Barker Logistics

NOISE IMPACT ANALYSIS

COUNTY OF RIVERSIDE

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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
Hz	Hertz
I-215	Interstate 215
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
MARB/IPA	March Air Reserve Base / Inland Port Airport
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Barker Logistics
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

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EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Barker Logistics development ("Project"). The Project site is located on the northeast corner of Patterson Avenue and Placentia Street, in unincorporated County of Riverside. The Project is proposed to consist of up to 699,630 square feet (sf) of high-cube fulfillment center use. The Project is anticipated to be constructed in a single phase by the year 2021. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown, and therefore, this noise study includes a conservative analysis of the proposed Project uses. This study has been prepared to satisfy applicable County of Riverside standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the 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 10 study-area roadway segments were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in the *Barker Logistics Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing (2018), Existing plus Ambient Growth (EA) (2021), and EA plus Cumulative (EAC) (2021) conditions under both Without and With the Placentia Street Interchange. The analysis shows that the unmitigated Project-related traffic noise level increases under all with Project traffic scenarios are considered *less than significant* impacts at land uses adjacent to the study area roadway segments.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the expected noise sources from the Barker Logistics site, this analysis estimates the Project-related stationary-source noise levels at nearby sensitive receiver locations. The typical activities associated with the proposed Barker Logistics are anticipated to include idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements. The operational noise analysis shows that the Project-related stationary-source noise levels at all receiver locations will satisfy the County of Riverside 65 dBA L_{eq} daytime exterior noise level standards, and includes the barrier attenuation provided by the Project building and planned 14-foot high truck court screen walls, where applicable.

Further, this analysis demonstrates that the Project operational noise levels will not contribute a long-term operational noise level impact to the existing ambient noise environment at any of the sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed 24-hour seven days per week Project activities, such as the idling trucks, delivery truck

activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements, are considered *less than significant* with mitigation.

OPERATIONAL VIBRATION ANALYSIS

The operation of the Project site will include heavy trucks moving on site to and from the loading dock areas. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. According to the FTA *Transit Noise Impact and Vibration Assessment,* (3) (5) trucks rarely create vibration that exceeds 70 VdB or 0.003 in/sec RMS (6) (unless there are bumps due to frequent potholes in the road). Trucks transiting on site will be travelling at very low speeds so it is expected that delivery truck vibration impacts at nearby homes will satisfy the 0.01 in/sec RMS vibration threshold of the County of Riverside, and therefore, will be *less than significant*.

CONSTRUCTION NOISE ANALYSIS

Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site. Using sample reference noise levels to represent the planned construction activities of the Barker Logistics site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the County of Riverside General Plan and Municipal Codes do not identify specific construction noise level thresholds, a threshold is identified based on the National Institute for Occupational Safety and Health (NIOSH) limits for construction noise. The Project-related short-term construction noise levels are expected to range from 58.2 to 79.6 dBA L_{eq} and will satisfy the 85 dBA L_{eq} threshold identified by the National Institute for Occupational Safety and Health (NIOSH) at all receiver locations. Therefore, based on the results of this analysis, all nearby sensitive receiver locations will experience *less than significant* impacts due to Project construction noise levels.

CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. This analysis shows the highest construction vibration levels are estimated at 0.001 in/sec RMS, which is below the vibration standard of 0.01 in/sec RMS at all receiver locations in the County of Riverside. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.

At distances ranging from 50 to 145 feet from primary construction activities, construction vibration velocity levels are estimated 0.022 in/sec root-mean-square velocity (RMS), and will exceed County of Riverside RMS vibration threshold of 0.01 in/sec at receiver locations R2 and R3. As such, the Project-related vibration impacts will be *potentially significant* during the construction activities at the Project site. Therefore, a 90-foot buffer zone vibration mitigation measure is required which would restrict the use of large loaded trucks and dozers (greater than 80,000 pounds) within 90-feet of occupied sensitive receiver locations represented by R2 and R3.

