Parkview

NOISE IMPACT ANALYSIS

CITY OF LOS ANGELES

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PPV	Peak Particle Velocity
Project	Parkview
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise attenuation measures for the proposed Parkview development ("Project"). The Project site is located at 4020 South Compton Avenue, in the City of Los Angeles. It is our understanding that the Project is to consist of up to 130 residential dwelling units. This study has been prepared consistent with applicable City of Los Angeles noise standards and significance criteria, consistent with guidance provided in Appendix G of the California Environmental Quality Act (CEQA). (1)

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on roadway segments surrounding the Project site were estimated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts provided by Linscott, Law & Greenspan, Engineers. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing and Future conditions for both the with and without Project traffic conditions. The off-site traffic noise analysis shows that the Project noise level contributions will be *less than significant* at adjacent noise-sensitive land uses under all traffic scenarios.

OPERATIONAL NOISE ANALYSIS

The Project-related operational noise sources are expected to include roof-top air conditioning units, outdoor park activity, and parking lot vehicle movements. Using reference noise levels to represent the potential noise sources within Parkview site, this analysis estimates the Project-related operational (stationary-source) noise levels at the noise-sensitive receiver locations. The proposed Project's residential land uses are considered noise-sensitive receivers. Consistent with the existing residential land use in the study area, the Project is not expected to produce any substantial off-site operational noise source activity from its residential uses.

The noise analysis shows that the Project-related operational noise levels will satisfy the City of Los Angeles exterior noise level standards at nearby off-site receiver locations, and therefore, will not generate noise levels which exceed the existing ambient conditions by 5 dBA L_{eq} during the daytime and nighttime hours, respectively. As such, the operational noise level impacts associated with the proposed Project activities, such as the roof-top air conditioning units, outdoor park activity, and parking lot vehicle movements, will be *less than significant*.

CONSTRUCTION NOISE ANALYSIS

Project construction is expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the closest point to the nearby receiver locations from primary Project construction activity. Using sample reference noise levels to represent the planned construction activities of Parkview site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. The results of the construction noise analysis show that the unmitigated construction noise levels will satisfy the City of Los Angeles Municipal Code 75 dBA L_{eq} exterior construction noise level standard at the nearby sensitive receiver locations and will, therefore, result in a *less than significant* impact.

CONSTRUCTION VIBRATION ANALYSIS

Based on the reference vibration levels provided by the Federal Transit Administration, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec peak-particle-velocity (PPV) at 25 feet. At distances ranging from roughly 111 to 385 feet from primary Project construction activities, construction vibration velocity levels are expected to range from 0.001 to 0.010 in/sec PPV at sensitive residential receiver locations. Based on the Caltrans older residential building damage threshold of 0.3 in/sec PPV, the proposed Project construction activities would result in vibration levels which are anticipated to remain below the threshold for building damage, and therefore, represents a *less than significant* impact.

SUMMARY OF SIGNIFICANCE FINDINGS

The results of this Parkview Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise impact with Project Design Features.

TABLE ES-1: SUMMARY OF SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	9	*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	
Construction Vibration		*Less Than Significant*	-

1 INTRODUCTION

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

1.1 SITE LOCATION

The proposed Parkview Project is located at 4020 South Compton Avenue, in the City of Los Angeles, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

It is our understanding that the Project is to consist of up to 130 residential dwelling units, as shown on Exhibit 1-B.

Project-related stationary-source (operational) noise sources are expected to include: roof-top air conditioning units, outdoor park activity, and parking lot vehicle movements. Further, the proposed residential land uses are considered noise-sensitive receiving land uses and are not expected to include any specific type of operational noise levels beyond the typical noise sources associated with existing residential land use in the Project study area.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN

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2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (4) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

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

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source.

2.3.3 ATMOSPHERIC EFFECTS

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

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

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

2.6 LAND USE COMPATIBILITY WITH NOISE

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

2.7 COMMUNITY RESPONSE TO NOISE

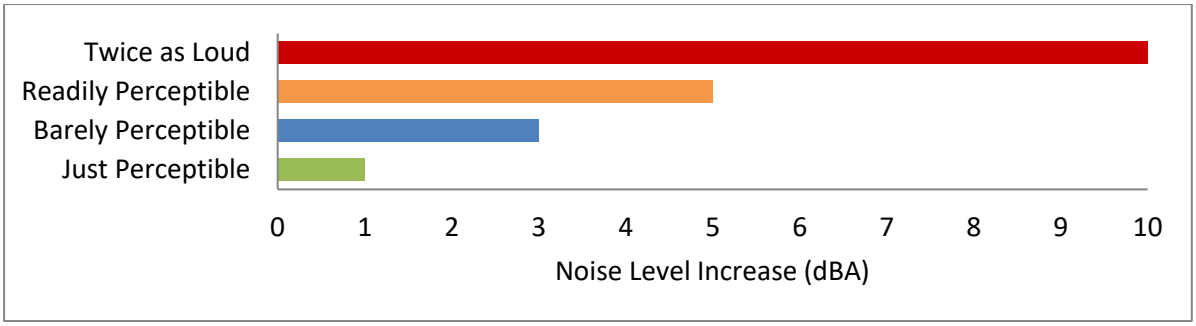
Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (7) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (7)

Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 EXPOSURE TO HIGH NOISE LEVELS

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

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

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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

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

3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.3 CITY OF LOS ANGELES GENERAL PLAN NOISE ELEMENT

The City of Los Angeles has adopted a Noise Element of the General Plan to identify goals, objectives, and policies for managing noise issues within the City. (10) The following goal and objectives are identified in the General Plan Noise Element:

Goal	*A city where noise does not reduce the quality of urban life.*
Objective 1	*Reduce airport and harbor related noise impacts.*

Objective 2 *Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses.*

Objective 3 *Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.*

Exhibit I of the City of Los Angeles General Plan Noise Element identifies *Guidelines for Noise Compatible Land Use* to evaluate the potential impacts of transportation-related noise. Multi-family residential land use, such as the Project, is considered *conditionally acceptable* with unmitigated exterior noise levels of less than 65 dBA CNEL. For *conditionally acceptable* exterior noise levels, n*ew construction or development only after a detailed analysis of noise mitigation is made and needed noise insulation features are included in project design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.* (10)

3.4 CITY OF LOS ANGELES OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as Parkview Project, stationary-source (operational) noise such as the expected roof-top air conditioning units, outdoor park activity, and parking lot vehicle movements are typically evaluated against standards established under a jurisdiction's Municipal Code or General Plan.

The City of Los Angeles Municipal Code, Chapter XI *Noise Regulation,* has set exterior noise limits to control community noise impacts from non-transportation noise sources (such as air-conditioning units, refrigeration, heating, pumping, and filtering equipment). Section 112.02 indicates that stationary noise sources shall not operate in such a manner as to cause the noise level at any sensitive use to exceed the existing ambient noise level by 5 dBA. (11) The City of Los Angeles Municipal Code, Chapter XI, is provided in Appendix 3.1.

3.5 CITY OF LOS ANGELES CONSTRUCTION NOISE STANDARDS

Section 112.05 of the City's Municipal Code identifies exterior noise level limits for construction equipment and states: *in any residential zone or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet therefrom*: (11)

- *75dB(A) for construction, industrial, and agricultural machinery including crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment.*

Therefore, for the purpose of this noise study, the City of Los Angeles Municipal Code 75 dBA L_{eq} threshold is used to determine potential Project-related construction noise level impacts at nearby sensitive receiver locations.

4 SIGNIFICANCE CRITERIA

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

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

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

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

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

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Project site is not located within two miles of a public airport or within an airport land use plan; nor is the Project within the vicinity of a private airstrip. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Guideline C.

4.2 SIGNIFICANCE CRITERIA

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix.

OFF-SITE OPERATIONAL TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
    - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
    - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
    - already exceed 65 dBA CNEL, and the Project creates a community noise level impact of greater than 1.5 dBA CNEL (FICON, 1992).

OPERATIONAL STATIONARY-SOURCE NOISE

- If Project-related operational (stationary source) noise levels exceed the exterior ambient noise levels at adjacent sensitive receiver locations by 5 dBA L_{eq} (City of Los Angeles Municipal Code, Section 112.02).

CONSTRUCTION NOISE

- If Project-related construction activities generate noise levels which exceed the exterior noise level standard of 75 dBA L_{eq} at adjacent sensitive receiver locations (City of Los Angeles Municipal Code, Section 112.05).

CONSTRUCTION VIBRATION

- If short-term Project generated construction vibration levels Exceed the Caltrans building damage vibration standard of 0.3 in/sec PPV at sensitive receiver locations; or

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic Noise[1]	Noise-Sensitive[1]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
Operational Noise[2]	Noise-Sensitive	Exterior Noise Level Standards	Existing Ambient Noise Level plus 5 dBA L_{eq}	
Construction	Noise-Sensitive	Exterior Noise Level Standards[3]	75 dBA L_{eq}	n/a
		Vibration Level Standard[4]	0.3 in/sec PPV	n/a

[1] Source: FICON, 1992.
[2] Source: City of Los Angeles Municipal Code, Section 112.02 (Appendix 3.1).
[3] Source: City of Los Angeles Municipal Code, Section 112.05 (Appendix 3.1).
[4] Source: Caltrans, Transportation & Construction Vibration Guidance Manual, September 2013.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "n/a" = No construction activity is permitted during the nighttime hours.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, five 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, May 22nd, 2019. Appendix 5.1 provides a series of study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (12)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent any part of a private yard, patio, deck or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (3) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (13)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (13) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby

sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels on Hooper Avenue, west of the Project site, near existing single-family residential homes and Thomas Jefferson High School. The noise level measurements collected show an overall 24-hour exterior noise level of 72.0 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 69.4 dBA L_{eq} with an average nighttime noise level of 64.0 dBA L_{eq}.
- Location L2 represents the noise levels on Compton Avenue, west of the Project site, adjacent to Thomas Jefferson High School. The noise level measurements collected show an overall 24-hour exterior noise level of 77.7 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 72.3 dBA L_{eq} with an average nighttime noise level of 71.1 dBA L_{eq}.
- Location L3 represents the noise levels north of E 41st Street, south of the Project site, near existing single-family residential homes. The 24-hour CNEL indicates that the overall exterior noise level is 58.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 54.8 dBA L_{eq} with an average nighttime noise level of 50.9 dBA L_{eq}.
- Location L4 represents the noise levels 0n Martin Luther King Boulevard, north of the Project site, near an existing single-family residential neighborhood. The 24-hour CNEL indicates that the overall exterior noise level is 63.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 61.9 dBA L_{eq} with an average nighttime noise level of 54.3 dBA L_{eq}.
- Location L5 represents the noise levels within Ross Snyder Recreation Center, east of the Project site. The 24-hour CNEL indicates that the overall exterior noise level is 65.0 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 62.4 dBA L_{eq} with an average nighttime noise level of 54.7 dBA L_{eq}.

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

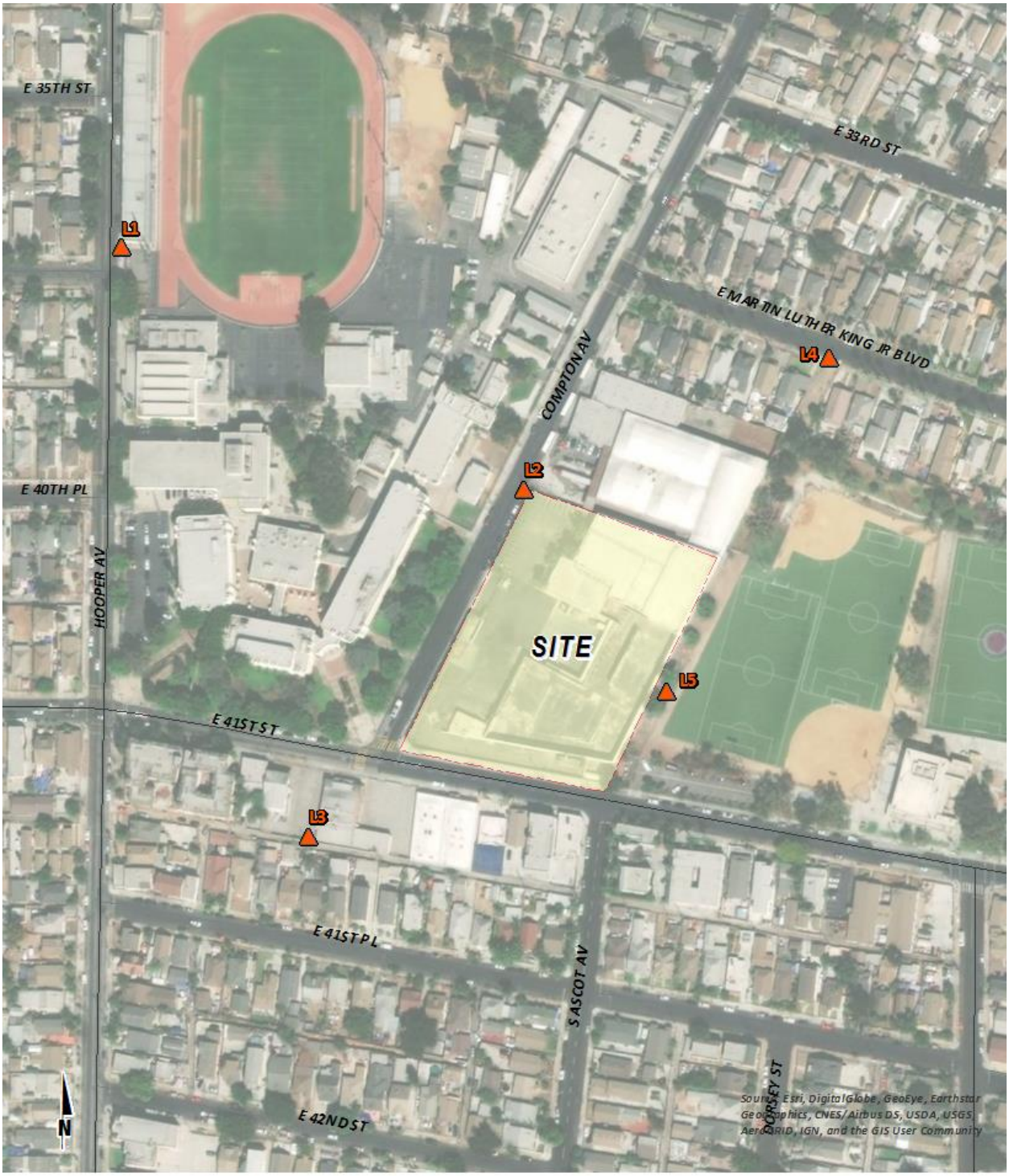
The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network. This includes auto and heavy truck activity near the noise level measurement locations. The 24-hour existing noise level measurements shown on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

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

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located on Hooper Avenue, west of the Project site, near existing single-family residential homes and Thomas Jefferson High School.	69.4	64.0	72.0
L2	Located on Compton Avenue, west of the Project site, adjacent to Thomas Jefferson High School.	72.3	71.1	77.7
L3	Located north of E 41st Street, south of the Project site, near existing single-family residential homes.	54.8	50.9	58.5
L4	Located on Martin Luther King Boulevard, north of the Project site, near an existing single-family residential neighborhood.	61.9	54.3	63.3
L5	Located within Ross Snyder Recreation Center, east of the Project site.	62.4	54.7	65.0

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

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



LEGEND:

▲ Noise Measurement Locations

6 METHODS AND PROCEDURES

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

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (14) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (15) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Los Angeles General Plan Mobility Element. Hard site conditions are used to account for the sound propagation loss over reflective surfaces between the source and receiver.

The Existing and Future average daily traffic volumes used for this study are presented on Table 6-2 and were provided by the *Technical Memorandum*. (2) Table 6-3 presents the time of day vehicle splits by vehicle type, and Table 6-4 presents the total traffic flow distributions (vehicle mixes) used in this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model based on roadway types.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Distance From Centerline to Nearest Adjacent Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	Central Av.	n/o 41st St.	40'	35
2	Central Av.	s/o 41st St.	40'	35
3	Central Av.	s/o Vernon Av.	40'	35
4	Hooper Av.	n/o 33rd St.	33'	25
5	Hooper Av.	n/o 41st St.	33'	25
6	Hooper Av.	n/o Vernon Av.	33'	25
7	Hooper Av.	s/o Vernon Av.	33'	25
8	Compton Av.	s/o Adams Bl.	33'	25
9	Compton Av.	s/o 41st St.	33'	25
10	Compton Av.	s/o Vernon Av.	40'	25
11	Long Beach Av.	n/o 41st St.	55'	35
12	Long Beach Av.	s/o 41st St.	55'	35
13	41st St.	e/o Central Av.	33'	25
14	41st St.	e/o Hooper Av.	33'	25
15	41st St.	w/o Long Beach Av.	33'	25
16	41st St.	e/o Long Beach Av.	33'	25

[1] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the City of Los Angeles General Plan Mobility Element.
[2] Posted speed limits.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic (1,000's)[1]			
			Existing		Future	
			Without Project	With Project	Without Project	With Project
1	Central Av.	n/o 41st St.	19.4	19.4	20.3	20.3
2	Central Av.	s/o 41st St.	18.8	18.9	19.6	19.6
3	Central Av.	s/o Vernon Av.	17.8	17.9	18.5	18.5
4	Hooper Av.	n/o 33rd St.	15.2	15.3	15.7	15.8
5	Hooper Av.	n/o 41st St.	16.6	16.6	17.1	17.1
6	Hooper Av.	n/o Vernon Av.	15.6	15.7	16.2	16.3
7	Hooper Av.	s/o Vernon Av.	14.3	14.3	14.8	14.8
8	Compton Av.	s/o Adams Bl.	6.6	6.8	7.0	7.2
9	Compton Av.	s/o 41st St.	8.0	8.1	8.3	8.4
10	Compton Av.	s/o Vernon Av.	12.4	12.4	12.9	12.9
11	Long Beach Av.	n/o 41st St.	8.9	8.9	10.0	10.0
12	Long Beach Av.	s/o 41st St.	10.8	10.8	11.7	11.7
13	41st St.	e/o Central Av.	7.3	7.5	8.1	8.2
14	41st St.	e/o Hooper Av.	8.4	8.6	9.2	9.4
15	41st St.	w/o Long Beach Av.	8.7	8.7	9.3	9.4
16	41st St.	e/o Long Beach Av.	7.4	7.4	7.6	7.7

[1] Source: Linscott, Law & Greenspan, Engineers.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time Period	Vehicle Type		
	Autos	Medium Trucks	Heavy Trucks
Daytime (7:00 a.m. - 7:00 p.m.)	77.50%	84.80%	86.50%
Evening (7:00 p.m. - 10:00 p.m.)	12.90%	4.90%	2.70%
Nighttime (10:00 p.m. - 7:00 p.m.)	9.60%	10.30%	10.80%
Total:	100.00%	100.00%	100.00%

Source: Typical southern California vehicle mix.

