the source violates the provisions of this chapter. (Ord. 18 § 2, 2008, RCC § 9.52.090)

9.48.100 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:

A. For the first violation within a 180-day period, the minimum mandatory fine shall be $500.00.

B. For the second violation within a 180-day period, the minimum mandatory fine shall be $750.00.

C. For any further violations within a 180-day period, the minimum mandatory fine shall be $1,000.00 or imprisonment for a period not exceeding six months, or both. (Ord. 18 § 2, 2008, RCC § 9.52.100)

9: NOISE ELEMENT

INTRODUCTION

"Noise" is unwanted sound. Sound can be measured in a variety of ways, but the determination of whether the *sound* is in fact *noise* is subjective. For example, children playing may be a wonderful sound to some, but not to others. And of course the sounds of playing during the early afternoon may be perceived differently than late in the evening. Laughter at 2 PM is charming; the same laughter at 2 AM can be annoying and disruptive to sleep.

Managing noise is both a quality of life issue and an important means of encouraging commerce. If noise standards are too stringent, businesses may have a difficult time finding an appropriate location, and mitigation from traffic noise or other sources may make it difficult to build new homes. If the noise standards are too lenient, the quality of life in the community may suffer. This element of the General Plan attempts to balance these issues and separate sound from noise in Wildomar.

SETTING

Overall, Wildomar is a fairly quiet community. The most dominate noise source in Wildomar is generated by traffic on the I-15 corridor. Other more transitory noise sources include aircraft over flights, traffic on local roads, lawn mowers, garbage trucks, air conditioners, drive through speakers, etc. Noise is also generated by construction activity such as grading, use of backhoes, back up alarms, compressors, nail guns and other construction equipment.

TERMS AND DEFINITIONS

Ambient Noise: The normal or existing level of environmental noise at a given location.

CNEL (Community Noise Equivalent Level): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 5 decibels to sound levels in the evening (from 7:00 PM to 10:00 PM) and after the addition of 10 decibels to sound levels in the night (from 10:00 PM to 7:00 AM).

dBA (A-weighted decibel): The A-weighted decibel scale discriminates upper and lower frequencies in a manner approximating the sensitivity of the human ear. The scale is based on a reference pressure level of 20 micropascals.

Leq (Equivalent energy level): The average acoustic energy content of noise during the time it lasts. The City uses a 10- minute Leq measurement.

Ldn (Day-Night Average Level): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 10 decibels to sound levels in the night (from 10:00 p.m. to 7:00 a.m.).

The science of noise analysis has its own terminology that makes a straightforward discussion difficult. The terms shown in text box to the right are used to measure sound. The various sound levels are then used to develop or establish policy that affects noise generation and attenuation.

NOISE-SENSITIVE LAND USES

A series of land uses have been deemed "sensitive" by the State of California. These land uses require an attention to noise to ensure that they can operate as designed. Sensitive uses typically include schools, hospitals, rest homes, long-term care facilities, mental care facilities, homes, places of worship, libraries, and passive recreation areas. Activities conducted in proximity to these sensitive uses must consider their sound output and ensure that they don't create unacceptable noise levels.

Similarly, noise-generating uses need to be protected from encroachment by noise-sensitive uses. Existing industrial and commercial operations that generate noise should not be required to curtail activity because of a newly constructed housing project or other noise-sensitive use.

Most communities handle noise issues by taking care to put compatible uses near each other and avoid placing noisy uses next to homes and other noise-sensitive uses.

The table and maps in this element illustrate future noise conditions that will need to be addressed as the City makes land use decisions.

Table N-1 provides information on projected noise levels along major roadways in the city—specifically, what the future noise level could be at a given distance from the centerline of the roadway. This information is useful to residents seeking information on neighborhoods and to planners who want to ensure that noise impacts are properly addressed when new development proposals are reviewed. The noise information is expressed in A-weighted decibels (dBA) and divided into bands or contours ranging from 55 to 70 dBA in 5 dBA increments. The contours are used in ordinances and policy statements.

How Loud Is It?
Sound Levels for Common Noise Sources

Activity	Noise Level in Decibels
Limit of Hearing	0 dB
Normal Breathing	10 dB
Soft Whisper	30 dB
Library	40 dB
Refrigerator	50 dB
Rainfall	50 dB
Washing Machine	50–75 dB
Normal Conversation	60 dB
Hair Dryer	60–95 dB
Alarm Clock	65-80 dB
Power Mower	65-95 dB
Dumpster Pickup (@ 50')	80 dB
Garbage Disposal	80–95 dB
Noisy Restaurant	85 dB
Train Approaching (Engines)	85–90 dB
Tractor	90 dB
Shouting in Ear	110 dB
Loud Rock Concert	120 dB
Jet Engine at Takeoff	150 dB

These are typical noise levels. Distance from the source will reduce the noise level. A 10 dB increase doubles perceived loudness. Continued exposure to noise above 85 dB can cause hearing loss; the maximum exposure to 85 dB noise in the workplace is 8 hours. A single exposure to 140 dB noise can cause some hearing loss. Source: National Institute for Occupational Safety and Health.

TABLE N-1: DISTANCE TO NOISE LEVELS BY MAJOR ROADWAY DESIGNATION[1]

Roadway Classification	70 dBA	65 dBA	60 dBA	55 dBA
Urban Arterial – 6 Lanes	141	297	638	1,373
Urban Arterial – 4 Lanes	106	227	487	1,048
Major Highway	91	190	407	879
Secondary Highway	65	135	288	620
Collector Street	27	59	126	272

Source: Appendix I: Noise Element Data, Riverside County General Plan
1. Distance is measured from the centerline.

NOISE MITIGATION STRATEGIES

When an existing or proposed land use emits sound exceeds the City's determined acceptable level, the sound is characterized as noise and subject to regulation. There are a number of methods of reducing noise, both from the source and at the sensitive use. When design or regulatory methods are used to reduce noise, the methods attenuate or mitigate the noise. There are both indoor and outdoor standards for this type of mitigation. Policies included in this element provide a number of methods for mitigation; however, with changing technology and advances in design, this list is not comprehensive, and new methods should be considered. Noise created by stationary sources (i.e., outdoor mechanical equipment) is difficult to predict and will need to be addressed on a case-by-case basis. Note too that the responsibility for mitigation is dependent on the planned land use and existing land uses on and near a site.

NOISE SOURCES

STATIONARY NOISE

A stationary noise source is any entity in a fixed location that emits noise. Stationary noise sources are common in many noise-sensitive areas. Motors, appliances, air conditioners, lawn and garden equipment, power tools, and generators are often found in residential neighborhoods, as well as on or near the properties of schools, hospitals, and parks. These structures are often a permanent fixture and are required for the particular land use. Industrial and manufacturing facilities are also stationary noise producers that may affect adjacent sensitive land uses. The emitted noise from the noise source can be mitigated to acceptable levels either at the source or on the adjacent property through the use of proper planning, setbacks, sound walls, acoustic-rated windows, or dense landscaping or by other noise control measures.