With the mitigation measures identified in this report, and shown on Exhibit ES-B, the mitigated vibration levels with the 90-foot buffer zone will be reduced to 0.0093 in/sec RMS, and will satisfy the County of Riverside perceptible vibration threshold of 0.01 in/sec RMS. Therefore, impacts with the construction vibration mitigation measure identified in this study will be *less than significant*.

Further, the vibration levels due to Project construction do not represent vibration levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (5) The peak Project-construction vibration levels of 0.031 in/sec PPV will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Further, the levels at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

CONSTRUCTION VIBRATION MITIGATION

To reduce the construction vibration impacts to *less than significant* levels, the following vibration mitigation measure is required for Project-related construction activities:

- Large loaded trucks and dozers (greater than 80,000 pounds) shall not be used within 90 feet of occupied noise-sensitive residential homes, as shown on Exhibit ES-A, represented by receiver locations R2 and R3, during Project construction activities. Instead, small rubber-tired or alternative equipment shall be used within this area during Project construction to reduce vibration effects.

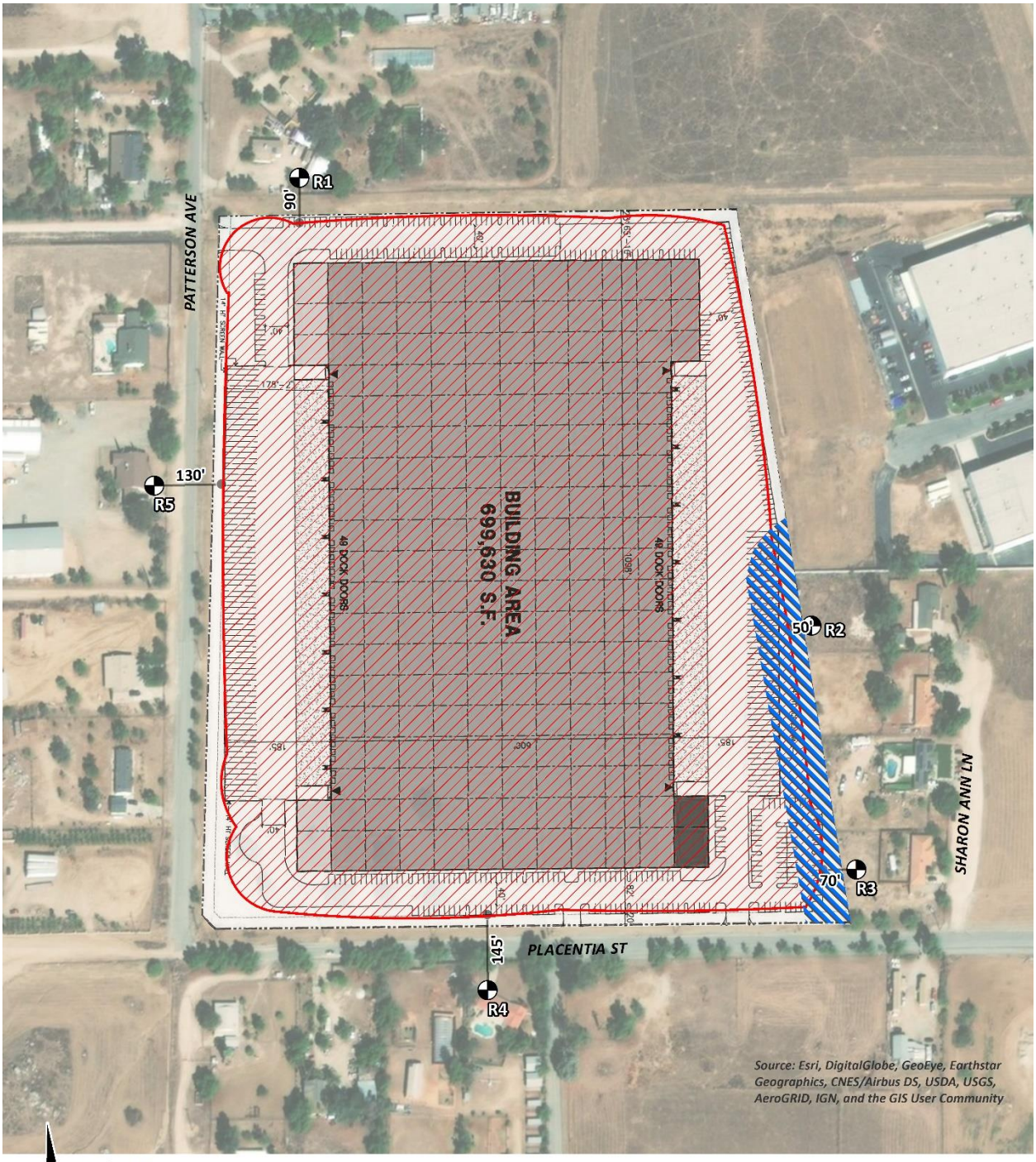