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

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

Source: Typical southern California vehicle mix.

6.3 CONSTRUCTION VIBRATION ASSESSMENT

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

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate potential vibration impacts with the following vibration assessment methods defined by the FTA. To describe potential vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

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

7 OFF-SITE TRANSPORTATION NOISE IMPACTS

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

- Existing Without / With Project Conditions: This scenario refers to the existing present-day noise conditions, without and with the proposed Project.
- Future Without / With Project: This scenario refers to the background future noise conditions without and with the proposed Project, and includes all cumulative projects identified in the Traffic Impact Analysis.

7.1 TRAFFIC NOISE CONTOURS

To quantify the Project's operational traffic noise impacts on the surrounding areas, the changes in traffic noise levels on the study area roadway segments conveying Project traffic were calculated based on the changes in the average daily traffic volumes. Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may affect ambient noise levels. In addition, since the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contribution from any surrounding stationary noise sources within the Project study area. Tables 7-1 to 7-4 present a summary of the exterior traffic noise levels for the study area roadway segments analyzed from the without Project to the with Project conditions in each of the two timeframes: Existing and Future conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet)[1]		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Central Av.	n/o 41st St.	65.5	RW	101	320
2	Central Av.	s/o 41st St.	65.4	RW	98	310
3	Central Av.	s/o Vernon Av.	65.1	RW	93	294
4	Hooper Av.	n/o 33rd St.	61.5	RW	34	109
5	Hooper Av.	n/o 41st St.	61.9	RW	37	119
6	Hooper Av.	n/o Vernon Av.	61.7	RW	35	112
7	Hooper Av.	s/o Vernon Av.	61.3	RW	RW	102
8	Compton Av.	s/o Adams Bl.	57.9	RW	RW	47
9	Compton Av.	s/o 41st St.	58.7	RW	RW	57
10	Compton Av.	s/o Vernon Av.	60.1	RW	RW	92
11	Long Beach Av.	n/o 41st St.	60.9	RW	RW	147
12	Long Beach Av.	s/o 41st St.	61.8	RW	57	180
13	41st St.	e/o Central Av.	58.4	RW	RW	52
14	41st St.	e/o Hooper Av.	59.0	RW	RW	60
15	41st St.	w/o Long Beach Av.	59.1	RW	RW	62
16	41st St.	e/o Long Beach Av.	58.4	RW	RW	53

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

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet)[1]		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Central Av.	n/o 41st St.	65.5	RW	101	320
2	Central Av.	s/o 41st St.	65.4	RW	98	311
3	Central Av.	s/o Vernon Av.	65.2	RW	93	295
4	Hooper Av.	n/o 33rd St.	61.6	RW	34	109
5	Hooper Av.	n/o 41st St.	61.9	RW	38	119
6	Hooper Av.	n/o Vernon Av.	61.7	RW	36	112
7	Hooper Av.	s/o Vernon Av.	61.3	RW	RW	102
8	Compton Av.	s/o Adams Bl.	58.0	RW	RW	48
9	Compton Av.	s/o 41st St.	58.8	RW	RW	58
10	Compton Av.	s/o Vernon Av.	60.1	RW	RW	92
11	Long Beach Av.	n/o 41st St.	60.9	RW	RW	148
12	Long Beach Av.	s/o 41st St.	61.8	RW	57	180
13	41st St.	e/o Central Av.	58.5	RW	RW	53
14	41st St.	e/o Hooper Av.	59.1	RW	RW	62
15	41st St.	w/o Long Beach Av.	59.1	RW	RW	62
16	41st St.	e/o Long Beach Av.	58.4	RW	RW	53

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

TABLE 7-3: FUTURE WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet)[1]		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Central Av.	n/o 41st St.	65.7	RW	106	335
2	Central Av.	s/o 41st St.	65.5	RW	102	322
3	Central Av.	s/o Vernon Av.	65.3	RW	96	304
4	Hooper Av.	n/o 33rd St.	61.7	RW	35	112
5	Hooper Av.	n/o 41st St.	62.1	RW	39	122
6	Hooper Av.	n/o Vernon Av.	61.8	RW	37	116
7	Hooper Av.	s/o Vernon Av.	61.4	RW	33	106
8	Compton Av.	s/o Adams Bl.	58.2	RW	RW	50
9	Compton Av.	s/o 41st St.	58.9	RW	RW	59
10	Compton Av.	s/o Vernon Av.	60.3	RW	RW	95
11	Long Beach Av.	n/o 41st St.	61.4	RW	RW	166
12	Long Beach Av.	s/o 41st St.	62.1	RW	61	194
13	41st St.	e/o Central Av.	58.8	RW	RW	58
14	41st St.	e/o Hooper Av.	59.4	RW	RW	66
15	41st St.	w/o Long Beach Av.	59.4	RW	RW	67
16	41st St.	e/o Long Beach Av.	58.6	RW	RW	55

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

TABLE 7-4: FUTURE WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (Feet)[1]		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Central Av.	n/o 41st St.	65.7	RW	106	335
2	Central Av.	s/o 41st St.	65.6	RW	102	323
3	Central Av.	s/o Vernon Av.	65.3	RW	97	305
4	Hooper Av.	n/o 33rd St.	61.7	RW	36	113
5	Hooper Av.	n/o 41st St.	62.1	RW	39	122
6	Hooper Av.	n/o Vernon Av.	61.9	RW	37	117
7	Hooper Av.	s/o Vernon Av.	61.4	RW	33	106
8	Compton Av.	s/o Adams Bl.	58.3	RW	RW	51
9	Compton Av.	s/o 41st St.	59.0	RW	RW	60
10	Compton Av.	s/o Vernon Av.	60.3	RW	RW	96
11	Long Beach Av.	n/o 41st St.	61.4	RW	RW	167
12	Long Beach Av.	s/o 41st St.	62.1	RW	61	194
13	41st St.	e/o Central Av.	58.9	RW	RW	59
14	41st St.	e/o Hooper Av.	59.5	RW	RW	67
15	41st St.	w/o Long Beach Av.	59.5	RW	RW	67
16	41st St.	e/o Long Beach Av.	58.6	RW	RW	55

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

7.2 EXISTING PLUS PROJECT BUILDOUT CONDITION PROJECT TRAFFIC NOISE LEVELS

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project (E+P) has been included in this report. However, the analysis of existing traffic noise levels plus traffic noise generated by the proposed Project (E+P) scenario will not actually occur since the Project would not be fully constructed and operational until Future Year conditions.

Table 7-5 presents a comparison of the Existing without and with Project conditions CNEL noise levels. Table 7-1 presents the Existing without Project conditions noise level contours that are expected to range from 57.9 to 65.5 dBA CNEL. Table 7-2 shows the Existing with Project conditions noise level contours that are expected to range from 58.0 to 65.5 dBA CNEL. As shown on Table 7-5 the Project is expected to generate an exterior noise level increase of up to 0.1 dBA CNEL under Existing conditions at land uses adjacent to the study area the roadway segments.

TABLE 7-5: EXISTING CONDITION OFF-SITE PROJECT-RELATED TRAFFIC NOISE INCREASES

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]		
			No Project	With Project	Project Addition
1	Central Av.	n/o 41st St.	65.5	65.5	0.0
2	Central Av.	s/o 41st St.	65.4	65.4	0.0
3	Central Av.	s/o Vernon Av.	65.1	65.2	0.1
4	Hooper Av.	n/o 33rd St.	61.5	61.6	0.1
5	Hooper Av.	n/o 41st St.	61.9	61.9	0.0
6	Hooper Av.	n/o Vernon Av.	61.7	61.7	0.0
7	Hooper Av.	s/o Vernon Av.	61.3	61.3	0.0
8	Compton Av.	s/o Adams Bl.	57.9	58.0	0.1
9	Compton Av.	s/o 41st St.	58.7	58.8	0.1
10	Compton Av.	s/o Vernon Av.	60.1	60.1	0.0
11	Long Beach Av.	n/o 41st St.	60.9	60.9	0.0
12	Long Beach Av.	s/o 41st St.	61.8	61.8	0.0
13	41st St.	e/o Central Av.	58.4	58.5	0.1
14	41st St.	e/o Hooper Av.	59.0	59.1	0.1
15	41st St.	w/o Long Beach Av.	59.1	59.1	0.0
16	41st St.	e/o Long Beach Av.	58.4	58.4	0.0

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

7.3 FUTURE PROJECT TRAFFIC NOISE LEVELS

Table 7-6 presents a comparison of the Future without and with Project conditions CNEL noise levels. Table 7-3 presents the Future without Project conditions noise level contours that are expected to range from 58.2 to 65.7 dBA CNEL. Table 7-4 shows the Future with Project conditions noise level contours that are expected to range from 58.3 to 65.7 dBA CNEL. As shown on Table 7-6 the Project is expected to generate an exterior noise level increase of up to 0.1 dBA CNEL, and will satisfy the significance thresholds identified in Section 4 on all roadway segments. Therefore, the off-site Project-related traffic noise level increases are considered *less than significant* under Future conditions at land uses adjacent to the study area the roadway segments.

TABLE 7-6: FUTURE OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Threshold Exceeded?[2]
			No Project	With Project	Project Addition	
1	Central Av.	n/o 41st St.	65.7	65.7	0.0	No
2	Central Av.	s/o 41st St.	65.5	65.6	0.1	No
3	Central Av.	s/o Vernon Av.	65.3	65.3	0.0	No
4	Hooper Av.	n/o 33rd St.	61.7	61.7	0.0	No
5	Hooper Av.	n/o 41st St.	62.1	62.1	0.0	No
6	Hooper Av.	n/o Vernon Av.	61.8	61.9	0.1	No
7	Hooper Av.	s/o Vernon Av.	61.4	61.4	0.0	No
8	Compton Av.	s/o Adams Bl.	58.2	58.3	0.1	No
9	Compton Av.	s/o 41st St.	58.9	59.0	0.1	No
10	Compton Av.	s/o Vernon Av.	60.3	60.3	0.0	No
11	Long Beach Av.	n/o 41st St.	61.4	61.4	0.0	No
12	Long Beach Av.	s/o 41st St.	62.1	62.1	0.0	No
13	41st St.	e/o Central Av.	58.8	58.9	0.1	No
14	41st St.	e/o Hooper Av.	59.4	59.5	0.1	No
15	41st St.	w/o Long Beach Av.	59.4	59.5	0.1	No
16	41st St.	e/o Long Beach Av.	58.6	58.6	0.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[2] Significance Criteria (Section 4).

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8 RECEIVER LOCATIONS

The City of Los Angeles General Plan Noise Element defines noise-sensitive uses as: *single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodgings and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves, and parks*. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

To assess the potential for long-term operational and short-term construction impacts, the following sensitive receiver locations as shown on Exhibit 8-A were identified as representative locations for analysis.

R1: Located approximately 140 feet west of the Project site on Compton Avenue, R1 represents existing school buildings.

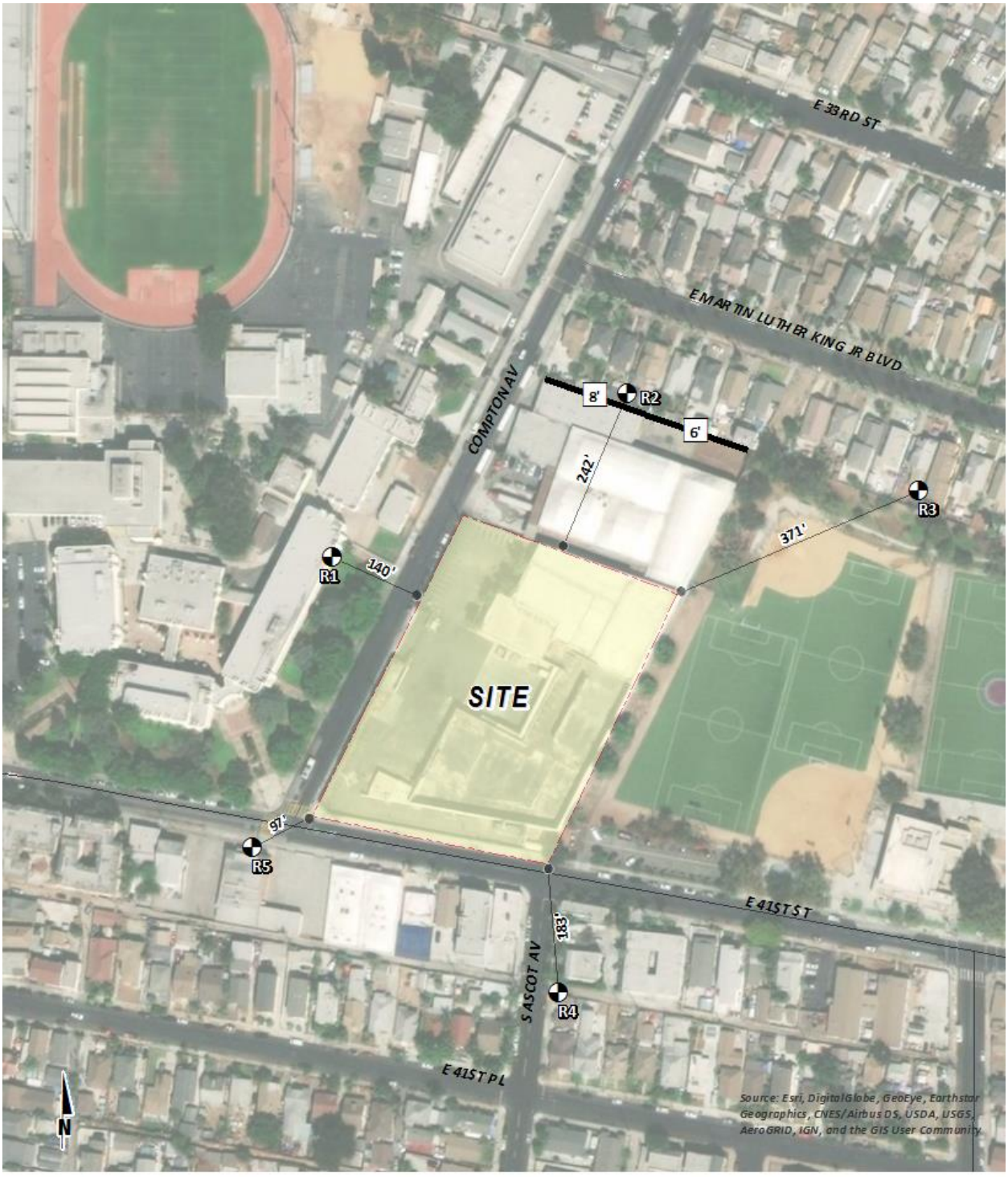
R2: Location R2 represents an existing residential outdoor living area (backyard) and home located approximately 242 feet north of the Project site on Martin Luther King Jr. Boulevard.

R3: Location R3 represents an existing residential outdoor living area (backyard) and home located approximately 371 feet northeast of the Project site on Martin Luther King Jr. Boulevard.

R4: Location R4 represents an existing residential outdoor living area (backyard) and home located approximately 183 feet south of the Project site on Ascot Avenue.

R5: Location R5 represents an existing church building located approximately 97 feet southwest of the Project site on 41st Street.

EXHIBIT 8-A: RECEIVER LOCATIONS



LEGEND:

Receiver Locations

8' 6' Existing Barrier Height (in feet)

Distance from receiver to Project site boundary (in feet)

Existing Barrier

9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts due to the Project's stationary noise sources on the off-site sensitive receiver locations identified in Section 8. Exhibit 9-A identifies the noise source locations used to assess the Project-related operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

Project-related stationary-source (operational) noise sources are expected to include: roof-top air conditioning units, outdoor park activity, and parking lot vehicle movements. Further, the proposed residential land uses are considered noise-sensitive receiving land uses and are not expected to include any specific type of operational noise levels beyond the typical noise sources associated with existing residential land use in the Project study area.

9.2 REFERENCE NOISE LEVELS

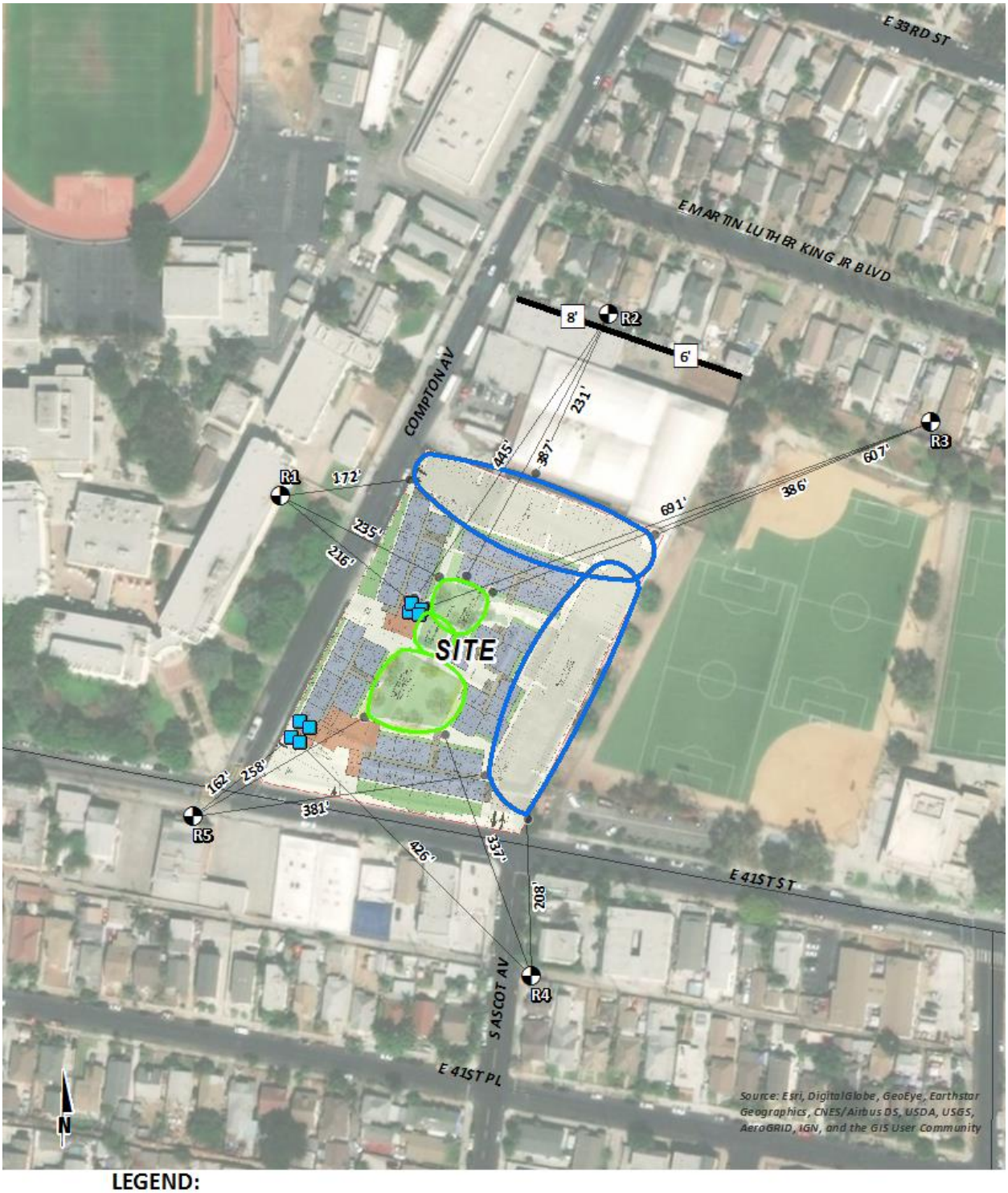
To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. Table 9-1 presents a summary of the reference noise level measurements used in this analysis to describe the Project operational noise levels.