Stationary noise also includes noise that is generated temporarily—typically as part of the construction of homes, buildings, roadways, etc. Although it is temporary and lasts only as long as construction, it can be annoying to residents and businesses near the construction site. As such, this type of temporary noise is also addressed in this Noise Element.

MOBILE NOISE

The most common mobile noise sources in the city are transportation-related. Motor vehicle noise is characterized by the number of vehicles generating engine and tire noise on local roads and freeways, which often creates a higher sustained noise level in proximity to areas sensitive to noise exposure. Rail and aircraft operations, though less frequent, may generate extremely high noise levels that can be disruptive to daily activities in residential areas and noise-sensitive uses. Transit associated with bus service in the city is part of the transportation noise consideration.

CONSTRUCTION, MAINTENANCE, AND NUISANCE NOISE

Construction operations and maintenance vehicles such as refuse trucks and parking lot sweepers generate noise throughout the City. Other temporary noise can include car doors, car stereos, laughter, shouting, lawn mowers, garbage pick up, leaf blowers and similar daily activities. Although these types of noise sources tend to be short term, temporary, and limited, they can be a source of annoyance, especially during the late night or early morning hours. These noises can also be very difficult to mitigate as they are both fleeting, and stem from the regular use of property for its intended purpose. Construction noise for example, is temporary and concludes once the construction is finished. Standards can be adopted, some methods put in place to help attenuate the noise, however construciton equipment will remain auidlbe. In these cases the only relief is likely to be limiting the hours of construction.

NOISE ATTENUATION

One of the most effective means of reducing noise in a sensitive area is to construct and design buildings in such a way that the noise is deflected, absorbed or mitigated so as not to affect the occupants. If the building has already been constructed, landscaping, physical barriers, sound dampening technology, and other design techniques can be used to absorb the noise. These building and design techniques should serve two purposes: to mitigate noise to acceptable indoor and outdoor levels, and to enhance the community character rather than detract from its surroundings.

VIBRATION

Another community annoyance related to noise is vibration. Vibration can be described by both its amplitude and its frequency, where amplitude is characterized by displacement, velocity, and/or acceleration. Typically, particle velocity (measured in inches or millimeters per second) and/or acceleration (measured in gravities) are used to describe vibration.

Vibration can be felt outdoors, but the perceived intensity of vibration impacts are greater indoors, due to the shaking of the structure. Some of the most common sources of vibration come from trains and/or transit vehicles, construction equipment, airplanes, and large vehicles. Several land uses are especially sensitive to vibration and therefore have a lower vibration threshold. These uses include, but are not limited to, concert halls, hospitals, libraries, vibration-sensitive research operations, residential areas, schools, and offices.

Table N-2 presents the human reaction to various levels of peak particle velocity. Typical construction vibrations fall in the 10 to 30 Hertz (Hz) range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies. However, due to their suspension systems, buses often generate frequencies around 30 Hz at high speeds. It is more uncommon, but possible, to measure traffic frequencies above 30 Hz.

TABLE N-2: HUMAN REACTION TO TYPICAL VIBRATION LEVELS

Peak Particle Velocity (inches/second)	Human Reaction
0.0059–0.0188	Threshold of perception, possibility of intrusion
0.0787	Vibrations readily perceptible
0.0984	Continuous vibration begins to annoy people
0.1968	Vibrations annoying to people in buildings
0.3937–0.5905	Vibrations considered unpleasant when continuously subjected and unacceptable by some walking on bridges.

Source: Caltrans 1992

ISSUES FOR FUTURE PLANNING

Comprehensive noise study for the City. Transportation noise continues to be the single largest noise source in the City of Wildomar. As the City grows however, the ambient noise will likely increase which will make noise attenuation more difficult and required on more projects. Further, there are areas of the City where "quiet" is an expectation, and others where noise is more accepted. A community-wide noise survey would provide an update to the existing information used to create the Noise Element, and provide more detail on existing conditions that could be used to modify the noise ordinance.

NOISE GOALS AND POLICIES

GOAL N-1: Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses in Wildomar.

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

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

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

POLICIES

Policies are provided below in the following areas:

- General Noise Policies (page 9-7)
- Noise Mitigation Strategies (page 9-8)
- Noise Sources (page 9-12)
- Building and Design (page 9-13)
- Building and Design Techniques (page 9-14)

GENERAL POLICIES

POLICY N-1: Protect noise-sensitive land uses from high levels of noise by restricting permanent noise-producing land uses from these areas. (N 1.1)

POLICY N-2: Protect existing and planned future noise generating uses such from encroachment of noise sensitive uses. (New)

POLICY N-3: Continue to work with other agencies such as Caltrans and school districts to ensure that newly proposed facilities do not negatively affect existing noise-sensitive land uses. (New)

POLICY N-4: Coordinate with the County of Riverside and adjacent jurisdictions to minimize noise impacts from adjacent land uses along the City's boundaries, especially its rural edges. (New)

POLICY N-5: Consider the following uses to be sensitive to noise and vibration, and discourage these uses in areas where existing or projected future noise levels would be in excess of 65 CNEL and/or vibration would be more than 0.0787 peak particle velocity (inches per second): (N 1.3)

POLICY N-6: Schools

a. Hospitals

POLICY N-7: Rest homes

POLICY N-8: Long-term care facilities

POLICY N-9: Mental care facilities

POLICY N-10: Residential uses

POLICY N-11: Libraries

POLICY N-12: Passive recreation uses

POLICY N-13: Places of worship

POLICY N-14: Require noise-sensitive land uses proposed in areas where existing or projected future exterior noise levels would be in excess of 65 CNEL to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem. (N1.7)

POLICY N-15: Require that exterior noise forecasts use the appropriate level of service for the adjacent roadways or a 20-year projection of traffic volumes (whichever is greater) for future noise forecasts. (N 8.6)

POLICY N-16: Table N-3 provides the City's standards for maximum exterior stationary noise levels to which land designated for residential land uses may be exposed for any 10-minute period on any day. Where existing ambient noise levels exceed these standards, the ambient noise level shall be highest allowable noise level as measured in dBA L_{eq} (10 minutes). (New)

ACTION N-16.1: Establish acceptable standards for residential noise sources such as, but not limited to, leaf blowers, mobile vendors, mobile stereos, and stationary noise sources such as home appliances, air conditioners, and swimming pool equipment. (N 4.6)

ACTION N-16.2: Evaluate noise producers for the possibility of pure tone–producing noises. Mitigate any pure tones that may be emitted from a noise source. (N 4.7)

ACTION N-16.3: Establish and adopt as part of the Noise Ordinance, a standard for noise impact and mitigaiton in areas where the existing ambient noise exceeds the levels in Table N-3. (New)

TABLE N-3: MAXIMUM ALLOWABLE NOISE EXPOSURE – STATIONARY SOURCES, MEASURED AS DBA L_{EQ} (10 MINUTES)[1]

Land Use Type	Time Period	Interior Standards	Maximum Noise Level (dBA)
Residential	10 p.m. to 7 a.m.	40	45
	7 a.m. to 10 p.m.	55	65

1. Leq (equivalent sound level) is the average noise level during the time period of the sample. (N 2.3)

POLICY N-1: The City may impose exterior noise standards that are less restrictive than those specified in Table N-3, provided that: (New)

POLICY N-2: The noise impact on the residential or other noise-sensitive use is addressed in an environmental analysis and at least one outdoor area meets the standard.