SUMMARY CEQA SIGNIFICANCE FINDINGS

The results of this Barker Logistics Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (8). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

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

EXHIBIT ES-A: CONSTRUCTION VIBRATION MITIGATION



1 INTRODUCTION

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

1.1 SITE LOCATION

The proposed Barker Logistics site is located on the northeast corner of Patterson Avenue and Placentia Street, in unincorporated County of Riverside, as shown on Exhibit 1-A.

The Project site is currently vacant. Existing land uses near the site include noise-sensitive residential homes located north, south, east, and west of the Project site. Existing and future-designated Business Park use is located east of the Project site. Interstate 215 (I-215) is located approximately 1,600 feet east of the Project site; Burlington National Santa Fe (BNSF) railroad lines are located roughly 1,500 feet east of the Project site; and the March Air Reserve Base/Inland Port Airport (MARB/IPA) is located roughly 2.5 miles northeast of the Project site.

1.2 PROJECT DESCRIPTION

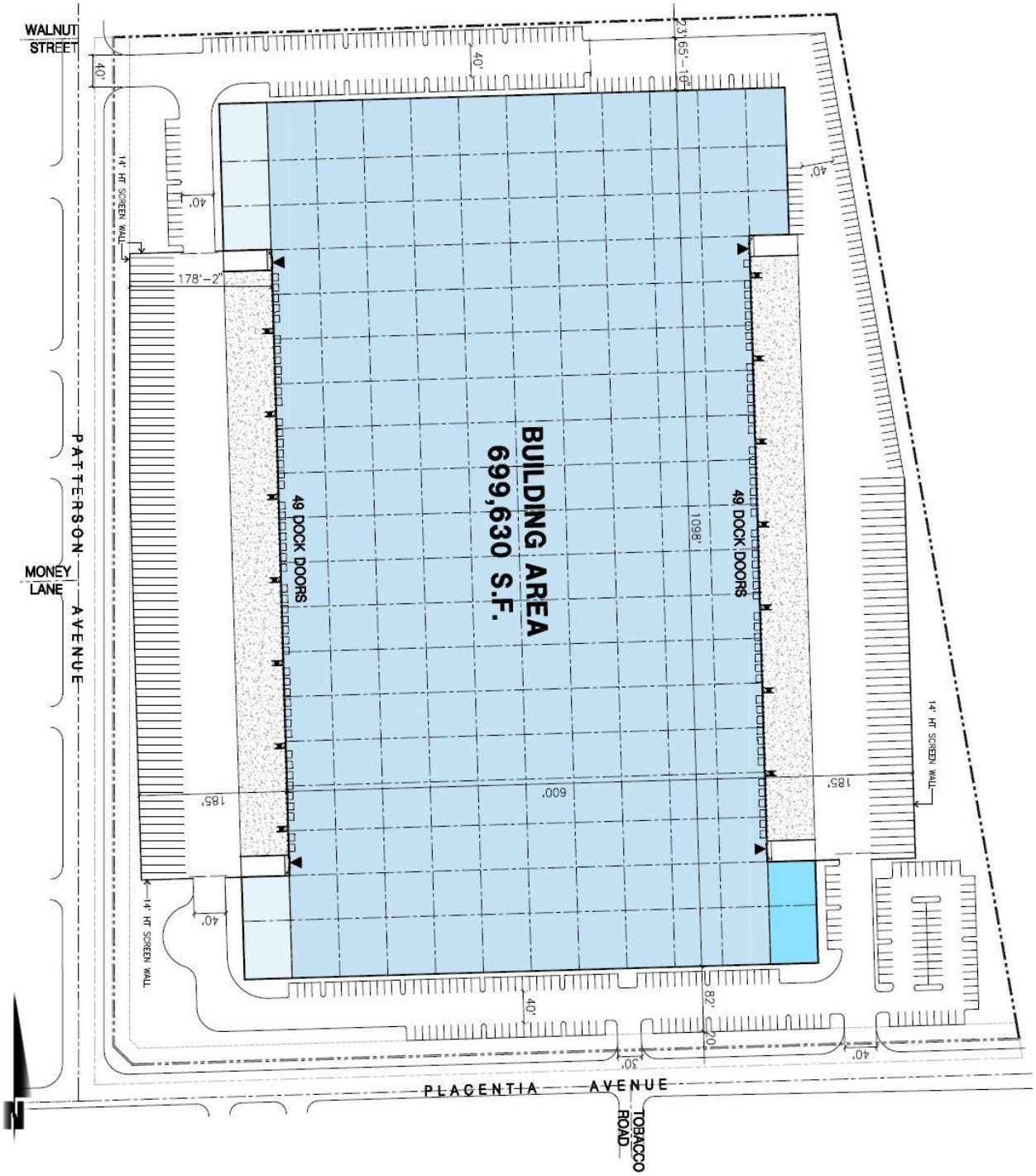
The Project is proposed to consist of up to 699,630 square feet (sf) of high-cube fulfillment center use, as shown on Exhibit 1-B. The Project is anticipated to be constructed in a single phase by the year 2021