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Dist. From Source (Feet)	Noise Source Height (Feet)	Reference Noise Level (dBA L_{eq})	
				@ Ref. Dist.	@ 50 Feet
Roof-Top Air Conditioning Units[1]	01:00:00	5'	5'	77.2	57.2
Outdoor Park Activity[2]	00:15:00	5'	5'	63.4	43.4
Parking Lot Vehicle Movements[3]	01:00:00	10'	5'	51.3	37.3

[1] As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.
[2] As measured by Urban Crossroads, Inc. on 10/8/2014 at a community park in Ladera Ranch in unincorporated Orange County.
[3] As measured by Urban Crossroads, Inc. on 8/24/2016 at an apartment community in the City of Riverside.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS



LEGEND:

- Receiver Locations
- Roof-Top Air Conditioning Unit
- Distance from receiver to noise source (in feet)
- 8' Existing Barrier Height (in feet)
- Parking Lot Vehicle Movements
- Outdoor Park Activity
- Existing Barrier

9.2.1 ROOF-TOP AIR CONDITIONING UNITS

At the time this noise study was prepared, the specific model numbers and specifications of the air conditioning units to be used at the Project site were unknown. Therefore, to present a conservative approach, a reference noise level measurement of commercial-sized air conditioning units (roof-top) is used to represent worst-case conditions. The reference noise levels measurements were taken at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe mechanical roof-top air conditioning units on the roof of an existing Walmart store. The reference noise level represents Lennox SCA120 series 10-ton model packaged air conditioning units. Using the uniform reference distance of 50 feet, the noise level is 57.2 dBA L_{eq}. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F.

9.2.2 OUTDOOR PARK ACTIVITY

An outdoor park activity reference noise level measurement was taken at the Founder's Park in the community of Ladera Ranch in unincorporated County of Orange on October 8th, 2014. At 50 feet, the reference noise level is 43.4 dBA L_{eq} at a noise source height of 5 feet. The reference noise level measurement includes children playing on a playground, a children's soccer game, and parents and children cheering and talking.

9.2.3 PARKING LOT VEHICLE MOVEMENTS

A parking lot vehicle movements reference noise level measurement was taken at the Windmere apartment community in the City of Riverside on August 24th, 2016. At 50 feet, the reference noise level is 37.3 dBA L_{eq} at a noise source height of 5 feet. The reference noise level measurement includes vehicles entering and existing the parking area, a car alarm, doors closing, and background vehicle movements.

9.3 OPERATIONAL NOISE LEVELS

Based upon the reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each of the nearby sensitive receiver locations. The operational noise level calculations shown on Table 9-2 account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. With geometric spreading, sound levels attenuate (or decrease) at a rate of 6 dB for each doubling of distance from a point source. Table 9-2 indicates that the noise levels associated with the roof-top air conditioning units, outdoor park activity, and parking lot vehicle movements are expected to range from 25.7 to 47.1 dBA L_{eq} at the nearby sensitive receiver locations.

TABLE 9-2: OPERATIONAL NOISE LEVELS

Receiver Location[1]	Noise Source[2]			Unmitigated Total Project Operational Noise Levels (dBA L_{eq})[3]
	Roof-Top Air Conditioning Units	Outdoor Park Activity	Parking Lot Vehicle Movements	
R1	44.5	30.0	26.6	44.7
R2	38.2	25.6	18.5	38.5
R3	24.3	11.5	19.6	25.7
R4	38.6	26.8	24.9	39.0
R5	47.0	29.1	19.7	47.1

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 9-1.
[3] Calculations for each noise source are provided in Appendix 9.1.

9.3 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

The City of Los Angeles Municipal Code has set exterior noise limits to control community noise impacts from non-transportation noise sources (such as air-conditioning units, refrigeration, heating, pumping, and filtering equipment). Section 112.02 indicates that stationary noise sources shall not operate in such a manner as to cause the noise level at any sensitive use to exceed the existing ambient noise level by 5 dBA. (11) Tables 9-3 and 9-4 show the Project-only operational noise levels, the closest ambient noise level measurement (see Section 5), and the adjusted operational noise level limits at each of the nearby sensitive receiver locations. Both the daytime and nighttime ambient noise levels are used to evaluate the potential Project-related operational noise levels, as shown on Tables 9-3 and 9-4, respectively.

Table 9-3 shows the daytime operational noise levels limits, per the City of Los Angeles Municipal Code, approach 72.3 dBA L_{eq}, and the Project-only operational noise levels ranging from 25.7 to 47.1 dBA L_{eq} will satisfy the standards at each sensitive receiver location. Table 9-4 shows the nighttime operational noise levels limits, per the City of Los Angeles Municipal Code, will approach 71.1 dBA L_{eq}, and the Project-only operational noise levels ranging from 25.7 to 47.1 dBA L_{eq} will satisfy the standards at each sensitive receiver location.

TABLE 9-3: DAYTIME OPERATIONAL NOISE LEVEL COMPLIANCE (DBA L_{EQ})

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Ambient Plus 5 dBA	Threshold[5]	Threshold Exceeded?[6]
R1	44.7	L2	72.3	+5	77.3	No
R2	38.5	L4	61.9	+5	66.9	No
R3	25.7	L4	61.9	+5	66.9	No
R4	39.0	L3	54.8	+5	59.8	No
R5	47.1	L3	54.8	+5	59.8	No

[1] See Exhibit 9-A for the sensitive receiver locations and noise source locations.
[2] Total Project operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Ambient plus 5 dBA per the Municipal Code Section 112.02(a).
[6] Do the Project operational noise levels exceed the ambient plus 5 dBA threshold identified by the City of Los Angeles?

TABLE 9-4: NIGHTTIME OPERATIONAL NOISE LEVEL COMPLIANCE (DBA L_{EQ})

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Ambient Plus 5 dBA	Threshold[5]	Threshold Exceeded?[6]
R1	44.7	L2	71.1	+5	76.1	No
R2	38.5	L4	54.3	+5	59.3	No
R3	25.7	L4	54.3	+5	59.3	No
R4	39.0	L3	50.9	+5	55.9	No
R5	47.1	L3	50.9	+5	55.9	No

[1] See Exhibit 9-A for the sensitive receiver locations and noise source locations.
[2] Total Project operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Ambient plus 5 dBA per the Municipal Code Section 112.02(a).
[6] Do the Project operational noise levels exceed the ambient plus 5 dBA threshold identified by the City of Los Angeles?

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10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction activity boundaries in relation to the nearby sensitive receiver locations.

10.1 CONSTRUCTION NOISE LEVELS

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

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 62 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the data used to support the construction emissions in the *Parkview Air Quality* study prepared by Urban Crossroads Inc. (16)

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the reference construction noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 10-1 have been adjusted to describe a common reference distance of 50 feet.

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Duration (h:mm:ss)	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L_{eq})	Reference Noise Levels @ 50 Feet (dBA L_{eq})[6]
1	Truck Pass-Bys & Dozer Activity[1]	0:01:15	30'	63.6	59.2
2	Dozer Activity[1]	0:01:00	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities[2]	0:01:00	30'	71.9	67.5
4	Foundation Trenching[2]	0:01:01	30'	72.6	68.2
6	Residential Framing[3]	0:02:00	30'	66.7	62.3
7	Concrete Paver Activities[4]	0:01:00	30'	70.0	65.6
8	Concrete Mixer Pour & Paving Activities[4]	0:01:00	30'	70.3	65.9
9	Forklift, Jackhammer, & Metal Truck Bed Loading[5]	0:02:06	50'	67.9	67.9

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[3] As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.
[4] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[5] As measured by Urban Crossroads, Inc. on 9/9/16 during the demolition of an existing paved parking lot at 41 Corporate Park in Irvine.
[6] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

10.3 CONSTRUCTION NOISE ANALYSIS

Tables 10-2 to 10-6 show the Project construction stages and the reference construction noise levels used for each stage. Table 10-7 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations in the City of Los Angeles. Based on the reference construction noise levels, the Project-related construction noise levels when the highest reference noise level is operating at a single point nearest the sensitive receiver location will range from 43.1 to 61.2 dBA L_{eq} at the sensitive receiver locations in the City of Los Angeles. Exhibit 10-A shows the construction activity noise source location and the distance to each nearby sensitive receiver location.

TABLE 10-2: SITE PREPARATION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	64.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	152'	-9.7	0.0	54.5
R2	256'	-14.2	-5.0	45.0
R3	385'	-17.7	0.0	46.4
R4	196'	-11.9	0.0	52.3
R5	111'	-6.9	0.0	57.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms/buildings in the Project study area.

TABLE 10-3: GRADING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	64.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	152'	-9.7	0.0	54.5
R2	256'	-14.2	-5.0	45.0
R3	385'	-17.7	0.0	46.4
R4	196'	-11.9	0.0	52.3
R5	111'	-6.9	0.0	57.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms/buildings in the Project study area.

TABLE 10-4: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Residential Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	68.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	152'	-9.7	0.0	58.5
R2	256'	-14.2	-5.0	49.0
R3	385'	-17.7	0.0	50.4
R4	196'	-11.9	0.0	56.3
R5	111'	-6.9	0.0	61.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms/buildings in the Project study area.

TABLE 10-5: PAVING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Concrete Paver Activities	65.6
Concrete Mixer Pour & Paving Activities	65.9
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	65.9

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	152'	-9.7	0.0	56.2
R2	256'	-14.2	-5.0	46.7
R3	385'	-17.7	0.0	48.1
R4	196'	-11.9	0.0	54.0
R5	111'	-6.9	0.0	58.9

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms/buildings in the Project study area.

TABLE 10-6: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Residential Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	62.3

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	152'	-9.7	0.0	52.6
R2	256'	-14.2	-5.0	43.1
R3	385'	-17.7	0.0	44.5
R4	196'	-11.9	0.0	50.4
R5	111'	-6.9	0.0	55.3

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms/buildings in the Project study area.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS

LEGEND:

- Receiver Locations
- Construction Activity
- 8' Existing Barrier Height (in feet)
- Distance from receiver to construction activity (in feet)
- Existing Barrier

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the edge of the Project site boundaries. As shown on Table 10-7, the unmitigated construction noise levels are expected to range from 43.1 to 61.2 dBA L_{eq} at the sensitive receiver locations in the City of Los Angeles. To control noise impacts associated with the construction of the proposed Project, the City of Los Angeles Municipal Code has established an exterior noise level standard of 75 dBA L_{eq}.

TABLE 10-7: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY (DBA L_{EQ})

Receiver Location[1]						
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Noise Levels[2]
R1	54.5	54.5	58.5	56.2	52.6	58.5
R2	45.0	45.0	49.0	46.7	43.1	49.0
R3	46.4	46.4	50.4	48.1	44.5	50.4
R4	52.3	52.3	56.3	54.0	50.4	56.3
R5	57.2	57.2	61.2	58.9	55.3	61.2

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Estimated construction noise levels during peak operating conditions.

Based on the Project-related construction noise levels approaching 61.2 dBA L_{eq}, the unmitigated noise levels satisfy the City of Los Angeles Municipal Code 75 dBA L_{eq} exterior noise level standard for construction. Therefore, Project construction noise levels represent a *less than significant* noise impact at adjacent sensitive receiver locations, as shown on Table 10-8.

TABLE 10-8: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA L_{EQ})

Receiver Location[1]	Highest Project Construction Noise Level[2]	Threshold[3]	Threshold Exceeded?[4]
R1	58.5	75	No
R2	49.0	75	No
R3	50.4	75	No
R4	56.3	75	No
R5	61.2	75	No

[1] See Exhibit 10-A for the sensitive receiver locations.
[2] Peak Project construction noise levels as shown on Table 10-7.
[3] Source: City of Los Angeles Municipal Code, Section 112.05.
[6] Do the peak Project construction noise levels exceed the threshold identified by the City of Los Angeles?

10.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. The proposed Project's construction activities most likely to cause vibration impacts are:

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

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-5 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-10 presents the expected Project related vibration levels at each of the sensitive receiver locations.

Based on the reference vibration levels provided by the Federal Transit Administration, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec peak-particle-velocity (PPV) at 25 feet. At distances ranging from 111 to 385 feet from primary Project construction activities, construction vibration velocity levels are expected to range from 0.001 to 0.010 in/sec PPV at sensitive residential receiver locations. Based on the Caltrans older residential building damage threshold of 0.3 in/sec PPV, the proposed Project construction activities would result in vibration levels which are anticipated to remain below the threshold for building damage, and therefore, represents a *less than significant* impact.

TABLE 10-9: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Reference Vibration Levels @ 25' & Resulting Vibration at Receiver Locations (in/sec)[2]					Threshold (in/sec PPV)	Threshold Exceeded?[3]
		Small Bulldozer (0.003 in/sec)	Jack-Hammer (0.035)	Loaded Trucks (0.076)	Large Bulldozer (0.089)	Peak Vibration Levels		
R1	152'	0.000	0.002	0.005	0.006	0.006	0.3	No
R2	256'	0.000	0.001	0.002	0.003	0.003	0.3	No
R3	385'	0.000	0.001	0.001	0.001	0.001	0.3	No
R4	196'	0.000	0.002	0.003	0.004	0.004	0.3	No
R5	111'	0.000	0.004	0.008	0.010	0.010	0.3	No

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

[2] Based on the FTA's Vibration Source Levels of Construction Equipment previously shown on Table 6-5 at a reference distance of 25 feet. Calculated using the following equation per FTA guidance: PPVequip = PPVref x (25/D)^1.5

Where "PPVequip" = the vibration level at the receiver; "PPVref" = the reference vibration level at 25 feet; and "D" = the distance to each receiver location.

[3] Does the peak vibration exceed the maximum acceptable vibration threshold?

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11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2019.
2. **Linscott, Law & Greenspan, Engineers.** *Technical Memorandum - Parkview.* July 2019.
3. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
4. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
5. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **Occupational Safety and Health Administration.** *Standard 29 CRF, Part 1910.*
9. **Office of Planning and Research.** *State of California General Plan Guidlines.* 2018.
10. **City of Los Angeles.** *General Plan Noise Element.* February 1999.
11. —. *Municipal Code, Chapter XI - Noise Regulation.*
12. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
13. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
14. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
15. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
16. **Urban Crossroads, Inc.** *Parkview Air Quality.* August 2019.

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12 CERTIFICATION

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

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EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

CITY OF LOS ANGELES MUNICIPAL CODE

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CHAPTER XI
NOISE REGULATION

(Added by Ord. No. 144,331, Eff. 3/2/73.)

Article

ARTICLE 1
GENERAL PROVISIONS

Section

SEC. 111.00. DECLARATION OF POLICY.

It is hereby declared to be the policy of the City to prohibit unnecessary, excessive and annoying noises from all sources subject to its police power. At certain levels noises are detrimental to the health and welfare of the citizenry and in the public interests shall be systematically proscribed.

SEC. 111.01. DEFINITIONS.

Unless the context otherwise clearly indicates, the words and phrases used in this chapter are defined as follows:

(a) "**Ambient Noise**" is the composite of noise from all sources near and far in a given environment, exclusive of occasional and transient intrusive noise sources and of the particular noise source or sources to be measured. Ambient noise shall be averaged over a period of at least 15 minutes at a location and time of day comparable to that during which the measurement is taken of the particular noise source being measured. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(b) "**Commercial Purpose**" is the use, operation, or maintenance of any sound amplifying equipment for the purpose of advertising any business, goods, or services, or for the purpose of attracting the attention of the public to, advertising for, or soliciting patronage or customers to or for any performance, show, entertainment, exhibition, or event, or for the purpose of demonstrating such sound equipment. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(c) "**Decibel**" (dB) is a unit of level which denotes the ratio between two (2) quantities which are proportional to power; the number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base (10) of this ratio. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(d) "**Emergency Work**" is work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from an imminent exposure to danger, or work by private or public utilities when restoring utility service. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(e) "**Impulsive Sound**" is sound of short duration, usually less than one second, with an abrupt onset and rapid decay. By way of example "**impulsive sound**" shall include, but shall not be limited to, explosions, musical base drum beats, or the discharge of firearms. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(f) "**Motor Vehicle**" includes, but shall not be limited to, automobiles, trucks, motorcycles, minibikes and go-carts. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(g) "**Noncommercial Purpose**" is the use, operation, or maintenance of any sound equipment for other than a "commercial purpose". "Noncommercial purpose" shall mean and include, but shall not be limited to, philanthropic, political, patriotic, and charitable purposes. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(h) "**Octave Band Noise Analyzer**" is an instrument for measurement of sound levels in octave frequency bands which satisfies the pertinent requirements for Class II octave band analyzers of the American National Standard Specifications for Octave, Half-Octave, and Third-Octave Band Filters, S1.11-1966 or the most recent revision thereof. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(i) "**Person**" is a person, firm, association, co-partnership, joint venture, corporation, or any entity, private or public in nature. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(j) "**Sound Amplifying Equipment**" **(Amended by Ord. No. 156,363, Eff. 3/29/82.)** is any machine or device for the amplification of the human voice, music or any other sound, but shall not include:

1. Automobile radios, stereo players or television receivers when used and heard only by the occupants of the vehicle in which the same is installed.

2. Radio, stereo players, phonographs or television receivers used in any house or apartment within any residential zone or within 500 feet thereof.

3. Warning devices on emergency vehicles.

4. Horns or other warning devices authorized by law on any vehicle when used for traffic purposes.

(k) "**Sound Level**" (Noise level) in decibels (dB) is the sound measured with the "A" weighting and slow responses by a sound level meter; except for impulsive or rapidly varying sounds, the fast response shall be used. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(l) "**Sound Level Meter**" is an instrument including a microphone, an amplifier, an output meter, and "A" frequency weighting network for the measurement of sound levels which satisfies the pertinent requirements for Type S2A meters in American Standard Specifications for sound level meters in S1.4-1971 or the most recent revision thereof. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(m) "**Sound Truck**" is any motor vehicle, or any other vehicle regardless of motive power, whether in motion or stationary, which carries, is equipped with, or which has mounted thereon, or attached thereto, any sound amplifying equipment. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(n) **Supplementary Definitions of Technical Terms**. Definitions of technical terms not defined herein shall be obtained from American Standard Acoustical Terminology S1-1-1971 or the most recent revision thereof. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

SEC. 111.02. SOUND LEVEL MEASUREMENT PROCEDURE AND CRITERIA.