POLICY N-3: A finding is made by the approving body specifying why the exception would not be detrimental to the public health, safety, and general welfare.

POLICY N-4: The exception would not adversely affect the character of the surrounding development.

POLICY N-5: The exception would not be injurious to adjacent uses, property, and improvements.

POLICY N-6: Alternatives have been considered but none are technologically feasible for the proposal.

POLICY N-7: Interior noise levels resulting from an external source will be consistent with Table N-3.

POLICY N-8: Residents of noise-sensitive uses are informed of the proposal during the review stage and prior to approval.

POLICY N-9: The City's preferences for providing noise mitigation are, in order of preference (#1 is most preferred; #5 is the least): (New)

POLICY N-10: Reduce noise at the source.

POLICY N-11: If #1 is not practical, designate land uses which are compatible with projected noise levels.

POLICY N-12: If #1 or #2 is not practical, use distance from the source to reduce noise to acceptable levels.

POLICY N-13: If #1, #2, or #3 is not practical, use buildings, berms, or landscaping or a combination of these to reduce exterior noise to acceptable levels. Use construction

techniques (sound-reducing windows, insulation, etc.) to reduce interior noise to acceptable levels.

POLICY N-14: The last measure that should be considered is the use of a sound wall to reduce noise to acceptable levels.

Note to the Reader: The location and design of public schools can not be regulated by the City; therefore, no noise standards for public schools are included in this element.

STATIONARY NOISE SOURCES

POLICY N-15: Ensure compatibility between industrial and commercial development and adjacent land uses. To achieve compatibility, industrial and commercial development projects may be required to include noise mitigation measures to avoid or minimize project impacts on adjacent uses. (N 4.3)

POLICY N-16: Encourage noise-tolerant land uses, such as commercial or industrial development, to locate in areas already committed to land uses that are noise producing. (N 3.7)

POLICY N-17: Require that parking structures, terminals, and loading docks of commercial or industrial land uses be designed to minimize potential noise impacts on adjacent noise-sensitive land uses. (N 4.8)

POLICY N-18: If noise levels in Table N-3 exceed, or are projected to be exceeded, because of the proposed commercial or industrial loading dock or delivery area, require that delivery hours be limited when adjacent to noise-sensitive land uses. (N 6.3)

ACTION N-34.1: Enforce all noise sections of the California Vehicle Code. (N 8.1)

MOBILE NOISE SOURCES

POLICY N-1: Protect residents from transportation-generated noise hazards. Increased setbacks, walls, landscaped berms, other sound-absorbing barriers, or a combination thereof shall be provided along freeways, expressways, and four-lane highways in order to protect adjacent noise-sensitive land uses from traffic-generated noise impacts. (C 20.6)

POLICY N-2: Natural buffers, setbacks, or other noise attenuation shall be established between freeways and urban arterial roadways and adjoining noise-sensitive areas. (N 8.2, N 8.5)

ACTION N-36.1: Employ noise mitigation practices when designing all future streets and highways and when improvements occur along existing highway segments.

POLICY N-1: Encourage local and regional public transit providers to ensure that the equipment they operate and purchase is state-of-the-art and does not generate excessive noise impacts on the community. (N 9.1)

POLICY N-2: Encourage the development and use of alternative transportation modes, including bicycle paths and pedestrian walkways, to minimize vehicular noise in residential and other noise-sensitive areas. (N 9.3)

POLICY N-3: Actively participate in the development of noise abatement plans for freeways and other new roadways. (N 9.4, C 3.29)

POLICY N-4: Reduce transportation noise through proper roadway design and coordination of truck and vehicle routing. (C 3.28)

TEMPORARY AND CONSTRUCTION NOISE SOURCES

POLICY N-5: Work to reduce the impacts of temporary noise sources, including construction activities, on adjacent land uses through the imposition of feasible and appropriate controls, including: (N 12.3)

POLICY N-6: Hours of operation

POLICY N-7: Limits on equipment types and sizes

POLICY N-8: Use of sound-buffering technology (temporary sound walls, improved mufflers, quieter equipment, etc.)

POLICY N-9: Phasing and timing of construction activity

POLICY N-10: Prohibiting unnecessary noise, such as loud music, outdoor air compressors, etc.

ACTION N-46.1: Review all proposed development projects and impose conditions as needed to reduce the impacts of construction and other short-term noise sources on adjacent uses.

ACTION N-46.2: Enforce the Wildomar Noise Ordinance.

POLICY N-11: Condition subdivision and other land development approval adjacent to developed/occupied noise-sensitive land uses to require the developer to submit a construction-related noise attenuation plan to the City for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and specify how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as: (N 12.3)

POLICY N-12: Temporary noise attenuation fences.

POLICY N-13: Preferential location of equipment.

POLICY N-14: Length of equipment use and idling time.

POLICY N-15: Use of current noise suppression technology and equipment.

POLICY N-16: Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas. (N 12.2)

POLICY N-17: Require that all construction equipment be kept properly tuned and use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer. (N 12.4)

BUILDING AND DESIGN TECHNIQUES

POLICY N-18: Development should use natural barriers such as berms, setbacks, and/or dense vegetation to assist in noise reduction. (N 11.1)

POLICY N-19: Continue to develop effective strategies and mitigation measures for the abatement of noise-reflecting effective site design approaches and state-of-the-art building technologies. (N 13.2)

POLICY N-20: **Noise reduction measures shall be included in the design of new development through measures that may include: (N 13.3)**

b. Separation of noise-sensitive buildings from noise-generating sources.

c. Use of natural topography and intervening structures to shield noise-sensitive land uses.

d. Adequate soundproofing of noise sources or receptor structures to maintain desired interior noise levels.

POLICY N-21: **Require that commercial and residential mixed-use structures minimize the transfer or transmission of noise and vibration from the commercial land use to the residential land use through appropriate building technologies. (N 14.1)**

Appendix C
Construction Noise Calculations

Noise Levels During Construction

Reference Levels: Construction Noise at 50 Feet (dBA Leq)[1]

Construction Phase	Distance: Receptor to center of activity	Average Level (dBA Leq)[2]	Distance: Receptor to border of site	Maximum Level (dBA Lmax)[3]	Drop Off hard=0; soft=0.5
Demolition + Prep	50	89	50	90	0
Demolition + Grading		89		90	
Demolition + Utilities		86		90	
Paving + Arch. Finishes +Site Improvements		89		90	
Building Construction		86		84	
Site Paving		86		84	
Finishing / Landscaping		85		82	

Construction Noise at Receptors E and F

Construction Phase	Distance: Receptor to center of activity	Average Level (dBA Leq)[2]	Distance: Receptor to border of site	Maximum Level (dBA Lmax)[3]
Demolition + Prep	435	70	90	84
Demolition + Grading		70		84
Demolition + Utilities		68		84
Paving + Arch. Finishes +Site Improvements		70		84
Building Construction		67		79
Site Paving		67		79
Finishing / Landscaping		66		77