At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown. The on-site Project-related noise sources are expected to include: idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site.

Per the *Barker Logistics Traffic Impact Analysis* prepared by Urban Crossroads, Inc. the Project is expected to generate a total of approximately 1,548 trip-ends per day (actual vehicles) and includes 276 truck trip-ends per day. (2) This noise study relies on the actual Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of individual truck trips on the study area roadway network.

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. (4) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (5) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (4)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiveris 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 receiverreceiver 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. (6)

2.3.3 ATMOSPHERIC EFFECTS

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (4)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (6)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiverby controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiverreceiver 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 up to 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. (6)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (7)

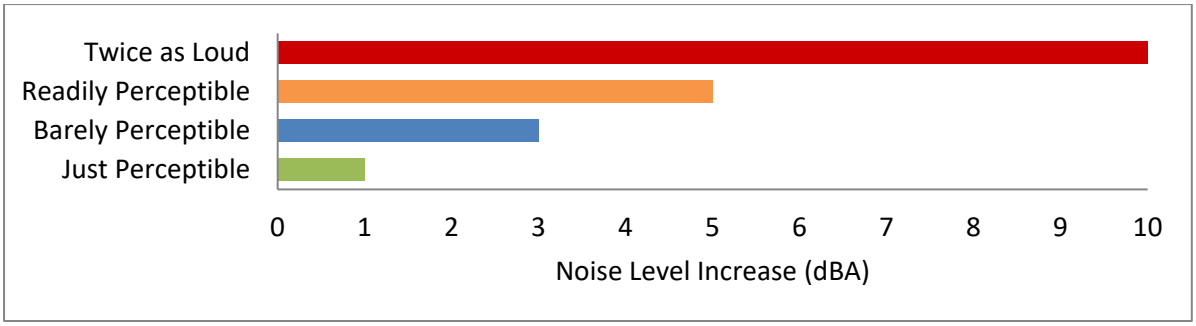
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon 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. (8) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (8) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (6)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 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. (9)

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.