(Title amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) **(Amended by Ord. No. 156,363, Eff. 3/29/82.)** Any sound level measurement made pursuant to the provisions of this chapter shall be measured with a sound level meter using the "A" weighting and response as indicated in Section 111.01(k) of this article.

Except when impractical, the microphone shall be located four to five feet above the ground and ten feet or more from the nearest reflective surface. However, in those cases where another elevation is deemed appropriated, the latter shall be utilized.

Interior sound level measurements shall be made at a point at least four feet from the wall, ceiling, or floor nearest the noise source.

Calibration of the sound level meter, utilizing an acoustic calibrator shall be performed immediately prior to recording any sound level data. The ambient noise level and the level of a particular noise being measured shall be the numerical average of noise measurements taken at a given location during a given time period.

(b) **(Amended by Ord. No. 156,363, Eff. 3/29/82.)** Where the sound alleged to be offending is of a type or character set forth below, the following values shall be added to the sound level measurement of the offending noise:

1. Except for noise emanating from any electrical transformer or gas metering and pressure control equipment existing and installed prior to the effective date of the ordinance enacting this chapter, any steady tone with audible fundamental frequency or overtones have 200 Hz.....+5

2. Repeated impulsive noise.....+5

3. Noise occurring more than 5 but less than 15 minutes in any period of 60 consecutive minutes between the hours of 7:00 a.m. and 10:00 p.m. of any day.....-5

4. Noise occurring five minutes or less in any period of 60 consecutive minutes, between the hours of 7:00 a.m. and 10:00 p.m. of any day.....-5 **(Amended by Ord. No. 161,574, Eff. 9/8/86.)**

(c) For those cases where an objectionable noise is clearly audible, but where the level of ambient noise does not permit direct quantative sound level "A" measurements of the objectionable noise, sound measurements may be performed utilizing an octave band sound analyzer to determine sound level "A" limits as indicated in the Table I below. This table is used to convert the sound pressure level meter readings in dB for each band to SPL in dB(A) for each band.

TABLE I
OCTAVE BAND NOISE VALUES CORRESPONDING TO SOUND LEVEL "A" VALUES

Sound Level	Octave Band Sound Pressure Level, dB re .0002 dyne/cm^2 Octave Band Center Frequency in Hz								
"A"	31.5	63	125	250	500	1000	2000	4000	8000
35	58	50	42	35	32	29	26	23	20
40	61	54	46	40	37	34	31	28	25
45	64	58	51	45	42	39	36	33	30
50	67	61	55	50	47	44	41	38	35
55	70	64	60	55	52	49	46	43	40
60	73	68	64	60	57	54	51	48	45
65	76	72	68	65	62	59	56	53	50
70	79	76	73	70	67	64	61	58	55
75	84	81	78	75	72	69	66	63	60

(d) For those cases where a sound level measurement has been made pursuant to the provisions of this chapter and two or more provisions of this chapter apply, the provision establishing the lower or lowest noise level, respectively, shall be used. **(Added by Ord. No. 156,363, Eff. 3/29/82.)**

SEC. 111.03. MINIMUM AMBIENT NOISE LEVEL.

(Amended by Ord. No. 156,363, Eff. 3/29/82.)

Where the ambient noise level is less than the presumed ambient noise level designated in this section, the presumed ambient noise level in this section shall be deemed to be the minimum ambient noise level for purposes of this chapter.

TABLE II
SOUND LEVEL "A" DECIBELS

(In this chart, daytime levels are to be used from 7:00 a.m. to 10:00 p.m. and nighttime levels from 10:00 p.m. to 7:00 a.m.)

	PRESUMED AMBIENT NOISE LEVEL (dB(A))	
ZONE	**DAY**	**NIGHT**
A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5	50	40
P, PB, CR, C1, C1.5, C2, C4, C5, and CM	60	55
M1, MR1, and MR2	60	55
M2 and M3	65	65

At the boundary line between two zones, the presumed ambient noise level of the quieter zone shall be used.

SEC. 111.04. VIOLATIONS: ADDITIONAL REMEDIES, INJUNCTIONS.

As an additional remedy, the operation or maintenance of any device, instrument, vehicle, or machinery in violation of any provision of this chapter, which operation or maintenance causes discomfort or annoyance to reasonable persons or which endangers the comfort, repose, health, or peace of residents in the area, shall be deemed and is declared to be.a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court order of competent jurisdiction. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

SEC. 111.05. ENFORCEMENT, CITATIONS.

(Added by Ord. No. 156,363, Eff. 3/29/82.)

(a) The Department of Building and Safety shall have the power and duty to enforce the following noise control provisions of this Code: Section 12.14 A.6.(h), Section 12.19 A.4.(b)(1), Section 112.02 and Section 112.04(c). **(Amended by Ord. No. 172,086, Eff. 7/30/98.)**

(b) The Police Department shall have the power and duty to enforce the following noise control provisions of this Code: Section 41.32, Section 41.40, Section 41.42, Section 41.44, Section 41.57, Section 63.51(m), Section 112.01, Section 112.04, Section 112.05, Section 112.06, Section 113.01, Section 114.01 through Section 114.05, inclusive, Section 115.02 through Section 115.03, inclusive, and Section 116.01. **(Amended by Ord. No. 185,601, Eff. 7/18/18.)**

(c) Any Building Mechanical Inspector assigned to noise enforcement inspection shall have the power, authority and immunity of a

public officer and employee, as set forth in the Penal Code of the State of California, Section 836.5, to make arrests without a warrant whenever such employee has reasonable cause to believe that the person to be arrested has committed a misdemeanor in his presence which is a violation of any provision set forth in Section 111.05(a) of this chapter. The provisions of said Penal Code section regarding issuance of a written promise to appear shall be applicable to arrests authorized herein.

ARTICLE 2
SPECIAL NOISE SOURCES

Section

SEC. 112.01. RADIOS, TELEVISION SETS, AND SIMILAR DEVICES.
(Amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) It shall be unlawful for any person within any zone of the City to use or operate any radio, musical instrument, phonograph, television receiver, or other machine or device for the producing, reproducing or amplification of the human voice, music, or any other sound, in such a manner, as to disturb the peace, quiet, and comfort of neighbor occupants or any reasonable person residing or working in the area.

(b) Any noise level caused by such use or operation which is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source, within any residential zone of the City or within 500 feet thereof, shall be a violation of the provisions of this section.

(c) Any noise level caused by such use or operation which exceeds the ambient noise level on the premises of any other occupied property, or if a condominium, apartment house, duplex, or attached business, within any adjoining unit, by more than five (5) decibels shall be a violation of the provisions of this section.

SEC. 112.02. AIR CONDITIONING, REFRIGERATION, HEATING, PUMPING, FILTERING EQUIPMENT.
(Amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) It shall be unlawful for any person, within any zone of the city to operate any air conditioning, refrigeration or heating equipment for any residence or other structure or to operate any pumping, filtering or heating equipment for any pool or reservoir in such manner as to create any noise which would cause the noise level on the premises of any other occupied property or if a condominium, apartment house, duplex, or attached business, within any adjoining unit.to exceed the ambient noise level by more than five (5) decibels

(b) This section shall not be applicable to emergency work as defined in Section 111.01(c) of this chapter, or to periodic maintenance or testing of such equipment reasonably necessary to maintain such equipment in good working order.

SEC. 112.03. CONSTRUCTION NOISE.

Noise due to construction or repair work shall be regulated as provided by Section 41.40 of this Code. **(Amended by Ord. No. 161,574, Eff. 9/8/86.)**

SEC. 112.04. POWERED EQUIPMENT INTENDED FOR REPETITIVE USE IN RESIDENTIAL AREAS AND OTHER MACHINERY, EQUIPMENT, AND DEVICES.

(Title and Section Amended by Ord. No. 161,574, Eff 9/8/86.)

(a) Between the hours of 10:00 p.m and. 7:00 a.m. of the following day, no person shall operate any lawn mower, backpack blower, lawn edger, riding tractor, or any other machinery, equipment, or other mechanical or electrical device, or any hand tool which creates a loud, raucous or impulsive sound, within any residential zone or within 500 feet of a residence.

(b) Except as to the equipment and operations specifically mentioned and related elsewhere in this Chapter or for emergency work as that term is defined in Section 111.01(d), and except as to aircraft, tow tractors, aircraft auxiliary power units, trains and motor vehicles in their respective operations governed by State or federal regulations, no person shall operate or cause to be operated any machinery, equipment, tools, or other mechanical or electrical device, or engage in any other activity in such manner as to create any noise which would cause the noise level on the premises of any other occupied property, or, if a condominium, apartment house, duplex, or attached business, within any adjoining unit, to exceed the ambient noise level by more than five (5) decibels.

(c) Notwithstanding the provisions of Subsection (a) above, no gas powered blower shall be used within 500 feet of a residence at anytime. Both the user of such a blower as well as the individual who contracted for the services of the user, if any, shall be subject to the requirements of and penalty provisions for this ordinance. Violation of the provisions of this subsection shall be punishable as an infraction in an amount not to exceed One Hundred Dollars ($100.00), notwithstanding the graduated fines set forth in LAMC § 11.00(m). **(Amended by Ord. No. 171,890, Eff. 2/13/98.)**

SEC. 112.05. MAXIMUM NOISE LEVEL OF POWERED EQUIPMENT OR POWERED HAND TOOLS.

(Amended by Ord. No. 161,574, Eff. 9/8/86.)

Between the hours of 7:00 a.m. and 10:00 p.m., in any residential zone of the City or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet therefrom:

(a) 75dB(A) for construction, industrial, and agricultural machinery including crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment;

(b) 75dB(A) for powered equipment of 20 HP or less intended for infrequent use in residential areas, including chain saws, log chippers and powered hand tools;

(c) 65dB(A) for powered equipment intended for repetitive use in residential areas, including lawn mowers, backpack blowers, small lawn and garden tools and riding tractors;

The noise limits for particular equipment listed above in (a), (b) and (c) shall be deemed to be superseded and replaced by noise limits for such equipment from and after their establishment by final regulations adopted by the Federal Environmental Protection Agency and published in the Federal Register.

Said noise limitations shall not apply where compliance therewith is technically infeasible The burden of proving that compliance is technically infeasible shall be upon the person or persons charged with a violation of this section. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or other noise reduction device or techniques during the operation of the equipment.

SEC. 112.06. PLACES OF PUBLIC ENTERTAINMENT.

It shall be unlawful for any person to operate, play, or to permit the operation or playing of any radio, television receiver, phonograph, musical instrument, sound amplifying equipment, or similar device which produces, reproduces, or amplifies sound in any place of public entertainment at a sound level greater than 95dB(A) at any point that is normally occupied by a customer, unless a conspicuous and legible sign is located outside such place, near each public entrance, stating:

"WARNING: SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT."

(Added by Ord. No. 156,363, Eff. 3/29/82.)

ARTICLE 3
SANITARY OPERATION

Section
113.01 Rubbish and Garbage Collection and Disposal.

SEC. 113.01. RUBBISH AND GARBAGE COLLECTION AND DISPOSAL.
(Amended by Ord. No. 161,574, Eff. 9/8/86.)

It shall be unlawful for any person engaged in the business of collecting or disposing of rubbish or garbage to operate any refuse disposal truck, parking lot sweeper, or vacuum truck, or to collect, load, pick up, transfer, unload, dump, discard, sweep, vacuum, or dispose of any rubbish or garbage, as such terms are defined in Section 66.00 of this Code, within 200 feet of any residential building between the hours of 9:00 p.m. and 6:00 a.m. of the following day, unless a permit therefore has been duly obtained beforehand from the Board of Police Commissioners.

The standards which shall be considered in determining whether a permit shall be granted are the following:

(a) Whether the work to be done is in the public interest, or

(b) Whether the applicant would suffer hardship, injustice or delay if the permit were not granted, or

(c) Whether fuel conservation would result if the permit were issued.

No permit shall be required to perform emergency work as defined in Sec. 111.01(c) of this chapter.

ARTICLE 4
VEHICLES

Section
114.01 Vehicle Repairs.
114.02 Motor Driven Vehicles.
114.03 Vehicles - Loading and Unloading.
114.04 Audible Signaling Devices.
114.05 Audible Advertising Devices - Commercial Food Vendors.
114.06 Vehicle Theft Alarm Systems.
114.07 Audible Status Indicator

SEC. 114.01. VEHICLE REPAIRS.
(Amended by Ord. No. 156,363, Eff. 3/29/82.)

It shall be unlawful for any person, within any residential property located within any residential zone of the City or within 500 feet thereof, to repair, rebuild, reconstruct or dismantle any motor vehicle between the hours of 8:00 p.m. of one day and 8:00 a.m. of the next day in such manner:

(a) That a reasonable person residing in the area is caused discomfort or annoyance;

(d) That such activity is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source;

(c) As to create any noise which would cause the noise level on the premises of any occupied residential property, or if a condominium, apartment house or duplex, within any adjoining unit, to exceed the ambient noise level by more than five (5) decibels.

SEC. 114.02. MOTOR DRIVEN VEHICLES.

(Amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) It shall be unlawful for any person to unreasonably operate any motor driven vehicle upon any property within the City or to unreasonably accelerate the engine of any vehicle, or unreasonably sound, blow or operate the horn or other warning device of such vehicle in such manner:

1. As to disturb the peace, quiet and comfort of any neighborhood or of any reasonable person residing in such area

2. That such activity is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source;

3. As to create any noise which would cause the noise level on the premises of any occupied residential property, or if a condominium, apartment house or duplex, within any adjoining unit, to exceed the ambient noise level by more than five (5) decibels.

(b) This section shall not be applicable to any vehicle which is operated upon any public highway, street or right-of-way or to the operation of any off-highway vehicle to the extent it is regulated in the Vehicle Code.

SEC. 114.03. VEHICLES - LOADING AND UNLOADING.

(Amended by Ord. No. 166,514, Eff. 1/24/91.)

(a) It shall be unlawful for any person, between the hours of 10:00 p.m. and 7:00 a.m. of the following day, to load or unload any vehicle, or operate any dollies, carts, forklifts, or other wheeled equipment, which causes any impulsive sound, raucous or unnecessary noise within 200 feet of any residential building.

(b) Irrespective of the provisions of Subsection (a), loading or unloading of vehicles of the type of activity referred to in Subsection (a) may occur between the hours of 6:00 a.m. to 11:00 p.m. of the same day pursuant to a permit issued by the Department of Transportation in accordance with a business program as defined by said department. This permit program would be limited to the area bounded by Western Avenue, Santa Monica Freeway, Central Avenue, and the San Diego Freeway, within the limits of the City of Los Angeles. Such permits will not be issued to high-noise businesses such as trash pickup.

SEC. 114.04. AUDIBLE SIGNALING DEVICES.

(Added by Ord. No. 161,574, Eff. 9/8/86.)

It shall be unlawful for any person, within any residential zone of the City or within 500 feet thereof, to sound, blow, or operate any audible signaling device, including sequential airhorns or electronically operated vehicular loud speaker music devices, which can be heard for a distance greater than 200 feet for any purpose. Violation of this section shall constitute an infraction This section does not address horn or warning devices regulated in Article 1 of Chapter 5 of Division 12 of the Vehicle Code of the State of California, commencing at Section 27000. **(Last sentence amended by Ord. No. 165.191, Eff. 10/23/89.)**

SEC. 114.05. AUDIBLE ADVERTISING DEVICES - COMMERCIAL FOOD VENDORS.

(Added by Ord. No. 164,532, Eff. 4/20/89.)

Notwithstanding the provisions of Section 114.04, it shall be unlawful for any person, to sound, blow or operate any music, chimes or bells, or any similar sound device, amplified or otherwise, within 200 feet of any residential building between the hours of 9:00 p.m. and

7:00 a.m. the next day while operating a catering truck, as that term is defined in Section 80.73 of the Municipal Code.

SEC. 114.06. VEHICLE THEFT ALARM SYSTEMS.

(Former Sec. 114.05, Renumbered by Ord. No. 164,532, Eff. 4/20/89.)

It shall be unlawful for any person to install, operate or use any vehicle theft alarm system that emits or causes the emission of an audible sound, which is not, or does not become, automatically and completely silenced within five minutes. The time period shall be calculated based upon the emission of the first audible sound and shall end five minutes thereafter notwithstanding any variation or stoppage in the emissions of audible sound. Violation of this section shall constitute an infraction.

SEC. 114.07. AUDIBLE STATUS INDICATOR.

(Added by Ord. No. 169,785, Eff. 6/9/94.)

It shall be unlawful for any person to install, operate, use or maintain any vehicle theft alarm system which utilizes an audible status indicator emitting or causing the emission of an audible sound for a duration of more than one minute. The time period shall be calculated from the point in time of the emission of the first audible sound used in calculation and shall end one minute thereafter, notwithstanding any variation or temporary stoppage in the emission of audible sound.

As used in this section, an audible status indicator is a component of a vehicle theft alarm system which emits sound audible outside the vehicle for the purpose of warning that a vehicle theft alarm system is installed and armed or operational. The term "**audible status indicator**" shall include any device which emits a chirp, voice message or other sound when an approaching person is within a certain distance of the vehicle in which the device is installed.

In the event enforcement of a violation occurs under this section, no enforcement shall be taken under Section 80.75.1 of the Municipal Code for the same violation.

Violation of any provision of this section shall constitute an infraction.

ARTICLE 5
AMPLIFIED SOUND

Section
115.01 Purpose.
115.02 Prohibition and Regulations.
115.03 Amplified Sound on Unenclosed Tour Buses.

SEC. 115.01. PURPOSE.

The Council enacts this legislation for the sole purpose of securing and promoting the public health, comfort, safety, and welfare of its citizenry. While recognizing that certain uses of sound amplifying equipment are protected by the constitutional rights of freedom of speech and assembly, the Council nevertheless feels obligated to reasonably regulate the use of sound amplifying equipment in order to protect the correlative constitutional rights of the citizens of this community to privacy and freedom from public nuisance of loud and unnecessary noise.

SEC. 115.02. PROHIBITION AND REGULATIONS.

It shall be unlawful for any person, other than personnel of law enforcement or governmental agencies, or permittees duly authorized to use the same pursuant to Sec. 103.111 of this Code, to install, use, or operate within the City a loudspeaker or sound amplifying equipment in a fixed or movable position or mounted upon any sound truck for the purposes of giving instructions, directions, talks, addresses, lectures, or transmitting music to any persons or assemblages of persons in or upon any public street, alley, sidewalk, park

or place, or other public property except when installed, used or operated in compliance with the following provisions:

(a) In all residential zones and within 500 feet thereof, no sound amplifying equipment shall be installed, operated or used for commercial purposes at any time.