Construction Noise at Receptors G, H, and I

Construction Phase	Distance: Receptor to center of activity	Average Level (dBA Leq)[2]	Distance: Receptor to border of site	Maximum Level (dBA Lmax)[3]
Demolition + Prep	470	69	130	81
Demolition + Grading		69		81
Demolition + Utilities		67		81
Paving + Arch. Finishes +Site Improvements		69		81
Building Construction		67		76
Site Paving		66		76
Finishing / Landscaping		65		73

Construction Noise to Receptors D and K

Construction Phase	Distance: Receptor to center of activity	Average Level (dBA Leq)[2]	Distance: Receptor to border of site	Maximum Level (dBA Lmax)[3]
Demolition + Prep	690	66	425	71
Demolition + Grading		66		71
Demolition + Utilities		64		71
Paving + Arch. Finishes +Site Improvements		66		71
Building Construction		63		65
Site Paving		63		65
Finishing / Landscaping		62		63

Construction Noise at Receptors A, B, and C

Construction Phase	Distance: Receptor to center of activity	Average Level (dBA Leq)[2]	Distance: Receptor to border of site	Maximum Level (dBA Lmax)[3]
Demolition + Prep	1000	63	810	65
Demolition + Grading		62		65
Demolition + Utilities		60		65
Paving + Arch. Finishes +Site Improvements		63		65
Building Construction		60		60
Site Paving		60		60
Finishing / Landscaping		59		58

[1] Calculations based on the Roadway Construction Noise Model with the construction information provided by the applicant.

[2] Average daily noise level including all equipment in use simultaneously considering utilization factors.

[3] Maximum instanteneous noise level from the loudest equipment used during the construction phase.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/16/2014
Case Description: Demo+Prep

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	60.0	60.0	60.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq
Concrete Saw	89.6	82.6
Excavator	80.7	76.7
Excavator	80.7	76.7
Excavator	80.7	76.7
Dozer	81.7	77.7
Dozer	81.7	77.7
Dozer	81.7	77.7
Backhoe	77.6	73.6
Backhoe	77.6	73.6
Tractor	84.0	80.0
Tractor	84.0	80.0
Total	89.6	88.7

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/16/2014
Case Description: Demo+Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	60.0	60.0	60.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Grader	No	40	85.0		50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq
Concrete Saw	89.6	82.6
Excavator	80.7	76.7
Excavator	80.7	76.7
Excavator	80.7	76.7
Dozer	81.7	77.7
Dozer	81.7	77.7
Grader	85.0	81.0
Backhoe	77.6	73.6
Backhoe	77.6	73.6
Tractor	84.0	80.0
Total	89.6	88.5

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/16/2014
Case Description: Demo+Utility

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	60.0	60.0	60.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq
Concrete Saw	89.6	82.6
Excavator	80.7	76.7
Excavator	80.7	76.7
Excavator	80.7	76.7
Dozer	81.7	77.7
Dozer	81.7	77.7
Total	89.6	86.4

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/16/2014
Case Description: Paving+Arch Finishes+Improvements

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	60.0	60.0	60.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Generator	No	50		80.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0
Compressor (air)	No	40		77.7	50.0	0.0
Paver	No	50		77.2	50.0	0.0
Paver	No	50		77.2	50.0	0.0
Pavement Scarafier	No	20		89.5	50.0	0.0
Pavement Scarafier	No	20		89.5	50.0	0.0
Roller	No	20		80.0	50.0	0.0
Roller	No	20		80.0	50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq
Dozer	81.7	77.7
Dozer	81.7	77.7
Dozer	81.7	77.7
Generator	80.6	77.6
Backhoe	77.6	73.6
Backhoe	77.6	73.6
Backhoe	77.6	73.6
Welder / Torch	74.0	70.0
Compressor (air)	77.7	73.7
Paver	77.2	74.2
Paver	77.2	74.2
Pavement Scarafier	89.5	82.5
Pavement Scarafier	89.5	82.5
Roller	80.0	73.0
Roller	80.0	73.0
Total	89.5	88.9

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/16/2014
Case Description: Building Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	60.0	60.0	60.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50.0	0.0
Generator	No	50		80.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq
Crane	80.6	72.6
Generator	80.6	77.6
Backhoe	77.6	73.6
Dozer	81.7	77.7
Dozer	81.7	77.7
Dozer	81.7	77.7
Backhoe	77.6	73.6
Tractor	84.0	80.0
Total	84.0	86.0

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/16/2014
Case Description: Site Improvements

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	60.0	60.0	60.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Welder / Torch	No	40		74.0	50.0	0.0
Generator	No	50		80.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq
Welder / Torch	74.0	70.0
Generator	80.6	77.6
Backhoe	77.6	73.6
Dozer	81.7	77.7
Dozer	81.7	77.7
Dozer	81.7	77.7
Backhoe	77.6	73.6
Tractor	84.0	80.0
Total	84.0	85.9

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/16/2014
Case Description: FinishingLandscaping

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	60.0	60.0	60.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Generator	No	50		80.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq
Dozer	81.7	77.7
Dozer	81.7	77.7
Dozer	81.7	77.7
Generator	80.6	77.6
Backhoe	77.6	73.6
Backhoe	77.6	73.6
Backhoe	77.6	73.6
Welder / Torch	74.0	70.0
Total	81.7	84.9