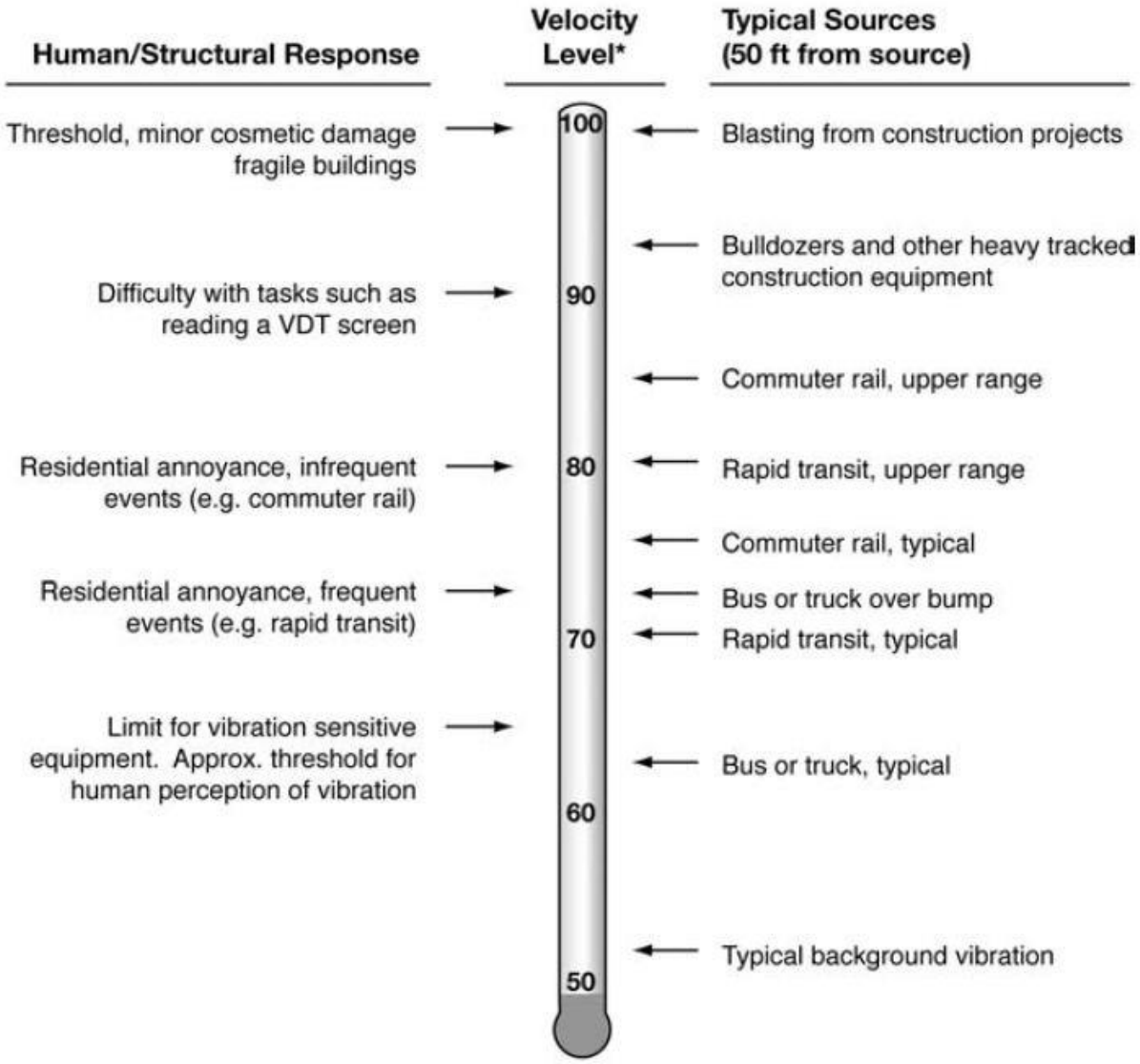
2.9 VIBRATION

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

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

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

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



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

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

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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (11) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (12) 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 non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 COUNTY OF RIVERSIDE GENERAL PLAN NOISE ELEMENT