(b) The operation or use of sound amplifying equipment for noncommercial purposes in all residential zones and within 500 feet thereof, except when used for regularly scheduled operative functions by any school or for the usual and customary purposes of any church, is prohibited between the hours of 4:30 p.m. and 9:00 a.m. of the following day.

(c) In all other zones, except such portions thereof as may be included within 500 feet of any residential zone, the operation or use of sound amplifying equipment for commercial purposes is prohibited between the hours of 9:00 p.m. and 8:00 a.m. of the following day.

(d) In all other zones, except such portions thereof as may be included within 500 feet of any residential zone, the operation or use of sound amplifying equipment for noncommercial purposes is prohibited between the hours of 10:00 p.m. and 7:00 a.m. of the following day.

(e) The only sounds permitted shall be either music, human speech, or both.

(f) Sound emanating from sound amplifying equipment shall be limited in volume, tone and intensity as follows:

1. The sound shall not be audible at a distance in excess of 200 feet from the sound equipment.

2. In no event shall the sound be loud and raucous or unreasonably jarring, disturbing, annoying or a nuisance to reasonable persons of normal sensitiveness within the area of audibility.

(g) Except as provided in (b) above, no sound amplifying equipment shall be operated upon any property adjacent to and within 200 feet of any hospital grounds or any school or church building while in use.

(h) **(Amended by Ord. No. 145,691, Eff. 5/2/74.)** The operation or use of any sound amplifying equipment installed, mounted, attached or carried in or by any sound truck is further prohibited:

1. Within the Central Traffic district at any time;

2. Upon Hollywood Boulevard between Vermont Avenue and La Brea at any time;

3. Upon Wilshire Boulevard at any time;

4. Upon Sunset Boulevard at any time;

5. Upon Vine Street at any time;

6. Upon any street between the hours of 4:30 p.m. and 9:00 a.m. of the following day;

7. Upon any street on any Sunday.

SEC. 115.03. AMPLIFIED SOUND ON UNENCLOSED TOUR BUSES.

(Added by Ord. No. 185,601, Eff. 7/18/18.)

(a) **Definitions.** As used in this section:

1. "**Operator**" means any person or corporation who conducts a business or enterprise that operates one or more Unenclosed Tour Buses.

2. "**Sound Amplifying Equipment**" shall have the same meaning as in Subsection (j) of Section 111.01 of this chapter, and shall include loud speakers and public address systems.

3. "**Tour Bus**" means a privately-owned bus or passenger vehicle for hire, which is operated by or for a charter-party carrier of passengers or a passenger stage corporation, as set forth in California Vehicle Code Section 612, subsection (a), and as defined in California Public Utilities Code Sections 226 and 5360. A Tour Bus includes any vehicle that is used primarily for the conveyance of passengers over the public streets, for the purpose of visiting or viewing places of interest.

4. "**Unenclosed Tour Bus**" means a Tour Bus that has had its roof substantially structurally modified or removed, as set forth in California Vehicle Code Section 612, Subsection (b), such that it can be and is operated without a solid roof covering all seating areas of the vehicle. An Unenclosed Tour Bus shall also include any Tour Bus that has had its side panels substantially structurally modified and/or removed, such that it can be and is operated without side panels fully enclosing the sides of the vehicle, when doors and windows are closed.

(b) **Use of Sound Amplifying Equipment Prohibited.** It shall be unlawful for any Operator or any person employed by an Operator to cause, allow, or permit the use of Sound Amplifying Equipment on any Unenclosed Tour Bus while the vehicle is operating within the City of Los Angeles.

(c) **Violation and Punishment.** A violation of this Section shall constitute an infraction pursuant to California Vehicle Code Sections 40000.1 and 42001, and shall be punished pursuant to the fine structure set forth in California Vehicle Code Section 42001.

(d) **Severability.** If any subsection, subdivision, sentence, clause, phrase, or portion of this section, or the application thereof to any person, is for any reason held to be invalid or constitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this section or its application to other persons. The City Council hereby declares that it would have adopted this section and each subsection, subdivision, sentence, clause, phrase or portion thereof, irrespective of the fact that any one or more subsections, subdivisions, sentences, clauses, phrases, or portions, or the application thereof to any person, be declared invalid or unconstitutional.

ARTICLE 6
GENERAL NOISE

Section
116.01 Loud, Unnecessary and Unusual Noise.

SEC. 116.01. LOUD, UNNECESSARY AND UNUSUAL NOISE.

Notwithstanding any other provisions of this chapter and in addition thereto, it shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary, and unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area. The standard which may be considered in determining whether a violation of the provisions of this section exists may include, but not be limited to, the following:

(a) The level of noise;

(b) Whether the nature of the noise is usual or unusual;

(c) Whether the origin of the noise is natural or unnatural;

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

(e) The proximity of the noise to residential sleeping facilities;

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

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

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

(i) The duration of the noise;

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

(k) Whether the noise is produced by a commercial or noncommercial activity.

APPENDIX 5.1:

STUDY AREA PHOTOS

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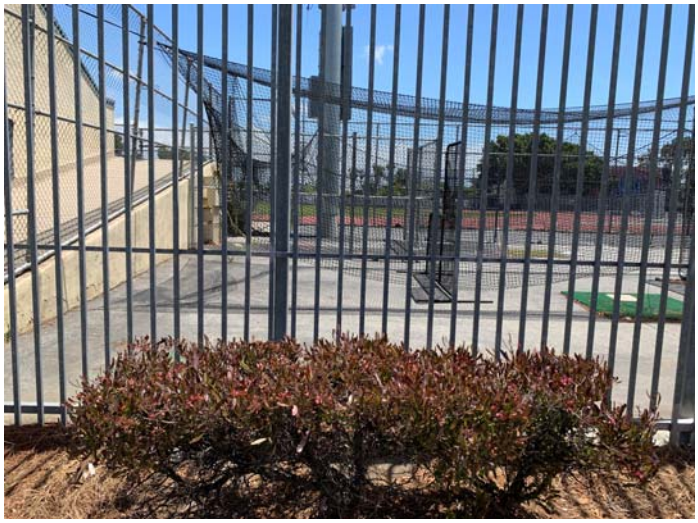

L1 East
34, 0' 40.760000"118, 15' 7.390000"

L1 North
34, 0' 40.750000"118, 15' 7.390000"

L1 South
34, 0' 40.800000"118, 15' 7.470000"

L1 West
34, 0' 40.790000"118, 15' 7.440000"

L2 East
34, 0' 37.040000"118, 14' 59.560000"

L2 North
34, 0' 37.020000"118, 14' 59.560000"

L2 South
34, 0' 37.040000"118, 14' 59.590000"

L2 West
34, 0' 37.040000"118, 14' 59.530000"

L3 East
34, 0' 31.370000"118, 15' 3.570000"

L3 North
34, 0' 31.410000"118, 15' 3.600000"

L3 South
34, 0' 31.370000"118, 15' 3.600000"

L3 West
34, 0' 31.420000"118, 15' 3.600000"

L4 East
34, 0' 39.220000"118, 14' 53.660000"

L4 North
34, 0' 39.220000"118, 14' 53.710000"

L4 South
34, 0' 39.230000"118, 14' 53.660000"

L4 West
34, 0' 39.210000"118, 14' 53.740000"

L5 East
34, 0' 33.810000"118, 14' 56.730000"

L5 North
34, 0' 33.870000"118, 14' 56.700000"

L5 South
34, 0' 33.850000"118, 14' 56.680000"

L5 West
34, 0' 33.870000"118, 14' 56.700000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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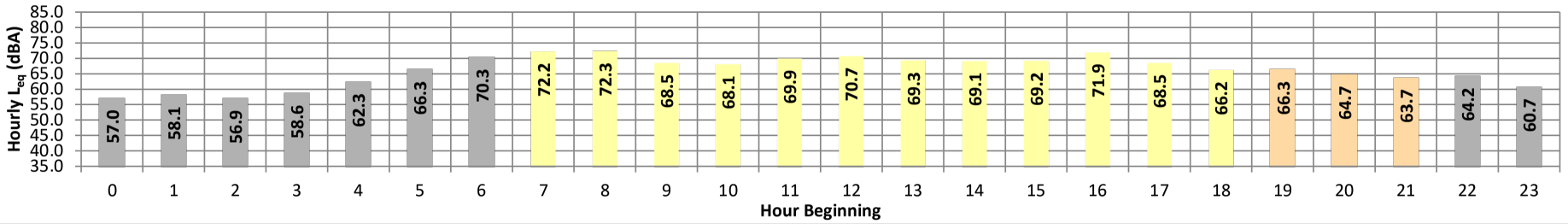
24-Hour Noise Level Measurement Summary

Date: Wednesday, May 22, 2019 *Location:* L1 - Located on Hooper Avenue, west of the Project site, near existing single-family residential homes and Thomas Jefferson High School. *Meter:* Piccolo I *JN:* 12620

Project: Parkview *Analyst:* R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	57.0	80.4	40.2	67.0	66.0	63.0	61.0	53.0	46.0	41.0	41.0	40.0	57.0	10.0	67.0
	1	58.1	82.2	41.6	69.0	67.0	64.0	62.0	52.0	47.0	44.0	43.0	42.0	58.1	10.0	68.1
	2	56.9	80.6	43.5	69.0	66.0	62.0	58.0	48.0	46.0	44.0	44.0	44.0	56.9	10.0	66.9
	3	58.6	77.3	43.3	70.0	68.0	66.0	63.0	53.0	49.0	45.0	44.0	43.0	58.6	10.0	68.6
	4	62.3	78.9	43.6	73.0	71.0	68.0	67.0	60.0	52.0	46.0	45.0	44.0	62.3	10.0	72.3
	5	66.3	90.4	48.6	75.0	73.0	71.0	70.0	66.0	62.0	52.0	51.0	49.0	66.3	10.0	76.3
	6	70.3	92.2	51.6	78.0	76.0	74.0	73.0	70.0	68.0	60.0	57.0	54.0	70.3	10.0	80.3
Day	7	72.2	93.4	50.5	82.0	78.0	75.0	74.0	71.0	68.0	61.0	58.0	54.0	72.2	0.0	72.2
	8	72.3	95.9	51.3	81.0	77.0	74.0	73.0	70.0	68.0	59.0	57.0	54.0	72.3	0.0	72.3
	9	68.5	85.2	47.3	77.0	75.0	73.0	72.0	69.0	66.0	56.0	54.0	50.0	68.5	0.0	68.5
	10	68.1	87.6	48.4	76.0	75.0	72.0	71.0	68.0	65.0	56.0	54.0	50.0	68.1	0.0	68.1
	11	69.9	88.1	51.1	81.0	79.0	74.0	72.0	69.0	66.0	57.0	54.0	52.0	69.9	0.0	69.9
	12	70.7	90.7	50.2	82.0	81.0	76.0	73.0	68.0	65.0	57.0	55.0	52.0	70.7	0.0	70.7
	13	69.3	93.9	51.1	77.0	75.0	72.0	71.0	68.0	66.0	57.0	55.0	53.0	69.3	0.0	69.3
	14	69.1	89.5	51.6	78.0	76.0	72.0	71.0	68.0	66.0	61.0	59.0	54.0	69.1	0.0	69.1
	15	69.2	87.7	49.8	77.0	75.0	73.0	72.0	69.0	67.0	62.0	60.0	55.0	69.2	0.0	69.2
	16	71.9	97.4	51.4	81.0	76.0	72.0	71.0	68.0	66.0	60.0	58.0	55.0	71.9	0.0	71.9
	17	68.5	89.1	51.8	78.0	75.0	71.0	70.0	68.0	65.0	60.0	59.0	55.0	68.5	0.0	68.5
	18	66.2	81.7	49.3	73.0	72.0	70.0	69.0	67.0	64.0	57.0	55.0	51.0	66.2	0.0	66.2
Evening	19	66.3	86.2	47.9	74.0	72.0	70.0	69.0	66.0	63.0	53.0	51.0	49.0	66.3	5.0	71.3
	20	64.7	80.6	46.2	74.0	71.0	69.0	68.0	65.0	61.0	52.0	51.0	48.0	64.7	5.0	69.7
	21	63.7	84.4	47.0	72.0	71.0	69.0	68.0	64.0	57.0	49.0	48.0	48.0	63.7	5.0	68.7
Night	22	64.2	91.9	46.1	72.0	71.0	68.0	67.0	63.0	55.0	48.0	48.0	47.0	64.2	10.0	74.2
	23	60.7	78.3	46.1	71.0	69.0	67.0	65.0	59.0	52.0	48.0	47.0	46.0	60.7	10.0	70.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	66.2	81.7	47.3	73.0	72.0	70.0	69.0	67.0	64.0	56.0	54.0	50.0
	Max	72.3	97.4	51.8	82.0	81.0	76.0	74.0	71.0	68.0	62.0	60.0	55.0
Energy Average		70.0	Average:		78.6	76.2	72.8	71.6	68.6	66.0	58.6	56.5	52.9
Evening	Min	63.7	80.6	46.2	72.0	71.0	69.0	68.0	64.0	57.0	49.0	48.0	48.0
	Max	66.3	86.2	47.9	74.0	72.0	70.0	69.0	66.0	63.0	53.0	51.0	49.0
Energy Average		65.0	Average:		73.3	71.3	69.3	68.3	65.0	60.3	51.3	50.0	48.3
Night	Min	56.9	77.3	40.2	67.0	66.0	62.0	58.0	48.0	46.0	41.0	41.0	40.0
	Max	70.3	92.2	51.6	78.0	76.0	74.0	73.0	70.0	68.0	60.0	57.0	54.0
Energy Average		64.0	Average:		71.6	69.7	67.0	65.1	58.2	53.0	47.6	46.7	45.4

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
68.0	69.4	64.0

24-Hour CNEL (dBA)

72.0

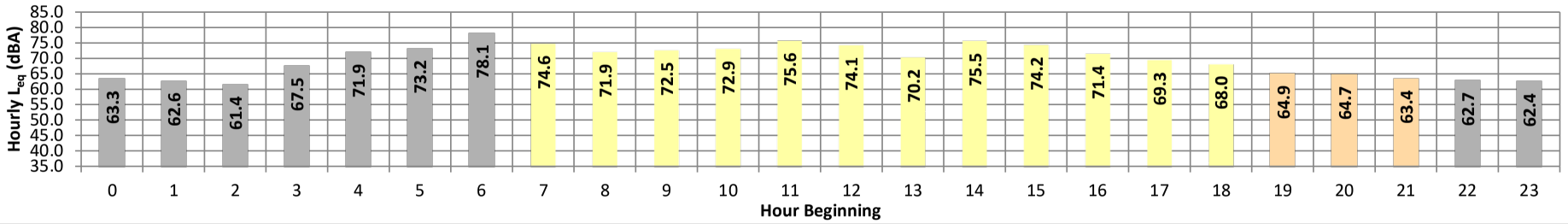
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, May 22, 2019 *Location:* L2 - Located on Compton Avenue, west of the Project site, adjacent to Thomas Jefferson High School. *Meter:* Piccolo I *JN:* 12620

Project: Parkview *Analyst:* R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	63.3	78.2	42.9	72.0	72.0	71.0	69.0	63.0	50.0	43.0	43.0	43.0	63.3	10.0	73.3
	1	62.6	79.7	46.4	72.0	72.0	71.0	65.0	64.0	51.0	47.0	47.0	46.0	62.6	10.0	72.6
	2	61.4	77.8	45.3	72.0	71.0	65.0	64.0	63.0	47.0	46.0	46.0	45.0	61.4	10.0	71.4
	3	67.5	92.4	44.3	73.0	72.0	72.0	72.0	70.0	63.0	47.0	46.0	45.0	67.5	10.0	77.5
	4	71.9	87.9	66.4	78.0	76.0	74.0	74.0	71.0	70.0	69.0	68.0	67.0	71.9	10.0	81.9
	5	73.2	93.5	52.8	81.0	79.0	76.0	75.0	73.0	71.0	64.0	64.0	58.0	73.2	10.0	83.2
	6	78.1	98.6	56.9	86.0	85.0	83.0	82.0	78.0	74.0	70.0	69.0	68.0	78.1	10.0	88.1
Day	7	74.6	91.4	69.5	80.0	79.0	78.0	77.0	75.0	72.0	70.0	70.0	70.0	74.6	0.0	74.6
	8	71.9	89.4	56.6	79.0	77.0	75.0	74.0	72.0	70.0	65.0	62.0	59.0	71.9	0.0	71.9
	9	72.5	97.2	55.2	82.0	80.0	77.0	75.0	71.0	66.0	60.0	59.0	57.0	72.5	0.0	72.5
	10	72.9	91.0	69.6	79.0	77.0	75.0	75.0	72.0	71.0	70.0	70.0	70.0	72.9	0.0	72.9
	11	75.6	90.8	71.3	82.0	80.0	78.0	78.0	76.0	74.0	72.0	72.0	71.0	75.6	0.0	75.6
	12	74.1	93.3	64.5	80.0	78.0	77.0	76.0	74.0	73.0	70.0	68.0	66.0	74.1	0.0	74.1
	13	70.2	88.9	58.9	78.0	77.0	74.0	74.0	70.0	68.0	62.0	61.0	60.0	70.2	0.0	70.2
	14	75.5	93.8	58.6	84.0	83.0	80.0	79.0	75.0	73.0	64.0	62.0	60.0	75.5	0.0	75.5
	15	74.2	87.1	54.6	82.0	81.0	78.0	77.0	74.0	73.0	63.0	61.0	58.0	74.2	0.0	74.2
	16	71.4	95.5	52.8	81.0	78.0	75.0	73.0	70.0	67.0	59.0	57.0	54.0	71.4	0.0	71.4
	17	69.3	92.3	51.9	78.0	76.0	73.0	72.0	69.0	65.0	57.0	56.0	54.0	69.3	0.0	69.3
	18	68.0	84.0	51.5	77.0	75.0	73.0	72.0	68.0	64.0	56.0	54.0	52.0	68.0	0.0	68.0
Evening	19	64.9	81.2	50.7	75.0	73.0	71.0	70.0	64.0	57.0	52.0	52.0	51.0	64.9	5.0	69.9
	20	64.7	87.8	49.2	74.0	72.0	70.0	68.0	62.0	56.0	51.0	51.0	50.0	64.7	5.0	69.7
	21	63.4	90.3	49.1	73.0	71.0	69.0	67.0	58.0	53.0	51.0	50.0	50.0	63.4	5.0	68.4
Night	22	62.7	87.3	46.2	74.0	72.0	69.0	67.0	57.0	52.0	48.0	47.0	47.0	62.7	10.0	72.7
	23	62.4	89.1	46.0	73.0	70.0	65.0	61.0	52.0	49.0	48.0	47.0	47.0	62.4	10.0	72.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	68.0	84.0	51.5	77.0	75.0	73.0	72.0	68.0	64.0	56.0	54.0	52.0
	Max	75.6	97.2	71.3	84.0	83.0	80.0	79.0	76.0	74.0	72.0	72.0	71.0
Energy Average		73.1	Average:		80.2	78.4	76.1	75.2	72.2	69.7	64.0	62.7	60.9
Evening	Min	63.4	81.2	49.1	73.0	71.0	69.0	67.0	58.0	53.0	51.0	50.0	50.0
	Max	64.9	90.3	50.7	75.0	73.0	71.0	70.0	64.0	57.0	52.0	52.0	51.0
Energy Average		64.4	Average:		74.0	72.0	70.0	68.3	61.3	55.3	51.3	51.0	50.3
Night	Min	61.4	77.8	42.9	72.0	70.0	65.0	61.0	52.0	47.0	43.0	43.0	43.0
	Max	78.1	98.6	66.4	86.0	85.0	83.0	82.0	78.0	74.0	70.0	69.0	68.0
Energy Average		71.1	Average:		75.7	74.3	71.8	69.9	65.7	58.6	53.6	53.0	51.8