Appendix D
Traffic Noise Level Contours

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Palomar Street	Analyst:	NJF
Segment:	North of Clinton Keith Road	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	4,590
SPEED (mph)	50
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	282	5	2	208	4	2	52	1	0
Speed in MPH	50	50	50	50	50	50	50	50	50
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	71.1	78.8	83.0	71.1	78.8	83.0	71.1	78.8	83.0
ADJUSTMENTS									
Flow	-7.8	-25.0	-29.0	-9.1	-26.4	-30.3	-15.1	-32.4	-36.3
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	63.4	53.8	54.1	62.1	52.5	52.8	56.1	46.5	46.8
VEHICULAR NOISE	DAY=	64.3	Leq	EVENING=	63.0	Leq	NIGHT=	57.0	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**65.4**
			CNEL=	**66.0**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**25**	**53**	**114**
	CNEL:	**27**	**58**	**126**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Palomar Street	Analyst:	NJF
Segment:	from Clinton Keith Road to city bou	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	5,168
SPEED (mph)	50
ROAD NEAR-FAR LN. DIST.	12
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	317	6	2	234	4	2	59	1	0
Speed in MPH	50	50	50	50	50	50	50	50	50
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	71.1	78.8	83.0	71.1	78.8	83.0	71.1	78.8	83.0
ADJUSTMENTS									
Flow	-7.3	-24.5	-28.5	-8.6	-25.8	-29.8	-14.6	-31.8	-35.8
Distance	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	63.8	54.2	54.5	62.5	52.9	53.2	56.5	46.9	47.2
VEHICULAR NOISE	DAY=	64.7	Leq	EVENING=	63.4	Leq	NIGHT=	57.3	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**65.8**
			CNEL=	**66.4**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**26**	**56**	**121**
	CNEL:	**29**	**62**	**133**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Washington Avenue	Analyst:	NJF
Segment:	from city boundary to Calle del Oso	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	4,913
SPEED (mph)	40
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	301	6	2	223	4	2	56	1	0
Speed in MPH	40	40	40	40	40	40	40	40	40
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	67.4	76.3	81.2	67.4	76.3	81.2	67.4	76.3	81.2
ADJUSTMENTS									
Flow	-6.5	-23.8	-27.7	-7.8	-25.1	-29.0	-13.9	-31.1	-35.1
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	61.6	53.3	54.2	60.3	52.0	52.9	54.2	46.0	46.9
VEHICULAR NOISE	DAY=	62.8	Leq	EVENING=	61.5	Leq	NIGHT=	55.5	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**63.9**
			CNEL=	**64.5**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**20**	**42**	**91**
	CNEL:	**22**	**47**	**100**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Washington Avenue	Analyst:	NJF
Segment:	South of Calle del Oso Oro/ Nutme	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	11,085
SPEED (mph)	40
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	680	13	5	503	9	4	126	2	1
Speed in MPH	40	40	40	40	40	40	40	40	40
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	67.4	76.3	81.2	67.4	76.3	81.2	67.4	76.3	81.2
ADJUSTMENTS									
Flow	-3.0	-20.2	-24.2	-4.3	-21.6	-25.5	-10.3	-27.6	-31.5
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.1	56.8	57.7	63.8	55.5	56.4	57.8	49.5	50.4
VEHICULAR NOISE	DAY=	66.3	Leq	EVENING=	65.0	Leq	NIGHT=	59.0	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.4**
			CNEL=	**68.1**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**34**	**73**	**157**
	CNEL:	**37**	**80**	**173**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	West of Palomar Street	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	8,603
SPEED (mph)	45
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	528	10	4	390	7	3	98	2	1
Speed in MPH	45	45	45	45	45	45	45	45	45
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	69.3	77.6	82.1	69.3	77.6	82.1	69.3	77.6	82.1
ADJUSTMENTS									
Flow	-4.6	-21.9	-25.8	-5.9	-23.2	-27.1	-11.9	-29.2	-33.1
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.1	56.1	56.7	63.8	54.8	55.4	57.8	48.8	49.4
VEHICULAR NOISE	DAY=	66.1	Leq	EVENING=	64.8	Leq	NIGHT=	58.8	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.2**
			CNEL=	**67.8**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**33**	**70**	**151**
	CNEL:	**36**	**77**	**167**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	from Palomar Street to Hidden Spri	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	13,230
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	811	15	6	600	11	5	150	3	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-1.7	-18.9	-22.8	-3.0	-20.2	-24.2	-9.0	-26.2	-30.2
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.2	56.7	57.9	62.9	55.4	56.6	56.9	49.4	50.6
VEHICULAR NOISE	DAY=	65.7	Leq	EVENING=	64.4	Leq	NIGHT=	58.4	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**66.8**
			CNEL=	**67.4**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**31**	**66**	**142**
	CNEL:	**34**	**73**	**156**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	from Hidden Springs Road to I-15	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	17,198
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1055	20	8	780	15	6	195	4	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-0.5	-17.8	-21.7	-1.8	-19.1	-23.0	-7.8	-25.1	-29.0
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.9	57.4	58.7	63.6	56.1	57.4	57.6	50.1	51.4
VEHICULAR NOISE	DAY=	66.4	Leq	EVENING=	65.1	Leq	NIGHT=	59.1	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.5**
			CNEL=	**68.2**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**34**	**74**	**159**
	CNEL:	**38**	**81**	**175**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	East of I-15	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	16,508
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1012	19	8	748	14	6	187	4	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-0.7	-17.9	-21.9	-2.0	-19.2	-23.2	-8.0	-25.3	-29.2
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.8	57.2	58.5	63.5	55.9	57.2	57.4	49.9	51.2
VEHICULAR NOISE	DAY=	66.3	Leq	EVENING=	65.0	Leq	NIGHT=	58.9	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.4**
			CNEL=	**68.0**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**33**	**72**	**155**
	CNEL:	**37**	**79**	**170**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Calle del Oso Oro	Analyst:	NJF
Segment:	West of Washington Avenue	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	9,030
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	554	10	4	409	8	3	103	2	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-3.3	-20.6	-24.5	-4.6	-21.9	-25.8	-10.6	-27.9	-31.8
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	62.5	55.0	56.3	61.2	53.7	55.0	55.2	47.7	49.0
VEHICULAR NOISE	DAY=	64.0	Leq	EVENING=	62.7	Leq	NIGHT=	56.7	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**65.1**
			CNEL=	**65.8**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**24**	**51**	**110**
	CNEL:	**26**	**56**	**121**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING NO PROJECT	Project:	Sycamore Academy
Roadway:	Nutmeg Street	Analyst:	NJF
Segment:	East of Washington Avenue	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	5,528
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	339	6	3	251	5	2	63	1	0
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-5.4	-22.7	-26.6	-6.8	-24.0	-28.0	-12.8	-30.0	-34.0
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	59.8	52.2	53.5	58.4	50.9	52.2	52.4	44.9	46.2
VEHICULAR NOISE	DAY=	61.3	Leq	EVENING=	59.9	Leq	NIGHT=	53.9	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**62.4**
			CNEL=	**63.0**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**15**	**33**	**72**
	CNEL:	**17**	**37**	**79**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Palomar Street	Analyst:	NJF
Segment:	North of Clinton Keith Road	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	4,875
SPEED (mph)	50
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	299	6	2	221	4	2	55	1	0
Speed in MPH	50	50	50	50	50	50	50	50	50
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	71.1	78.8	83.0	71.1	78.8	83.0	71.1	78.8	83.0
ADJUSTMENTS									
Flow	-7.5	-24.8	-28.7	-8.9	-26.1	-30.0	-14.9	-32.1	-36.1
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	63.7	54.1	54.4	62.4	52.8	53.1	56.3	46.8	47.1
VEHICULAR NOISE	DAY=	64.6	Leq	EVENING=	63.2	Leq	NIGHT=	57.2	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**65.7**
			CNEL=	**66.3**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**26**	**55**	**119**
	CNEL:	**28**	**61**	**131**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Palomar Street	Analyst:	NJF
Segment:	from Clinton Keith Road to city bou	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	6,660
SPEED (mph)	50
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	408	8	3	302	6	2	76	1	1
Speed in MPH	50	50	50	50	50	50	50	50	50
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	71.1	78.8	83.0	71.1	78.8	83.0	71.1	78.8	83.0
ADJUSTMENTS									
Flow	-6.2	-23.4	-27.4	-7.5	-24.7	-28.7	-13.5	-30.7	-34.7
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.0	55.5	55.7	63.7	54.1	54.4	57.7	48.1	48.4
VEHICULAR NOISE	DAY=	65.9	Leq	EVENING=	64.6	Leq	NIGHT=	58.6	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.0**
			CNEL=	**67.6**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**32**	**68**	**147**
	CNEL:	**35**	**75**	**162**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Washington Avenue	Analyst:	NJF
Segment:	from city boundary to Calle del Oso	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	5,393
SPEED (mph)	40
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	331	6	3	244	5	2	61	1	0
Speed in MPH	40	40	40	40	40	40	40	40	40
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	67.4	76.3	81.2	67.4	76.3	81.2	67.4	76.3	81.2
ADJUSTMENTS									
Flow	-6.1	-23.4	-27.3	-7.4	-24.7	-28.6	-13.5	-30.7	-34.7
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	62.0	53.7	54.6	60.7	52.4	53.3	54.7	46.4	47.3