The County of Riverside has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of County of Riverside from excessive exposure to noise. (13) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. In addition, the Noise Element identifies several polices to minimize the impacts

of excessive noise levels throughout the community, and establishes noise level requirements for all land uses. To protect County of Riverside residents from excessive noise, the Noise Element contains the following policies related to the Project:

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

N 1.3 Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 CNEL:

- *Schools*
- *Hospitals*
- *Rest Homes*
- *Long Term Care Facilities*
- *Mental Care Facilities*
- *Residential Uses*
- *Libraries*
- *Passive Recreation Uses*
- *Places of Worship*

N 1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.

N 4.1 Prohibit facility-related noise, received by any sensitive use, from exceeding the following worst-case noise levels:

a. 45 dBA 10-minute L_{eq} between 10:00 p.m. and 7:00 a.m.;

b. 65 dBA 10-minute L_{eq} between 7:00 a.m. and 10:00 p.m.

N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable standards.

N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse impacts on surrounding areas.

N 13.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the [County] for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:

i. Temporary noise attenuation fences;

ii. Preferential location and equipment; and

iii. Use of current noise suppression technology and equipment.

N 16.3 Prohibit exposure of residential dwellings to perceptible ground vibration from passing trains as perceived at the ground or second floor. Perceptible motion shall be presumed to be a motion velocity of 0.01 inches/second over a range of 1 to 100 Hz.

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

County of Riverside requires noise attenuation measures for sensitive land use exposed to noise levels higher than 65 CNEL. Policy N 4.1 of the Noise Element sets a stationary-source exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. To prevent high levels of construction noise from impacting noise-sensitive land uses, policies N 13.1 through 13.3 identify construction noise mitigation requirements for new development located near existing noise-sensitive land uses. Policy 16.3 establishes the vibration perception threshold for rail-related vibration levels, used in this analysis as a threshold for determining potential vibration impacts due to Project construction. (13)

3.3.1 LAND USE COMPATIBILITY

The noise criteria identified in the County of Riverside Noise Element (Table N-1) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the County with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Land Use Compatibility for Community Noise Exposure* matrix describes categories of compatibility and not specific noise standards. The warehouse/industrial use of the Project is considered *normally acceptable* with unmitigated exterior noise levels of less than 70 dBA CNEL based on the *Industrial, Manufacturing, Utilities, Agriculture* land use compatibility criteria shown on Exhibit 3-A. Residential designated land uses in the Project study area are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* with exterior noise levels of up to 70 dBA CNEL. For *conditionally acceptable* exterior noise levels, of up to 80 dBA CNEL for Project land uses, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice*. (15)