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
71.9	72.3	71.1

24-Hour CNEL (dBA)
77.7

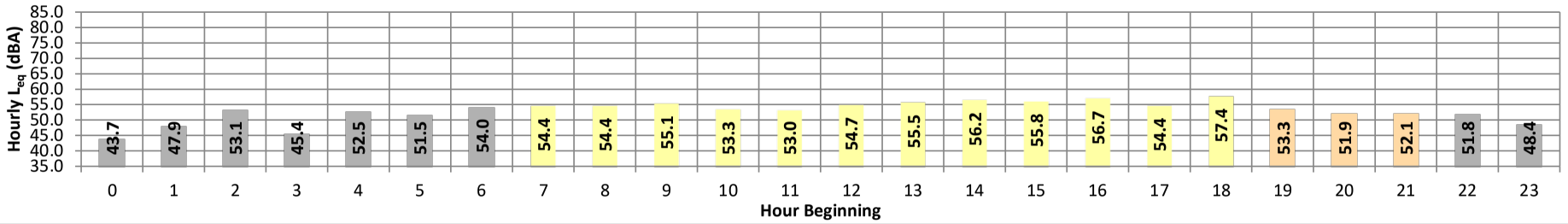
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, May 22, 2019 *Location:* L3 - Located north of E 41st Street, south of the Project site, near existing existing single-family residential homes. *Meter:* Piccolo I *JN:* 12620

Project: Parkview *Analyst:* R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	43.7	62.4	36.4	52.0	51.0	48.0	46.0	43.0	41.0	39.0	37.0	36.0	43.7	10.0	53.7
	1	47.9	68.4	39.4	60.0	56.0	51.0	48.0	44.0	42.0	40.0	39.0	39.0	47.9	10.0	57.9
	2	53.1	78.7	39.3	66.0	59.0	49.0	46.0	43.0	42.0	39.0	39.0	39.0	53.1	10.0	63.1
	3	45.4	68.4	39.2	54.0	53.0	49.0	47.0	44.0	42.0	41.0	39.0	39.0	45.4	10.0	55.4
	4	52.5	80.0	39.7	59.0	57.0	54.0	52.0	47.0	44.0	41.0	41.0	41.0	52.5	10.0	62.5
	5	51.5	69.7	43.2	60.0	58.0	56.0	54.0	50.0	49.0	46.0	45.0	44.0	51.5	10.0	61.5
	6	54.0	74.9	44.3	64.0	61.0	57.0	56.0	53.0	50.0	47.0	47.0	46.0	54.0	10.0	64.0
Day	7	54.4	75.0	46.2	62.0	60.0	58.0	56.0	54.0	52.0	49.0	48.0	47.0	54.4	0.0	54.4
	8	54.4	76.4	44.1	63.0	60.0	58.0	56.0	53.0	51.0	48.0	47.0	46.0	54.4	0.0	54.4
	9	55.1	77.7	45.3	66.0	61.0	58.0	56.0	53.0	51.0	48.0	48.0	47.0	55.1	0.0	55.1
	10	53.3	69.4	44.0	62.0	61.0	57.0	56.0	53.0	50.0	47.0	46.0	45.0	53.3	0.0	53.3
	11	53.0	73.1	43.4	62.0	59.0	57.0	55.0	52.0	50.0	47.0	46.0	45.0	53.0	0.0	53.0
	12	54.7	73.6	44.7	65.0	63.0	59.0	57.0	53.0	50.0	48.0	47.0	47.0	54.7	0.0	54.7
	13	55.5	76.4	46.0	67.0	64.0	59.0	57.0	53.0	51.0	48.0	48.0	47.0	55.5	0.0	55.5
	14	56.2	75.3	46.8	64.0	62.0	60.0	59.0	55.0	52.0	50.0	49.0	48.0	56.2	0.0	56.2
	15	55.8	85.4	45.8	62.0	60.0	58.0	57.0	54.0	52.0	49.0	48.0	47.0	55.8	0.0	55.8
	16	56.7	81.9	43.3	68.0	64.0	60.0	58.0	54.0	52.0	48.0	47.0	46.0	56.7	0.0	56.7
	17	54.4	76.5	44.2	61.0	60.0	58.0	56.0	53.0	51.0	48.0	48.0	47.0	54.4	0.0	54.4
	18	57.4	81.0	46.9	64.0	63.0	61.0	60.0	57.0	55.0	50.0	49.0	48.0	57.4	0.0	57.4
Evening	19	53.3	78.4	41.3	62.0	59.0	56.0	55.0	52.0	50.0	45.0	44.0	43.0	53.3	5.0	58.3
	20	51.9	76.5	42.0	61.0	58.0	55.0	53.0	49.0	47.0	44.0	44.0	43.0	51.9	5.0	56.9
	21	52.1	72.9	41.0	63.0	59.0	56.0	53.0	48.0	46.0	43.0	42.0	41.0	52.1	5.0	57.1
Night	22	51.8	77.5	40.4	62.0	58.0	54.0	52.0	47.0	45.0	42.0	41.0	41.0	51.8	10.0	61.8
	23	48.4	67.8	41.1	60.0	56.0	50.0	48.0	45.0	44.0	42.0	42.0	41.0	48.4	10.0	58.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.0	69.4	43.3	61.0	59.0	57.0	55.0	52.0	50.0	47.0	46.0	45.0
	Max	57.4	85.4	46.9	68.0	64.0	61.0	60.0	57.0	55.0	50.0	49.0	48.0
Energy Average		55.3	Average:		63.8	61.4	58.6	56.9	53.7	51.4	48.3	47.6	46.7
Evening	Min	51.9	72.9	41.0	61.0	58.0	55.0	53.0	48.0	46.0	43.0	42.0	41.0
	Max	53.3	78.4	42.0	63.0	59.0	56.0	55.0	52.0	50.0	45.0	44.0	43.0
Energy Average		52.5	Average:		62.0	58.7	55.7	53.7	49.7	47.7	44.0	43.3	42.3
Night	Min	43.7	62.4	36.4	52.0	51.0	48.0	46.0	43.0	41.0	39.0	37.0	36.0
	Max	54.0	80.0	44.3	66.0	61.0	57.0	56.0	53.0	50.0	47.0	47.0	46.0
Energy Average		50.9	Average:		59.7	56.6	52.0	49.9	46.2	44.3	41.9	41.1	40.7

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
53.7	**54.8**	**50.9**

24-Hour CNEL (dBA)

58.5

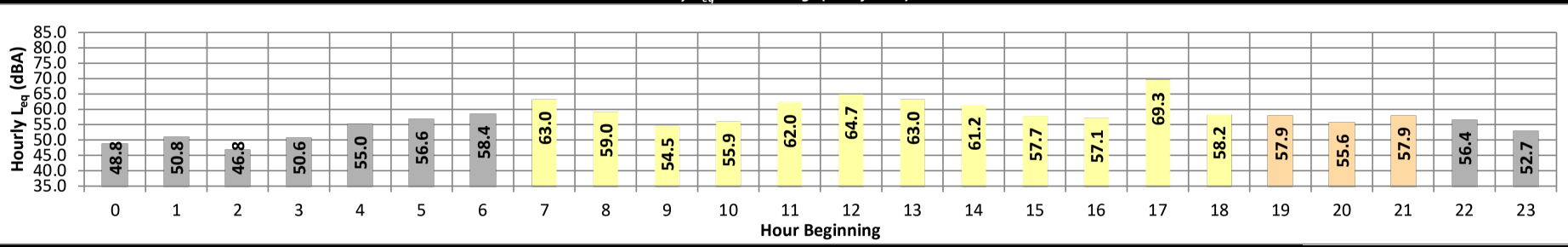
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, May 22, 2019 *Location:* L4 - Located on E Martin Luther King Boulevard, north of the Project site, near existing single-family residential neighborhood. *Meter:* Piccolo I *JN:* 12620

Project: Parkview *Analyst:* R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	48.8	68.2	39.3	59.0	56.0	52.0	51.0	47.0	44.0	40.0	40.0	39.0	48.8	10.0	58.8
	1	50.8	69.8	41.6	63.0	60.0	55.0	51.0	47.0	45.0	43.0	43.0	42.0	50.8	10.0	60.8
	2	46.8	62.8	42.7	55.0	52.0	50.0	49.0	46.0	45.0	43.0	43.0	43.0	46.8	10.0	56.8
	3	50.6	77.5	42.3	56.0	54.0	52.0	51.0	49.0	47.0	44.0	43.0	43.0	50.6	10.0	60.6
	4	55.0	79.3	42.9	64.0	61.0	57.0	54.0	49.0	47.0	44.0	44.0	43.0	55.0	10.0	65.0
	5	56.6	75.8	47.5	66.0	64.0	61.0	59.0	56.0	53.0	50.0	50.0	49.0	56.6	10.0	66.6
	6	58.4	83.3	46.0	67.0	65.0	62.0	60.0	55.0	52.0	49.0	48.0	47.0	58.4	10.0	68.4
Day	7	63.0	85.3	46.7	70.0	68.0	67.0	66.0	63.0	55.0	50.0	49.0	48.0	63.0	0.0	63.0
	8	59.0	81.1	47.2	70.0	67.0	62.0	60.0	56.0	54.0	50.0	49.0	48.0	59.0	0.0	59.0
	9	54.5	71.2	46.1	64.0	62.0	59.0	57.0	54.0	51.0	48.0	48.0	47.0	54.5	0.0	54.5
	10	55.9	73.5	47.4	65.0	63.0	60.0	58.0	55.0	53.0	50.0	49.0	48.0	55.9	0.0	55.9
	11	62.0	85.0	46.4	76.0	70.0	63.0	60.0	55.0	53.0	50.0	49.0	48.0	62.0	0.0	62.0
	12	64.7	86.2	48.8	77.0	74.0	70.0	67.0	58.0	54.0	51.0	50.0	49.0	64.7	0.0	64.7
	13	63.0	88.8	50.7	75.0	71.0	65.0	62.0	58.0	56.0	53.0	52.0	51.0	63.0	0.0	63.0
	14	61.2	80.9	48.2	73.0	69.0	64.0	63.0	57.0	55.0	51.0	51.0	49.0	61.2	0.0	61.2
	15	57.7	84.3	46.2	66.0	64.0	62.0	61.0	56.0	53.0	50.0	50.0	48.0	57.7	0.0	57.7
	16	57.1	78.0	45.3	67.0	65.0	62.0	60.0	56.0	53.0	49.0	48.0	47.0	57.1	0.0	57.1
	17	69.3	89.4	45.8	81.0	80.0	77.0	71.0	60.0	55.0	50.0	49.0	48.0	69.3	0.0	69.3
	18	58.2	78.7	46.8	68.0	66.0	63.0	61.0	56.0	53.0	49.0	49.0	48.0	58.2	0.0	58.2
Evening	19	57.9	74.1	46.4	68.0	66.0	63.0	61.0	57.0	54.0	50.0	49.0	48.0	57.9	5.0	62.9
	20	55.6	74.2	44.7	64.0	62.0	60.0	59.0	55.0	52.0	48.0	47.0	46.0	55.6	5.0	60.6
	21	57.9	82.0	44.1	71.0	68.0	61.0	58.0	52.0	49.0	46.0	45.0	44.0	57.9	5.0	62.9
Night	22	56.4	81.1	43.6	67.0	63.0	58.0	55.0	51.0	48.0	45.0	44.0	44.0	56.4	10.0	66.4
	23	52.7	74.3	44.0	63.0	61.0	55.0	53.0	50.0	48.0	45.0	45.0	44.0	52.7	10.0	62.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.5	71.2	45.3	64.0	62.0	59.0	57.0	54.0	51.0	48.0	48.0	47.0
	Max	69.3	89.4	50.7	81.0	80.0	77.0	71.0	63.0	56.0	53.0	52.0	51.0
Energy Average		62.5	Average:		71.0	68.3	64.5	62.2	57.0	53.8	50.1	49.4	48.3
Evening	Min	55.6	74.1	44.1	64.0	62.0	60.0	58.0	52.0	49.0	46.0	45.0	44.0
	Max	57.9	82.0	46.4	71.0	68.0	63.0	61.0	57.0	54.0	50.0	49.0	48.0
Energy Average		57.3	Average:		67.7	65.3	61.3	59.3	54.7	51.7	48.0	47.0	46.0
Night	Min	46.8	62.8	39.3	55.0	52.0	50.0	49.0	46.0	44.0	40.0	40.0	39.0
	Max	58.4	83.3	47.5	67.0	65.0	62.0	60.0	56.0	53.0	50.0	50.0	49.0
Energy Average		54.3	Average:		62.2	59.6	55.8	53.7	50.0	47.7	44.8	44.4	43.8

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
60.3	**61.9**	**54.3**

24-Hour CNEL (dBA)

63.3

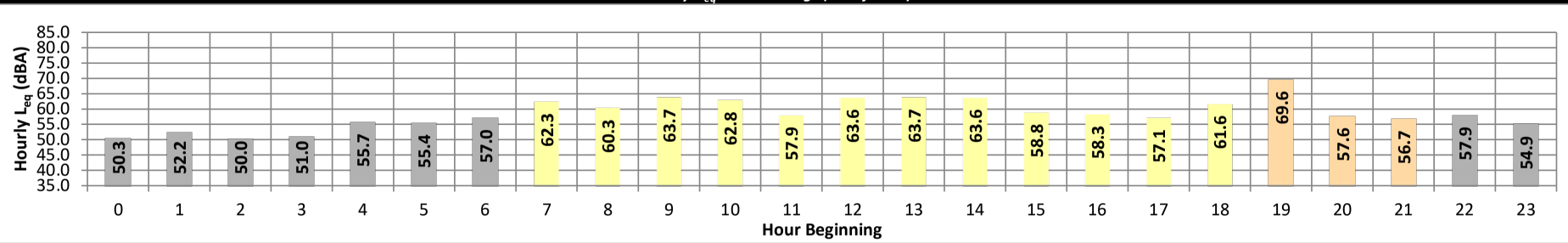
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, May 22, 2019 *Location:* L5 - Located within Ross Snyder Recreation Center, east of the Project site. *Meter:* Piccolo I *JN:* 12620

Project: Parkview *Analyst:* R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.3	77.4	39.6	59.0	56.0	53.0	51.0	46.0	43.0	40.0	40.0	39.0	50.3	10.0	60.3
	1	52.2	71.7	42.5	66.0	62.0	56.0	52.0	48.0	46.0	44.0	43.0	43.0	52.2	10.0	62.2
	2	50.0	72.6	43.0	57.0	54.0	52.0	51.0	48.0	46.0	44.0	44.0	43.0	50.0	10.0	60.0
	3	51.0	63.0	43.7	58.0	56.0	54.0	53.0	51.0	49.0	46.0	45.0	44.0	51.0	10.0	61.0
	4	55.7	80.4	44.3	63.0	61.0	57.0	56.0	52.0	50.0	46.0	46.0	45.0	55.7	10.0	65.7
	5	55.4	71.3	49.1	63.0	60.0	58.0	57.0	55.0	54.0	52.0	51.0	50.0	55.4	10.0	65.4
	6	57.0	78.2	46.0	66.0	64.0	61.0	60.0	56.0	54.0	50.0	49.0	48.0	57.0	10.0	67.0
Day	7	62.3	85.6	48.4	74.0	69.0	65.0	63.0	60.0	58.0	53.0	51.0	50.0	62.3	0.0	62.3
	8	60.3	73.4	48.2	68.0	67.0	65.0	64.0	60.0	58.0	52.0	51.0	50.0	60.3	0.0	60.3
	9	63.7	78.5	52.6	70.0	69.0	68.0	67.0	64.0	62.0	58.0	57.0	54.0	63.7	0.0	63.7
	10	62.8	88.7	48.1	69.0	67.0	65.0	64.0	61.0	58.0	51.0	50.0	49.0	62.8	0.0	62.8
	11	57.9	76.0	47.9	67.0	65.0	63.0	61.0	57.0	54.0	51.0	50.0	49.0	57.9	0.0	57.9
	12	63.6	81.1	53.7	72.0	70.0	68.0	67.0	63.0	61.0	57.0	57.0	55.0	63.6	0.0	63.6
	13	63.7	83.8	53.9	72.0	70.0	68.0	66.0	63.0	61.0	58.0	57.0	56.0	63.7	0.0	63.7
	14	63.6	80.4	55.3	70.0	68.0	67.0	66.0	63.0	61.0	59.0	58.0	57.0	63.6	0.0	63.6
	15	58.8	75.6	48.5	67.0	65.0	63.0	62.0	59.0	56.0	52.0	52.0	50.0	58.8	0.0	58.8
	16	58.3	78.0	48.3	68.0	66.0	63.0	61.0	57.0	54.0	52.0	51.0	50.0	58.3	0.0	58.3
	17	57.1	71.5	48.6	66.0	65.0	62.0	60.0	56.0	54.0	51.0	51.0	50.0	57.1	0.0	57.1
	18	61.6	88.4	49.5	71.0	69.0	65.0	63.0	58.0	56.0	53.0	52.0	51.0	61.6	0.0	61.6
Evening	19	69.6	92.8	50.3	84.0	80.0	68.0	65.0	59.0	57.0	53.0	53.0	52.0	69.6	5.0	74.6
	20	57.6	71.3	48.8	65.0	64.0	62.0	61.0	57.0	55.0	52.0	51.0	50.0	57.6	5.0	62.6
	21	56.7	76.1	47.3	65.0	63.0	60.0	58.0	55.0	53.0	49.0	49.0	48.0	56.7	5.0	61.7
Night	22	57.9	82.1	46.4	69.0	65.0	60.0	57.0	53.0	51.0	48.0	48.0	47.0	57.9	10.0	67.9
	23	54.9	73.4	47.3	66.0	61.0	57.0	56.0	52.0	51.0	49.0	48.0	48.0	54.9	10.0	64.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	57.1	71.5	47.9	66.0	65.0	62.0	60.0	56.0	54.0	51.0	50.0	49.0
	Max	63.7	88.7	55.3	74.0	70.0	68.0	67.0	64.0	62.0	59.0	58.0	57.0
Energy Average		61.8	Average:		69.5	67.5	65.2	63.7	60.1	57.8	53.9	53.1	51.8
Evening	Min	56.7	71.3	47.3	65.0	63.0	60.0	58.0	55.0	53.0	49.0	49.0	48.0
	Max	69.6	92.8	50.3	84.0	80.0	68.0	65.0	59.0	57.0	53.0	53.0	52.0
Energy Average		65.3	Average:		71.3	69.0	63.3	61.3	57.0	55.0	51.3	51.0	50.0
Night	Min	50.0	63.0	39.6	57.0	54.0	52.0	51.0	46.0	43.0	40.0	40.0	39.0
	Max	57.9	82.1	49.1	69.0	65.0	61.0	60.0	56.0	54.0	52.0	51.0	50.0
Energy Average		54.7	Average:		63.0	59.9	56.4	54.8	51.2	49.3	46.6	46.0	45.2