VEHICULAR NOISE	DAY=	63.2	Leq	EVENING=	61.9	Leq	NIGHT=	55.9	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**64.3**
			CNEL=	**64.9**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**21**	**45**	**97**
	CNEL:	**23**	**50**	**107**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Washington Avenue	Analyst:	NJF
Segment:	South of Calle del Oso Oro/ Nutme	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	11,408
SPEED (mph)	40
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	700	13	5	517	10	4	130	2	1
Speed in MPH	40	40	40	40	40	40	40	40	40
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	67.4	76.3	81.2	67.4	76.3	81.2	67.4	76.3	81.2
ADJUSTMENTS									
Flow	-2.9	-20.1	-24.1	-4.2	-21.4	-25.4	-10.2	-27.4	-31.4
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.2	56.9	57.8	63.9	55.6	56.5	57.9	49.6	50.5
VEHICULAR NOISE	DAY=	66.5	Leq	EVENING=	65.2	Leq	NIGHT=	59.1	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.6**
			CNEL=	**68.2**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**34**	**74**	**160**
	CNEL:	**38**	**82**	**176**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	West of Palomar Street	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	8,925
SPEED (mph)	45
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	547	10	4	405	8	3	101	2	1
Speed in MPH	45	45	45	45	45	45	45	45	45
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	69.3	77.6	82.1	69.3	77.6	82.1	69.3	77.6	82.1
ADJUSTMENTS									
Flow	-4.5	-21.7	-25.6	-5.8	-23.0	-27.0	-11.8	-29.0	-33.0
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.2	56.3	56.8	63.9	55.0	55.5	57.9	49.0	49.5
VEHICULAR NOISE	DAY=	66.3	Leq	EVENING=	65.0	Leq	NIGHT=	59.0	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.4**
			CNEL=	**68.0**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**33**	**72**	**155**
	CNEL:	**37**	**79**	**171**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	from Palomar Street to Hidden Spri	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	14,115
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	866	16	7	640	12	5	160	3	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-1.4	-18.6	-22.6	-2.7	-19.9	-23.9	-8.7	-25.9	-29.9
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.5	57.0	58.2	63.2	55.7	56.9	57.2	49.6	50.9
VEHICULAR NOISE	DAY=	66.0	Leq	EVENING=	64.7	Leq	NIGHT=	58.7	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.1**
			CNEL=	**67.7**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**32**	**69**	**148**
	CNEL:	**35**	**76**	**163**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	from Hidden Springs Road to I-15	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	18,083
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1109	21	8	820	15	6	205	4	2
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-0.3	-17.5	-21.5	-1.6	-18.8	-22.8	-7.6	-24.9	-28.8
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.2	57.6	58.9	63.8	56.3	57.6	57.8	50.3	51.6
VEHICULAR NOISE	DAY=	66.7	Leq	EVENING=	65.4	Leq	NIGHT=	59.3	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.8**
			CNEL=	**68.4**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**35**	**76**	**165**
	CNEL:	**39**	**84**	**181**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	East of I-15	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	16,628
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1020	19	8	754	14	6	189	4	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-0.7	-17.9	-21.9	-2.0	-19.2	-23.2	-8.0	-25.2	-29.2
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.8	57.3	58.5	63.5	56.0	57.2	57.5	50.0	51.2
VEHICULAR NOISE	DAY=	66.3	Leq	EVENING=	65.0	Leq	NIGHT=	59.0	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.4**
			CNEL=	**68.0**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**34**	**72**	**156**
	CNEL:	**37**	**79**	**171**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Calle del Oso Oro	Analyst:	NJF
Segment:	West of Washington Avenue	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	9,090
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	558	11	4	412	8	3	103	2	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-3.3	-20.5	-24.5	-4.6	-21.8	-25.8	-10.6	-27.8	-31.8
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	62.6	55.1	56.3	61.3	53.7	55.0	55.2	47.7	49.0
VEHICULAR NOISE	DAY=	64.1	Leq	EVENING=	62.8	Leq	NIGHT=	56.8	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**65.2**
			CNEL=	**65.8**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**24**	**51**	**111**
	CNEL:	**26**	**57**	**122**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	EXISTING PLUS PROJECT	Project:	Sycamore Academy
Roadway:	Nutmeg Street	Analyst:	NJF
Segment:	East of Washington Avenue	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	5,625
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	345	7	3	255	5	2	64	1	0
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-5.4	-22.6	-26.6	-6.7	-23.9	-27.9	-12.7	-29.9	-33.9
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	59.8	52.3	53.6	58.5	51.0	52.3	52.5	45.0	46.2
VEHICULAR NOISE	DAY=	61.3	Leq	EVENING=	60.0	Leq	NIGHT=	54.0	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**62.4**
			CNEL=	**63.1**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**16**	**34**	**73**
	CNEL:	**17**	**37**	**80**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Palomar Street	Analyst:	NJF
Segment:	North of Clinton Keith Road	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	6,353
SPEED (mph)	50
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	390	7	3	288	5	2	72	1	1
Speed in MPH	50	50	50	50	50	50	50	50	50
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	71.1	78.8	83.0	71.1	78.8	83.0	71.1	78.8	83.0
ADJUSTMENTS									
Flow	-6.4	-23.6	-27.6	-7.7	-24.9	-28.9	-13.7	-31.0	-34.9
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.8	55.3	55.5	63.5	53.9	54.2	57.5	47.9	48.2
VEHICULAR NOISE	DAY=	65.7	Leq	EVENING=	64.4	Leq	NIGHT=	58.4	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**66.8**
			CNEL=	**67.4**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**31**	**66**	**142**
	CNEL:	**34**	**73**	**157**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Palomar Street	Analyst:	NJF
Segment:	from Clinton Keith Road to city bou	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	5,730
SPEED (mph)	50
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	351	7	3	260	5	2	65	1	0
Speed in MPH	50	50	50	50	50	50	50	50	50
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	71.1	78.8	83.0	71.1	78.8	83.0	71.1	78.8	83.0
ADJUSTMENTS									
Flow	-6.8	-24.1	-28.0	-8.1	-25.4	-29.3	-14.2	-31.4	-35.4
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.4	54.8	55.1	63.1	53.5	53.8	57.0	47.5	47.8
VEHICULAR NOISE	DAY=	65.3	Leq	EVENING=	64.0	Leq	NIGHT=	57.9	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**66.4**
			CNEL=	**67.0**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**29**	**62**	**133**
	CNEL:	**31**	**68**	**146**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Washington Avenue	Analyst:	NJF
Segment:	from city boundary to Calle del Oso	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	9,488
SPEED (mph)	40
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	582	11	4	430	8	3	108	2	1
Speed in MPH	40	40	40	40	40	40	40	40	40
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	67.4	76.3	81.2	67.4	76.3	81.2	67.4	76.3	81.2
ADJUSTMENTS									
Flow	-3.7	-20.9	-24.9	-5.0	-22.2	-26.2	-11.0	-28.2	-32.2
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.4	56.1	57.0	63.1	54.8	55.7	57.1	48.8	49.7
VEHICULAR NOISE	DAY=	65.7	Leq	EVENING=	64.4	Leq	NIGHT=	58.3	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**66.8**
			CNEL=	**67.4**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**30**	**66**	**141**
	CNEL:	**34**	**72**	**156**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Washington Avenue	Analyst:	NJF
Segment:	South of Calle del Oso Oro/ Nutme	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	17,445
SPEED (mph)	40
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1070	20	8	791	15	6	198	4	2
Speed in MPH	40	40	40	40	40	40	40	40	40
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	67.4	76.3	81.2	67.4	76.3	81.2	67.4	76.3	81.2
ADJUSTMENTS									
Flow	-1.0	-18.3	-22.2	-2.3	-19.6	-23.5	-8.4	-25.6	-29.6
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	67.1	58.8	59.7	65.8	57.5	58.4	59.8	51.5	52.4
VEHICULAR NOISE	DAY=	68.3	Leq	EVENING=	67.0	Leq	NIGHT=	61.0	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**69.4**
			CNEL=	**70.0**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**46**	**98**	**212**
	CNEL:	**50**	**108**	**233**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	West of Palomar Street	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	5,730
SPEED (mph)	45
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	351	7	3	260	5	2	65	1	0
Speed in MPH	45	45	45	45	45	45	45	45	45
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	69.3	77.6	82.1	69.3	77.6	82.1	69.3	77.6	82.1
ADJUSTMENTS									
Flow	-6.4	-23.6	-27.6	-7.7	-24.9	-28.9	-13.7	-30.9	-34.9
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	63.3	54.4	54.9	62.0	53.0	53.6	56.0	47.0	47.6
VEHICULAR NOISE	DAY=	64.4	Leq	EVENING=	63.0	Leq	NIGHT=	57.0	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**65.5**
			CNEL=	**66.1**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**25**	**54**	**115**
	CNEL:	**27**	**59**	**127**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	from Palomar Street to Hidden Spri	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	15,525
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	952	18	7	704	13	5	176	3	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-1.0	-18.2	-22.2	-2.3	-19.5	-23.5	-8.3	-25.5	-29.5
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.9	57.4	58.6	63.6	56.1	57.3	57.6	50.1	51.3
VEHICULAR NOISE	DAY=	66.4	Leq	EVENING=	65.1	Leq	NIGHT=	59.1	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.5**