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
61.1	**62.7**	**54.7**

24-Hour CNEL (dBA)

65.0

URBAN CROSSROADS

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,380 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,938 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.01	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.22	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.18	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.9	62.0	60.2	54.1	62.8	63.4
Medium Trucks:	58.1	56.6	50.2	48.7	57.1	57.4
Heavy Trucks:	59.9	58.5	49.5	50.7	59.1	59.2
Vehicle Noise:	66.1	64.4	60.9	56.5	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	29	92	289	915
CNEL:	32	101	320	1,010

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,810 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,881 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.88	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.35	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.31	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.7	61.8	60.1	54.0	62.6	63.2
Medium Trucks:	57.9	56.4	50.1	48.5	57.0	57.2
Heavy Trucks:	59.8	58.4	49.4	50.6	59.0	59.1
Vehicle Noise:	66.0	64.2	60.8	56.4	64.9	65.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	28	89	281	888
CNEL:	31	98	310	981

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,820 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,782 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.65	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.59	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.54	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	61.6	59.8	53.8	62.4	63.0
Medium Trucks:	57.7	56.2	49.8	48.3	56.8	57.0
Heavy Trucks:	59.6	58.2	49.1	50.4	58.7	58.8
Vehicle Noise:	65.7	64.0	60.6	56.2	64.7	65.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	84	266	841
CNEL:	29	93	294	929

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o 33rd St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,190 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,519 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.42	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.82	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.78	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.3	57.4	55.6	49.5	58.2	58.8
Medium Trucks:	54.1	52.6	46.2	44.7	53.1	53.4
Heavy Trucks:	57.3	55.9	46.9	48.1	56.5	56.6
Vehicle Noise:	62.2	60.5	56.6	52.7	61.2	61.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	31	99	314
CNEL:	11	34	109	343

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,590 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,659 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.80	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.44	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.39	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	57.8	56.0	49.9	58.6	59.2
Medium Trucks:	54.5	53.0	46.6	45.1	53.5	53.8
Heavy Trucks:	57.7	56.3	47.2	48.5	56.8	57.0
Vehicle Noise:	62.5	60.9	57.0	53.0	61.5	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	34	108	343
CNEL:	12	37	119	375

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,630 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,563 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.54	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.70	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.65	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	57.5	55.7	49.7	58.3	58.9
Medium Trucks:	54.2	52.7	46.4	44.8	53.3	53.5
Heavy Trucks:	57.4	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	62.3	60.6	56.7	52.8	61.3	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	32	102	323
CNEL:	11	35	112	353

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,290 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,429 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.15	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-15.09	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-19.04	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.0	57.1	55.3	49.3	57.9	58.5
Medium Trucks:	53.8	52.3	46.0	44.4	52.9	53.1
Heavy Trucks:	57.1	55.6	46.6	47.8	56.2	56.3
Vehicle Noise:	61.9	60.2	56.3	52.4	60.9	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	30	93	295
CNEL:	10	32	102	323

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o Adams Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,620 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	662 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.19	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-18.43	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-22.38	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.7	53.8	52.0	45.9	54.6	55.2
Medium Trucks:	50.5	49.0	42.6	41.1	49.5	49.8
Heavy Trucks:	53.7	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	58.5	56.9	53.0	49.0	57.6	57.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	14	43	137
CNEL:	5	15	47	150

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,970 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	797 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.38	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.62	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.58	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	54.6	52.8	46.7	55.4	56.0
Medium Trucks:	51.3	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	54.5	53.1	44.1	45.3	53.7	53.8
Vehicle Noise:	59.4	57.7	53.8	49.9	58.4	58.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	16	52	165
CNEL:	6	18	57	180

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,360 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,236 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	1.52	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	70.80	-15.72	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-19.67	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.8	55.9	54.1	48.1	56.7	57.3
Medium Trucks:	52.6	51.1	44.8	43.2	51.7	51.9
Heavy Trucks:	55.9	54.4	45.4	46.6	55.0	55.1
Vehicle Noise:	60.7	59.0	55.1	51.2	59.7	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	27	84	265
CNEL:	9	29	92	290

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Long Beach Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,870 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	887 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	114.582
Medium Trucks:	114.505
Heavy Trucks:	114.512

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.38	-3.67	0.00	-1.05	0.000	0.000
Medium Trucks:	75.75	-18.62	-3.67	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-22.57	-3.67	0.00	-1.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.3	57.4	55.6	49.5	58.2	58.8
Medium Trucks:	53.5	52.0	45.6	44.0	52.5	52.7
Heavy Trucks:	55.3	53.9	44.9	46.1	54.5	54.6
Vehicle Noise:	61.5	59.8	56.3	51.9	60.5	60.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	42	133	422
CNEL:	15	47	147	466

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: Long Beach Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,810 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,081 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	114.582
Medium Trucks:	114.505
Heavy Trucks:	114.512

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.52	-3.67	0.00	-1.05	0.000	0.000
Medium Trucks:	75.75	-17.76	-3.67	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-21.72	-3.67	0.00	-1.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.1	58.2	56.4	50.4	59.0	59.6
Medium Trucks:	54.3	52.8	46.5	44.9	53.4	53.6
Heavy Trucks:	56.2	54.8	45.7	47.0	55.3	55.5
Vehicle Noise:	62.3	60.6	57.2	52.8	61.3	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	51	163	514
CNEL:	18	57	180	568

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: 41st St. | Job Number: 12620
Road Segment: e/o Central Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,290 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	729 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.77	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-18.01	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.97	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.1	54.2	52.4	46.4	55.0	55.6
Medium Trucks:	50.9	49.4	43.0	41.5	50.0	50.2
Heavy Trucks:	54.1	52.7	43.7	44.9	53.3	53.4
Vehicle Noise:	59.0	57.3	53.4	49.5	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	15	48	151
CNEL:	5	16	52	165

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: 41st St. | Job Number: 12620
Road Segment: e/o Hooper Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,370 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	837 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.17	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.41	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.37	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.7	54.8	53.0	47.0	55.6	56.2
Medium Trucks:	51.5	50.0	43.6	42.1	50.6	50.8
Heavy Trucks:	54.7	53.3	44.3	45.5	53.9	54.0
Vehicle Noise:	59.6	57.9	54.0	50.1	58.6	59.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	17	55	173
CNEL:	6	19	60	189

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: 41st St. | Job Number: 12620
Road Segment: w/o Long Beach Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,660 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	866 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.02	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.26	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.22	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	54.9	53.2	47.1	55.7	56.3
Medium Trucks:	51.7	50.1	43.8	42.2	50.7	50.9
Heavy Trucks:	54.9	53.5	44.4	45.7	54.0	54.2
Vehicle Noise:	59.7	58.0	54.1	50.2	58.7	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	18	57	179
CNEL:	6	20	62	196

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Parkview
Road Name: 41st St. | Job Number: 12620
Road Segment: e/o Long Beach Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,360 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	736 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.73	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.97	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.92	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.1	54.2	52.5	46.4	55.0	55.6
Medium Trucks:	51.0	49.4	43.1	41.5	50.0	50.2
Heavy Trucks:	54.2	52.8	43.7	45.0	53.3	53.4
Vehicle Noise:	59.0	57.3	53.4	49.5	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	15	48	152
CNEL:	5	17	53	166

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Central Av.
Road Segment: n/o 41st St.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,430 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,943 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.03	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.21	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.17	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.9	62.0	60.2	54.2	62.8	63.4
Medium Trucks:	58.1	56.6	50.2	48.7	57.1	57.4
Heavy Trucks:	59.9	58.5	49.5	50.7	59.1	59.2
Vehicle Noise:	66.1	64.4	60.9	56.6	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	29	92	290	917
CNEL:	32	101	320	1,013

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Central Av.
Road Segment: s/o 41st St.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,870 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,887 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.90	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.34	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.30	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.7	61.8	60.1	54.0	62.6	63.3
Medium Trucks:	58.0	56.5	50.1	48.5	57.0	57.2
Heavy Trucks:	59.8	58.4	49.4	50.6	59.0	59.1
Vehicle Noise:	66.0	64.3	60.8	56.4	65.0	65.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	28	89	282	891
CNEL:	31	98	311	984

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Central Av.
Road Segment: s/o Vernon Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,880 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,788 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.66	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.57	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.53	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	61.6	59.8	53.8	62.4	63.0
Medium Trucks:	57.7	56.2	49.9	48.3	56.8	57.0
Heavy Trucks:	59.6	58.2	49.1	50.4	58.7	58.9
Vehicle Noise:	65.7	64.0	60.6	56.2	64.7	65.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	84	267	844
CNEL:	29	93	295	932

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Hooper Av.
Road Segment: n/o 33rd St.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,250 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,525 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.43	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.80	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.76	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.3	57.4	55.6	49.6	58.2	58.8
Medium Trucks:	54.1	52.6	46.2	44.7	53.2	53.4
Heavy Trucks:	57.3	55.9	46.9	48.1	56.5	56.6
Vehicle Noise:	62.2	60.5	56.6	52.7	61.2	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	32	100	315
CNEL:	11	34	109	345

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,660 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.80	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.44	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.39	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	57.8	56.0	49.9	58.6	59.2
Medium Trucks:	54.5	53.0	46.6	45.1	53.5	53.8
Heavy Trucks:	57.7	56.3	47.2	48.5	56.9	57.0
Vehicle Noise:	62.5	60.9	57.0	53.0	61.5	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	34	108	343
CNEL:	12	38	119	375

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,720 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,572 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.57	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.67	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.63	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	57.5	55.8	49.7	58.3	58.9
Medium Trucks:	54.2	52.7	46.4	44.8	53.3	53.5
Heavy Trucks:	57.5	56.0	47.0	48.3	56.6	56.7
Vehicle Noise:	62.3	60.6	56.7	52.8	61.3	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	32	103	325
CNEL:	11	36	112	355

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,320 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,432 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.16	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-15.08	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-19.03	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.0	57.1	55.3	49.3	57.9	58.5
Medium Trucks:	53.8	52.3	46.0	44.4	52.9	53.1
Heavy Trucks:	57.1	55.6	46.6	47.9	56.2	56.3
Vehicle Noise:	61.9	60.2	56.3	52.4	60.9	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	30	94	296
CNEL:	10	32	102	324

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o Adams Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,750 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	675 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.11	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-18.34	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-22.30	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.7	53.8	52.1	46.0	54.6	55.3
Medium Trucks:	50.6	49.1	42.7	41.2	49.6	49.9
Heavy Trucks:	53.8	52.4	43.3	44.6	52.9	53.1
Vehicle Noise:	58.6	57.0	53.0	49.1	57.6	58.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	14	44	139
CNEL:	5	15	48	153

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,070 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	807 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.33	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.57	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.52	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	54.6	52.9	46.8	55.4	56.0
Medium Trucks:	51.4	49.8	43.5	41.9	50.4	50.6
Heavy Trucks:	54.6	53.2	44.1	45.4	53.7	53.8
Vehicle Noise:	59.4	57.7	53.8	49.9	58.4	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	17	53	167
CNEL:	6	18	58	182

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,420 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,242 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	1.54	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	70.80	-15.70	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-19.65	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.8	55.9	54.2	48.1	56.7	57.3
Medium Trucks:	52.7	51.1	44.8	43.2	51.7	51.9
Heavy Trucks:	55.9	54.5	45.4	46.7	55.0	55.1
Vehicle Noise:	60.7	59.0	55.1	51.2	59.7	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	27	84	266
CNEL:	9	29	92	291

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: Long Beach Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,890 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	889 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	114.582
Medium Trucks:	114.505
Heavy Trucks:	114.512

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.37	-3.67	0.00	-1.05	0.000	0.000
Medium Trucks:	75.75	-18.61	-3.67	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-22.56	-3.67	0.00	-1.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.3	57.4	55.6	49.5	58.2	58.8
Medium Trucks:	53.5	52.0	45.6	44.1	52.5	52.8
Heavy Trucks:	55.3	53.9	44.9	46.1	54.5	54.6
Vehicle Noise:	61.5	59.8	56.3	51.9	60.5	60.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	42	134	423
CNEL:	15	47	148	467

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: Long Beach Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,830 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,083 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	114.582
Medium Trucks:	114.505
Heavy Trucks:	114.512

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.51	-3.67	0.00	-1.05	0.000	0.000
Medium Trucks:	75.75	-17.75	-3.67	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-21.71	-3.67	0.00	-1.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.1	58.2	56.5	50.4	59.0	59.6
Medium Trucks:	54.3	52.8	46.5	44.9	53.4	53.6
Heavy Trucks:	56.2	54.8	45.7	47.0	55.3	55.5
Vehicle Noise:	62.3	60.6	57.2	52.8	61.3	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	52	163	515
CNEL:	18	57	180	569

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: 41st St. | Job Number: 12620
Road Segment: e/o Central Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,450 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	745 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.68	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.92	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.87	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.2	54.3	52.5	46.5	55.1	55.7
Medium Trucks:	51.0	49.5	43.1	41.6	50.1	50.3
Heavy Trucks:	54.2	52.8	43.8	45.0	53.4	53.5
Vehicle Noise:	59.1	57.4	53.5	49.6	58.1	58.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	15	49	154
CNEL:	5	17	53	168

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: 41st St. | Job Number: 12620
Road Segment: e/o Hooper Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,630 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	863 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.04	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.28	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.23	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	54.9	53.1	47.1	55.7	56.3
Medium Trucks:	51.6	50.1	43.8	42.2	50.7	50.9
Heavy Trucks:	54.9	53.4	44.4	45.7	54.0	54.1
Vehicle Noise:	59.7	58.0	54.1	50.2	58.7	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	18	56	178
CNEL:	6	20	62	195

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: 41st St. | Job Number: 12620
Road Segment: w/o Long Beach Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,730 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	873 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.01	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.23	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.18	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.9	55.0	53.2	47.1	55.8	56.4
Medium Trucks:	51.7	50.2	43.8	42.3	50.7	51.0
Heavy Trucks:	54.9	53.5	44.5	45.7	54.1	54.2
Vehicle Noise:	59.7	58.1	54.2	50.2	58.8	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	18	57	180
CNEL:	6	20	62	197

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Parkview
Road Name: 41st St. | Job Number: 12620
Road Segment: e/o Long Beach Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,390 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	739 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.71	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.95	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.91	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.1	54.2	52.5	46.4	55.0	55.6
Medium Trucks:	51.0	49.5	43.1	41.6	50.0	50.2
Heavy Trucks:	54.2	52.8	43.7	45.0	53.3	53.5
Vehicle Noise:	59.0	57.3	53.4	49.5	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	15	48	153
CNEL:	5	17	53	167

Wednesday, August 14, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,290 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,029 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.21	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.03	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-18.98	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.2	60.4	54.3	63.0	63.6
Medium Trucks:	58.3	56.8	50.4	48.9	57.3	57.6
Heavy Trucks:	60.1	58.7	49.7	50.9	59.3	59.4
Vehicle Noise:	66.3	64.6	61.1	56.7	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	96	303	958
CNEL:	33	106	335	1,058

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,560 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,956 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.05	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.18	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.14	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.9	62.0	60.2	54.2	62.8	63.4
Medium Trucks:	58.1	56.6	50.2	48.7	57.2	57.4
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	66.1	64.4	61.0	56.6	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	29	92	292	924
CNEL:	32	102	322	1,020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,460 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,846 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.80	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.44	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.39	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.7	61.8	60.0	53.9	62.6	63.2
Medium Trucks:	57.9	56.4	50.0	48.5	56.9	57.1
Heavy Trucks:	59.7	58.3	49.3	50.5	58.9	59.0
Vehicle Noise:	65.9	64.2	60.7	56.3	64.9	65.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	28	87	276	872
CNEL:	30	96	304	962

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o 33rd St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,570 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.56	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.68	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.63	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	57.5	55.7	49.7	58.3	58.9
Medium Trucks:	54.2	52.7	46.4	44.8	53.3	53.5
Heavy Trucks:	57.5	56.0	47.0	48.3	56.6	56.7
Vehicle Noise:	62.3	60.6	56.7	52.8	61.3	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	32	103	324
CNEL:	11	35	112	355

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,120 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,712 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.94	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.30	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.26	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.8	57.9	56.1	50.1	58.7	59.3
Medium Trucks:	54.6	53.1	46.7	45.2	53.7	53.9
Heavy Trucks:	57.8	56.4	47.4	48.6	57.0	57.1
Vehicle Noise:	62.7	61.0	57.1	53.2	61.7	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	35	112	354
CNEL:	12	39	122	387

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,230 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,623 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.70	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.53	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.49	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.6	57.7	55.9	49.8	58.5	59.1
Medium Trucks:	54.4	52.9	46.5	45.0	53.4	53.7
Heavy Trucks:	57.6	56.2	47.1	48.4	56.8	56.9
Vehicle Noise:	62.4	60.8	56.9	52.9	61.4	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	34	106	335
CNEL:	12	37	116	367

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,770 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,477 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.30	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.94	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.90	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.1	57.2	55.5	49.4	58.0	58.7
Medium Trucks:	54.0	52.5	46.1	44.6	53.0	53.3
Heavy Trucks:	57.2	55.8	46.7	48.0	56.3	56.5
Vehicle Noise:	62.0	60.4	56.4	52.5	61.0	61.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	31	96	305
CNEL:	11	33	106	334

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o Adams Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,040 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	704 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.92	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-18.16	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-22.12	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.9	54.0	52.3	46.2	54.8	55.4
Medium Trucks:	50.8	49.3	42.9	41.3	49.8	50.0
Heavy Trucks:	54.0	52.6	43.5	44.8	53.1	53.3
Vehicle Noise:	58.8	57.1	53.2	49.3	57.8	58.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	15	46	145
CNEL:	5	16	50	159