			CNEL=	**68.1**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**34**	**73**	**158**
	CNEL:	**37**	**81**	**174**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	from Hidden Springs Road to I-15	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	19,440
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1192	23	9	881	17	7	221	4	2
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	0.0	-17.2	-21.2	-1.3	-18.5	-22.5	-7.3	-24.5	-28.5
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.5	58.0	59.2	64.2	56.6	57.9	58.1	50.6	51.9
VEHICULAR NOISE	DAY=	67.0	Leq	EVENING=	65.7	Leq	NIGHT=	59.7	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**68.1**
			CNEL=	**68.7**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**37**	**80**	**173**
	CNEL:	**41**	**88**	**190**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	East of I-15	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	17,835
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1094	21	8	809	15	6	203	4	2
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-0.4	-17.6	-21.6	-1.7	-18.9	-22.9	-7.7	-24.9	-28.9
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.1	57.6	58.8	63.8	56.3	57.5	57.8	50.3	51.5
VEHICULAR NOISE	DAY=	66.6	Leq	EVENING=	65.3	Leq	NIGHT=	59.3	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.7**
			CNEL=	**68.3**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**35**	**76**	**163**
	CNEL:	**39**	**83**	**179**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Calle del Oso Oro	Analyst:	NJF
Segment:	West of Washington Avenue	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	12,638
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	775	15	6	573	11	4	144	3	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-1.9	-19.1	-23.0	-3.2	-20.4	-24.4	-9.2	-26.4	-30.4
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.0	56.5	57.7	62.7	55.2	56.4	56.7	49.2	50.4
VEHICULAR NOISE	DAY=	65.5	Leq	EVENING=	64.2	Leq	NIGHT=	58.2	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**66.6**
			CNEL=	**67.2**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**30**	**64**	**138**
	CNEL:	**33**	**70**	**152**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 NO PROJECT	Project:	Sycamore Academy
Roadway:	Nutmeg Street	Analyst:	NJF
Segment:	East of Washington Avenue	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	8,190
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	502	9	4	371	7	3	93	2	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-3.7	-21.0	-24.9	-5.0	-22.3	-26.2	-11.1	-28.3	-32.3
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	61.5	53.9	55.2	60.1	52.6	53.9	54.1	46.6	47.9
VEHICULAR NOISE	DAY=	63.0	Leq	EVENING=	61.7	Leq	NIGHT=	55.6	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**64.1**
			CNEL=	**64.7**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**20**	**43**	**93**
	CNEL:	**22**	**48**	**103**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Palomar Street	Analyst:	NJF
Segment:	North of Clinton Keith Road	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	6,638
SPEED (mph)	50
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	407	8	3	301	6	2	75	1	1
Speed in MPH	50	50	50	50	50	50	50	50	50
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	71.1	78.8	83.0	71.1	78.8	83.0	71.1	78.8	83.0
ADJUSTMENTS									
Flow	-6.2	-23.4	-27.4	-7.5	-24.7	-28.7	-13.5	-30.8	-34.7
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.0	55.4	55.7	63.7	54.1	54.4	57.7	48.1	48.4
VEHICULAR NOISE	DAY=	65.9	Leq	EVENING=	64.6	Leq	NIGHT=	58.6	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.0**
			CNEL=	**67.6**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**32**	**68**	**146**
	CNEL:	**35**	**75**	**161**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Palomar Street	Analyst:	NJF
Segment:	from Clinton Keith Road to city bou	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	7,223
SPEED (mph)	50
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	443	8	3	327	6	2	82	2	1
Speed in MPH	50	50	50	50	50	50	50	50	50
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	71.1	78.8	83.0	71.1	78.8	83.0	71.1	78.8	83.0
ADJUSTMENTS									
Flow	-5.8	-23.1	-27.0	-7.1	-24.4	-28.3	-13.2	-30.4	-34.4
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.4	55.8	56.1	64.1	54.5	54.8	58.1	48.5	48.8
VEHICULAR NOISE	DAY=	66.3	Leq	EVENING=	65.0	Leq	NIGHT=	58.9	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.4**
			CNEL=	**68.0**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**33**	**72**	**155**
	CNEL:	**37**	**79**	**170**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Washington Avenue	Analyst:	NJF
Segment:	from city boundary to Calle del Oso	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	9,968
SPEED (mph)	40
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	611	12	5	452	9	3	113	2	1
Speed in MPH	40	40	40	40	40	40	40	40	40
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	67.4	76.3	81.2	67.4	76.3	81.2	67.4	76.3	81.2
ADJUSTMENTS									
Flow	-3.5	-20.7	-24.7	-4.8	-22.0	-26.0	-10.8	-28.0	-32.0
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.6	56.4	57.2	63.3	55.0	55.9	57.3	49.0	49.9
VEHICULAR NOISE	DAY=	65.9	Leq	EVENING=	64.6	Leq	NIGHT=	58.6	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.0**
			CNEL=	**67.6**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**31**	**68**	**146**
	CNEL:	**35**	**75**	**161**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Washington Avenue	Analyst:	NJF
Segment:	South of Calle del Oso Oro/ Nutme	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	17,768
SPEED (mph)	40
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1090	21	8	805	15	6	202	4	2
Speed in MPH	40	40	40	40	40	40	40	40	40
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	67.4	76.3	81.2	67.4	76.3	81.2	67.4	76.3	81.2
ADJUSTMENTS									
Flow	-1.0	-18.2	-22.1	-2.3	-19.5	-23.5	-8.3	-25.5	-29.5
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	67.2	58.9	59.8	65.8	57.6	58.4	59.8	51.5	52.4
VEHICULAR NOISE	DAY=	68.4	Leq	EVENING=	67.1	Leq	NIGHT=	61.1	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**69.5**
			CNEL=	**70.1**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**46**	**100**	**215**
	CNEL:	**51**	**110**	**236**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	West of Palomar Street	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	7,223
SPEED (mph)	45
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	443	8	3	327	6	2	82	2	1
Speed in MPH	45	45	45	45	45	45	45	45	45
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	69.3	77.6	82.1	69.3	77.6	82.1	69.3	77.6	82.1
ADJUSTMENTS									
Flow	-5.4	-22.6	-26.6	-6.7	-23.9	-27.9	-12.7	-29.9	-33.9
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.3	55.4	55.9	63.0	54.0	54.6	57.0	48.0	48.6
VEHICULAR NOISE	DAY=	65.4	Leq	EVENING=	64.0	Leq	NIGHT=	58.0	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**66.5**
			CNEL=	**67.1**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**29**	**63**	**135**
	CNEL:	**32**	**69**	**148**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	from Palomar Street to Hidden Spri	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	16,410
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1006	19	8	744	14	6	186	4	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-0.7	-18.0	-21.9	-2.0	-19.3	-23.2	-8.0	-25.3	-29.2
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.1	57.6	58.9	63.8	56.3	57.6	57.8	50.3	51.6
VEHICULAR NOISE	DAY=	66.6	Leq	EVENING=	65.3	Leq	NIGHT=	59.3	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.7**
			CNEL=	**68.4**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**35**	**76**	**164**
	CNEL:	**39**	**84**	**181**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	from Hidden Springs Road to I-15	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	20,325
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1247	24	9	921	17	7	231	4	2
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	0.2	-17.0	-21.0	-1.1	-18.3	-22.3	-7.1	-24.4	-28.3
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.7	58.1	59.4	64.4	56.8	58.1	58.3	50.8	52.1
VEHICULAR NOISE	DAY=	67.2	Leq	EVENING=	65.9	Leq	NIGHT=	59.8	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**68.3**
			CNEL=	**68.9**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**38**	**83**	**178**
	CNEL:	**42**	**91**	**196**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Clinton Keith Road	Analyst:	NJF
Segment:	East of I-15	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	17,955
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	36
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	1101	21	8	814	15	6	204	4	2
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-0.3	-17.6	-21.5	-1.6	-18.9	-22.8	-7.7	-24.9	-28.8
Distance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	65.1	57.6	58.9	63.8	56.3	57.6	57.8	50.3	51.5
VEHICULAR NOISE	DAY=	66.6	Leq	EVENING=	65.3	Leq	NIGHT=	59.3	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**67.7**
			CNEL=	**68.4**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**35**	**76**	**164**
	CNEL:	**39**	**84**	**180**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Calle del Oso Oro	Analyst:	NJF
Segment:	West of Washington Avenue	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	12,698
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	48
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	779	15	6	576	11	4	144	3	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-1.8	-19.1	-23.0	-3.1	-20.4	-24.3	-9.2	-26.4	-30.4
Distance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	64.0	56.5	57.8	62.7	55.2	56.5	56.7	49.2	50.4
VEHICULAR NOISE	DAY=	65.5	Leq	EVENING=	64.2	Leq	NIGHT=	58.2	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**66.6**
			CNEL=	**67.3**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**30**	**64**	**138**
	CNEL:	**33**	**71**	**152**

FHWA RD-77-108 NOISE PREDICTION MODEL

Scenario:	2016 WITH PROJECT	Project:	Sycamore Academy
Roadway:	Nutmeg Street	Analyst:	NJF
Segment:	East of Washington Avenue	Date:	17-Sep-14

ROADWAY INPUTS	
ADT	8,288
SPEED (mph)	35
ROAD NEAR-FAR LN. DIST.	24
DISTANCE ROAD CL (ft)	50
SOFT/HARD CONDITIONS	Soft
GRADE (%)	0%
LEFT VIEW	-90
RIGHT VIEW	90

VEHICLE MIX INPUTS			
DAILY		HOURLY	
% A	97.4%	DAY	75.5%
% MT	1.8%	EVENING	14.0%
% HT	0.7%	NIGHT	10.5%

CALCULATION AREA									
	DAYTIME			EVENING			NIGHT		
	AUTOS	MT	HT	AUTOS	MT	HT	AUTOS	MT	HT
Vehicles per hour	508	10	4	376	7	3	94	2	1
Speed in MPH	35	35	35	35	35	35	35	35	35
Left angle	-90	-90	-90	-90	-90	-90	-90	-90	-90
Right angle	90	90	90	90	90	90	90	90	90
Reference levels (dBA)	65.1	74.8	80.0	65.1	74.8	80.0	65.1	74.8	80.0
ADJUSTMENTS									
Flow	-3.7	-20.9	-24.9	-5.0	-22.2	-26.2	-11.0	-28.2	-32.2
Distance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finite Roadway	0	0	0	0	0	0	0	0	0
Barrier	0	0	0	0	0	0	0	0	0
Grade	0	0	0	0	0	0	0	0	0
LEQ	61.5	54.0	55.3	60.2	52.7	53.9	54.2	46.7	47.9
VEHICULAR NOISE	DAY=	63.0	Leq	EVENING=	61.7	Leq	NIGHT=	55.7	Leq

RESULTS				
NOISE LEVELS AT 50 FEET FROM CENTERLINE (dBA):			**Ldn=**	**64.1**
			CNEL=	**64.7**
NOISE CONTOUR:		*70 dBA*	*65 dBA*	*60 dBA*
ROAD CENTERLINE DISTANCE TO NOISE CONTOUR (FEET):	**Ldn:**	**20**	**44**	**94**
	CNEL:	**22**	**48**	**103**