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,280 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	828 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.22	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.46	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.41	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.6	54.7	53.0	46.9	55.5	56.1
Medium Trucks:	51.5	50.0	43.6	42.0	50.5	50.7
Heavy Trucks:	54.7	53.3	44.2	45.5	53.8	54.0
Vehicle Noise:	59.5	57.8	53.9	50.0	58.5	58.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	17	54	171
CNEL:	6	19	59	187

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,850 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,285 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	1.69	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	70.80	-15.55	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-19.50	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.0	56.1	54.3	48.3	56.9	57.5
Medium Trucks:	52.8	51.3	44.9	43.4	51.8	52.1
Heavy Trucks:	56.0	54.6	45.6	46.8	55.2	55.3
Vehicle Noise:	60.9	59.2	55.3	51.4	59.9	60.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	28	87	276
CNEL:	10	30	95	301

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Long Beach Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,010 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,001 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	114.582
Medium Trucks:	114.505
Heavy Trucks:	114.512

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.86	-3.67	0.00	-1.05	0.000	0.000
Medium Trucks:	75.75	-18.09	-3.67	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-22.05	-3.67	0.00	-1.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.8	57.9	56.1	50.1	58.7	59.3
Medium Trucks:	54.0	52.5	46.1	44.6	53.0	53.3
Heavy Trucks:	55.9	54.4	45.4	46.6	55.0	55.1
Vehicle Noise:	62.0	60.3	56.8	52.5	61.0	61.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	48	151	476
CNEL:	17	53	166	526

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project | Project Name: Parkview
Road Name: Long Beach Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,680 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,168 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	114.582
Medium Trucks:	114.505
Heavy Trucks:	114.512

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.19	-3.67	0.00	-1.05	0.000	0.000
Medium Trucks:	75.75	-17.42	-3.67	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-21.38	-3.67	0.00	-1.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.4	58.5	56.8	50.7	59.3	60.0
Medium Trucks:	54.7	53.2	46.8	45.2	53.7	53.9
Heavy Trucks:	56.5	55.1	46.1	47.3	55.7	55.8
Vehicle Noise:	62.7	61.0	57.5	53.1	61.7	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	56	176	556
CNEL:	19	61	194	614

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project
Road Name: 41st St.
Road Segment: e/o Central Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,060 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	806 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.33	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.57	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.53	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	54.6	52.9	46.8	55.4	56.0
Medium Trucks:	51.3	49.8	43.5	41.9	50.4	50.6
Heavy Trucks:	54.6	53.1	44.1	45.4	53.7	53.8
Vehicle Noise:	59.4	57.7	53.8	49.9	58.4	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	17	53	167
CNEL:	6	18	58	182

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project
Road Name: 41st St.
Road Segment: e/o Hooper Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,170 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	917 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.23	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.01	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-20.97	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	55.2	53.4	47.4	56.0	56.6
Medium Trucks:	51.9	50.4	44.0	42.5	51.0	51.2
Heavy Trucks:	55.1	53.7	44.7	45.9	54.3	54.4
Vehicle Noise:	60.0	58.3	54.4	50.5	59.0	59.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	19	60	189
CNEL:	7	21	66	207

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project
Road Name: 41st St.
Road Segment: w/o Long Beach Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,310 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	931 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.29	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-16.95	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-20.90	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	55.2	53.5	47.4	56.0	56.7
Medium Trucks:	52.0	50.5	44.1	42.6	51.0	51.3
Heavy Trucks:	55.2	53.8	44.7	46.0	54.3	54.5
Vehicle Noise:	60.0	58.4	54.4	50.5	59.0	59.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	19	61	192
CNEL:	7	21	67	210

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future Without Project
Road Name: 41st St.
Road Segment: e/o Long Beach Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,640 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	764 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.57	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.81	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.76	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	54.4	52.6	46.6	55.2	55.8
Medium Trucks:	51.1	49.6	43.2	41.7	50.2	50.4
Heavy Trucks:	54.3	52.9	43.9	45.1	53.5	53.6
Vehicle Noise:	59.2	57.5	53.6	49.7	58.2	58.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	16	50	158
CNEL:	5	17	55	173

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,340 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,034 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.22	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.01	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-18.97	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.2	60.4	54.4	63.0	63.6
Medium Trucks:	58.3	56.8	50.4	48.9	57.3	57.6
Heavy Trucks:	60.1	58.7	49.7	50.9	59.3	59.4
Vehicle Noise:	66.3	64.6	61.1	56.8	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	96	304	960
CNEL:	34	106	335	1,060

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: s/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,620 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,962 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.07	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.17	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.13	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.9	62.0	60.2	54.2	62.8	63.4
Medium Trucks:	58.1	56.6	50.3	48.7	57.2	57.4
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	66.1	64.4	61.0	56.6	65.1	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	29	93	293	926
CNEL:	32	102	323	1,023

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project | Project Name: Parkview
Road Name: Central Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,520 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,852 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.82	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	75.75	-15.42	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-19.38	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.7	61.8	60.0	53.9	62.6	63.2
Medium Trucks:	57.9	56.4	50.0	48.5	56.9	57.2
Heavy Trucks:	59.7	58.3	49.3	50.5	58.9	59.0
Vehicle Noise:	65.9	64.2	60.7	56.3	64.9	65.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	28	87	277	874
CNEL:	31	97	305	966

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o 33rd St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,760 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,576 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.58	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.66	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.62	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	57.5	55.8	49.7	58.3	58.9
Medium Trucks:	54.3	52.8	46.4	44.8	53.3	53.5
Heavy Trucks:	57.5	56.1	47.0	48.3	56.6	56.8
Vehicle Noise:	62.3	60.6	56.7	52.8	61.3	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	33	103	326
CNEL:	11	36	113	356

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o 41st St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,130 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,713 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.94	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.30	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.25	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.8	57.9	56.1	50.1	58.7	59.3
Medium Trucks:	54.6	53.1	46.8	45.2	53.7	53.9
Heavy Trucks:	57.8	56.4	47.4	48.6	57.0	57.1
Vehicle Noise:	62.7	61.0	57.1	53.2	61.7	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	35	112	354
CNEL:	12	39	122	387

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: n/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,320 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,632 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.73	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.51	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.47	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.6	57.7	55.9	49.9	58.5	59.1
Medium Trucks:	54.4	52.9	46.5	45.0	53.5	53.7
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	62.5	60.8	56.9	53.0	61.5	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	34	107	337
CNEL:	12	37	117	369

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project | Project Name: Parkview
Road Name: Hooper Av. | Job Number: 12620
Road Segment: s/o Vernon Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,480 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	2.30	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-14.93	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-18.89	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.2	57.3	55.5	49.4	58.1	58.7
Medium Trucks:	54.0	52.5	46.1	44.6	53.0	53.3
Heavy Trucks:	57.2	55.8	46.7	48.0	56.4	56.5
Vehicle Noise:	62.0	60.4	56.5	52.5	61.0	61.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	31	97	306
CNEL:	11	33	106	334

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project | Project Name: Parkview
Road Name: Compton Av. | Job Number: 12620
Road Segment: s/o Adams Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,170 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	717 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.84	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-18.08	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-22.04	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.0	54.1	52.3	46.3	54.9	55.5
Medium Trucks:	50.8	49.3	43.0	41.4	49.9	50.1
Heavy Trucks:	54.1	52.6	43.6	44.9	53.2	53.3
Vehicle Noise:	58.9	57.2	53.3	49.4	57.9	58.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	15	47	148
CNEL:	5	16	51	162

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project
Road Name: Compton Av.
Road Segment: s/o 41st St.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,380 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	838 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.17	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.40	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.36	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.7	54.8	53.0	47.0	55.6	56.2
Medium Trucks:	51.5	50.0	43.6	42.1	50.6	50.8
Heavy Trucks:	54.7	53.3	44.3	45.5	53.9	54.0
Vehicle Noise:	59.6	57.9	54.0	50.1	58.6	59.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	17	55	173
CNEL:	6	19	60	189

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project
Road Name: Compton Av.
Road Segment: s/o Vernon Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,910 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,291 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	80.0 feet
Centerline Dist. to Observer:	90.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	86.603
Medium Trucks:	86.500
Heavy Trucks:	86.510

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	1.71	-2.45	0.00	-1.02	0.000	0.000
Medium Trucks:	70.80	-15.53	-2.45	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-19.48	-2.45	0.00	-1.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.0	56.1	54.3	48.3	56.9	57.5
Medium Trucks:	52.8	51.3	44.9	43.4	51.9	52.1
Heavy Trucks:	56.0	54.6	45.6	46.8	55.2	55.3
Vehicle Noise:	60.9	59.2	55.3	51.4	59.9	60.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	28	88	277
CNEL:	10	30	96	303

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project
Road Name: Long Beach Av.
Road Segment: n/o 41st St.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,030 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,003 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	114.582
Medium Trucks:	114.505
Heavy Trucks:	114.512

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.85	-3.67	0.00	-1.05	0.000	0.000
Medium Trucks:	75.75	-18.08	-3.67	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-22.04	-3.67	0.00	-1.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.8	57.9	56.1	50.1	58.7	59.3
Medium Trucks:	54.0	52.5	46.1	44.6	53.0	53.3
Heavy Trucks:	55.9	54.4	45.4	46.7	55.0	55.1
Vehicle Noise:	62.0	60.3	56.9	52.5	61.0	61.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	48	151	477
CNEL:	17	53	167	527

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project
Road Name: Long Beach Av.
Road Segment: s/o 41st St.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,170 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	120.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	114.582
Medium Trucks:	114.505
Heavy Trucks:	114.512

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.18	-3.67	0.00	-1.05	0.000	0.000
Medium Trucks:	75.75	-17.42	-3.67	0.00	-1.15	0.000	0.000
Heavy Trucks:	81.57	-21.37	-3.67	0.00	-1.40	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.5	58.6	56.8	50.7	59.4	60.0
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	53.9
Heavy Trucks:	56.5	55.1	46.1	47.3	55.7	55.8
Vehicle Noise:	62.7	61.0	57.5	53.1	61.7	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	56	176	557
CNEL:	19	61	194	615

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project
Road Name: 41st St.
Road Segment: e/o Central Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,220 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	822 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.25	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.49	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.44	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.6	54.7	52.9	46.9	55.5	56.1
Medium Trucks:	51.4	49.9	43.6	42.0	50.5	50.7
Heavy Trucks:	54.7	53.2	44.2	45.4	53.8	53.9
Vehicle Noise:	59.5	57.8	53.9	50.0	58.5	58.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	17	54	170
CNEL:	6	19	59	186

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project
Road Name: 41st St.
Road Segment: e/o Hooper Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,430 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	943 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.35	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-16.89	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-20.85	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.2	55.3	53.5	47.5	56.1	56.7
Medium Trucks:	52.0	50.5	44.2	42.6	51.1	51.3
Heavy Trucks:	55.2	53.8	44.8	46.0	54.4	54.5
Vehicle Noise:	60.1	58.4	54.5	50.6	59.1	59.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	19	62	195
CNEL:	7	21	67	213

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project
Road Name: 41st St.
Road Segment: w/o Long Beach Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,380 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	938 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.32	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-16.91	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-20.87	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.2	55.3	53.5	47.5	56.1	56.7
Medium Trucks:	52.0	50.5	44.1	42.6	51.1	51.3
Heavy Trucks:	55.2	53.8	44.8	46.0	54.4	54.5
Vehicle Noise:	60.1	58.4	54.5	50.6	59.1	59.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	19	61	194
CNEL:	7	21	67	212

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Future With Project
Road Name: 41st St.
Road Segment: e/o Long Beach Av.
Project Name: Parkview
Job Number: 12620

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,670 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	767 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.928
Medium Trucks:	75.811
Heavy Trucks:	75.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.55	-1.88	0.00	-0.99	0.000	0.000
Medium Trucks:	70.80	-17.79	-1.88	0.00	-1.15	0.000	0.000
Heavy Trucks:	77.97	-21.74	-1.88	0.00	-1.57	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	54.4	52.6	46.6	55.2	55.8
Medium Trucks:	51.1	49.6	43.3	41.7	50.2	50.4
Heavy Trucks:	54.4	52.9	43.9	45.1	53.5	53.6
Vehicle Noise:	59.2	57.5	53.6	49.7	58.2	58.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	16	50	158
CNEL:	5	17	55	173

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APPENDIX 9.1:

OPERATIONAL NOISE CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R1** *Project Name:* Parkview
Source: Roof-Top Air Conditioning Units *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	216.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	216.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	216.0	-32.7	-32.7	-32.7	-32.7	-32.7	-32.7
Shielding (Barrier Attenuation)	216.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.5	-32.7	-32.7	-32.7	-32.7	-32.7
60 Minute Hourly Adjustment		**44.5**	**-32.7**	**-32.7**	**-32.7**	**-32.7**	**-32.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R1** *Project Name:* Parkview
Source: Parking Lot Vehicle Movements *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	172.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	172.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	172.0	-24.7	-24.7	-24.7	-24.7	-24.7	-24.7
Shielding (Barrier Attenuation)	172.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		26.6	-24.7	-24.7	-24.7	-24.7	-24.7
60 Minute Hourly Adjustment		**26.6**	**-24.7**	**-24.7**	**-24.7**	**-24.7**	**-24.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R1** *Project Name:* Parkview
Source: Outdoor Park Activity *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	235.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	235.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	235.0	-33.4	-33.4	-33.4	-33.4	-33.4	-33.4
Shielding (Barrier Attenuation)	235.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		30.0	-33.4	-33.4	-33.4	-33.4	-33.4
60 Minute Hourly Adjustment		**30.0**	**-33.4**	**-33.4**	**-33.4**	**-33.4**	**-33.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R2** *Project Name:* Parkview
Source: Roof-Top Air Conditioning Units *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	445.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	435.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	445.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0
Shielding (Barrier Attenuation)	435.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		38.2	-39.0	-39.0	-39.0	-39.0	-39.0
60 Minute Hourly Adjustment		**38.2**	**-39.0**	**-39.0**	**-39.0**	**-39.0**	**-39.0**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R2** *Project Name:* Parkview
Source: Outdoor Park Activity *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	387.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	377.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	387.0	-37.8	-37.8	-37.8	-37.8	-37.8	-37.8
Shielding (Barrier Attenuation)	377.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		25.6	-37.8	-37.8	-37.8	-37.8	-37.8
60 Minute Hourly Adjustment		**25.6**	**-37.8**	**-37.8**	**-37.8**	**-37.8**	**-37.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R3** *Project Name:* Parkview
Source: Roof-Top Air Conditioning Units *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	691.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	691.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	691.0	-42.8	-42.8	-42.8	-42.8	-42.8	-42.8
Shielding (Barrier Attenuation)	691.0	-10.1	-10.1	-10.1	-10.1	-10.1	-10.1
Raw (Distance + Barrier)		24.3	-52.9	-52.9	-52.9	-52.9	-52.9
60 Minute Hourly Adjustment		**24.3**	**-52.9**	**-52.9**	**-52.9**	**-52.9**	**-52.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R2** *Project Name:* Parkview
Source: Parking Lot Vehicle Movements *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	231.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	221.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	231.0	-27.3	-27.3	-27.3	-27.3	-27.3	-27.3
Shielding (Barrier Attenuation)	221.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		18.5	-32.8	-32.8	-32.8	-32.8	-32.8
60 Minute Hourly Adjustment		**18.5**	**-32.8**	**-32.8**	**-32.8**	**-32.8**	**-32.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R3** *Project Name:* Parkview
Source: Outdoor Park Activity *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	607.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	607.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	607.0	-41.7	-41.7	-41.7	-41.7	-41.7	-41.7
Shielding (Barrier Attenuation)	607.0	-10.2	-10.2	-10.2	-10.2	-10.2	-10.2
Raw (Distance + Barrier)		11.5	-51.9	-51.9	-51.9	-51.9	-51.9
60 Minute Hourly Adjustment		**11.5**	**-51.9**	**-51.9**	**-51.9**	**-51.9**	**-51.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R3** *Project Name:* Parkview
Source: Parking Lot Vehicle Movements *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	386.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	386.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	386.0	-31.7	-31.7	-31.7	-31.7	-31.7	-31.7
Shielding (Barrier Attenuation)	386.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		19.6	-31.7	-31.7	-31.7	-31.7	-31.7
60 Minute Hourly Adjustment		**19.6**	**-31.7**	**-31.7**	**-31.7**	**-31.7**	**-31.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R4** *Project Name:* Parkview
Source: Outdoor Park Activity *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	337.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	337.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	337.0	-36.6	-36.6	-36.6	-36.6	-36.6	-36.6
Shielding (Barrier Attenuation)	337.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		26.8	-36.6	-36.6	-36.6	-36.6	-36.6
60 Minute Hourly Adjustment		**26.8**	**-36.6**	**-36.6**	**-36.6**	**-36.6**	**-36.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R4** *Project Name:* Parkview
Source: Roof-Top Air Conditioning Units *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	426.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	426.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	426.0	-38.6	-38.6	-38.6	-38.6	-38.6	-38.6
Shielding (Barrier Attenuation)	426.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		38.6	-38.6	-38.6	-38.6	-38.6	-38.6
60 Minute Hourly Adjustment		**38.6**	**-38.6**	**-38.6**	**-38.6**	**-38.6**	**-38.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R4** *Project Name:* Parkview
Source: Parking Lot Vehicle Movements *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	208.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	208.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	208.0	-26.4	-26.4	-26.4	-26.4	-26.4	-26.4
Shielding (Barrier Attenuation)	208.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		24.9	-26.4	-26.4	-26.4	-26.4	-26.4
60 Minute Hourly Adjustment		**24.9**	**-26.4**	**-26.4**	**-26.4**	**-26.4**	**-26.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R5** *Project Name:* Parkview
Source: Roof-Top Air Conditioning Units *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	162.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	162.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	20.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	162.0	-30.2	-30.2	-30.2	-30.2	-30.2	-30.2
Shielding (Barrier Attenuation)	162.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		47.0	-30.2	-30.2	-30.2	-30.2	-30.2
60 Minute Hourly Adjustment		**47.0**	**-30.2**	**-30.2**	**-30.2**	**-30.2**	**-30.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R5** *Project Name:* Parkview
Source: Parking Lot Vehicle Movements *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	381.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	381.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	51.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	381.0	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6
Shielding (Barrier Attenuation)	381.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		19.7	-31.6	-31.6	-31.6	-31.6	-31.6
60 Minute Hourly Adjustment		**19.7**	**-31.6**	**-31.6**	**-31.6**	**-31.6**	**-31.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 8/15/2019

Observer Location: **R5** *Project Name:* Parkview
Source: Outdoor Park Activity *Job Number:* 12620
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	258.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	258.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	63.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	258.0	-34.3	-34.3	-34.3	-34.3	-34.3	-34.3
Shielding (Barrier Attenuation)	258.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		29.1	-34.3	-34.3	-34.3	-34.3	-34.3
60 Minute Hourly Adjustment		**29.1**	**-34.3**	**-34.3**	**-34.3**	**-34.3**	**-34.3**