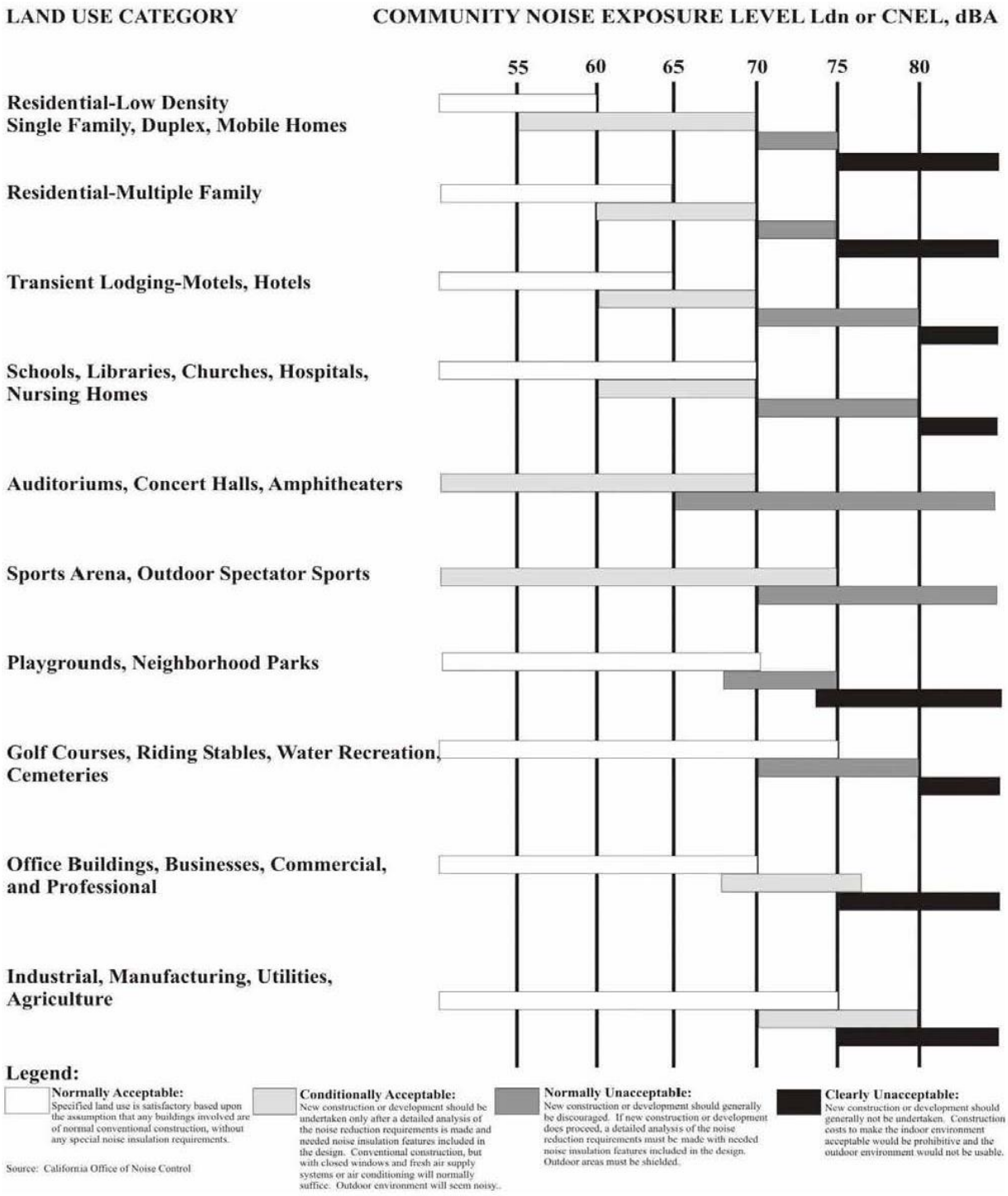
3.3.2 COUNTY OF RIVERSIDE STATIONARY NOISE STANDARDS

The County of Riverside has set exterior noise limits to control idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements associated with the development of the proposed Barker Logistics. The County considers noise generated using motor vehicles to be a stationary noise source when operated on private property such as at a loading dock. These facility-related noises, as projected to any portion of any surrounding property containing a *habitable dwelling, hospital, school, library or nursing home*, must not exceed the following worst-case noise levels.

Policy N 4.1 of the Noise Element sets an exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. (15) Based on several discussions with the County of Riverside Department of Environmental Health (DEH), Office of Industrial Hygiene (OIH), it is important to recognize that the County of Riverside

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

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



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

3.4 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the County of Riverside has established limits to the hours of operation. Section 9.52.020 of the County's Noise Regulation ordinance indicates that noise associated with any private construction activity located within one-quarter of a mile from an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May. (14) Neither the County's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*.

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

The Occupational Safety and Health Administration (OSHA) requires hearing protection be provided by employers in workplaces where the noise levels may, over long periods of exposure to high noise levels, endanger the hearing of their employees. Standard 29 CFR, Part 1910 indicates the noise levels under which a hearing conservation program is required to be provided to workers exposed to high noise levels. (9) This analysis does not evaluate the noise exposure of construction workers within the Project site based on CEQA requirements, and instead, evaluates the Project-related construction noise levels at the nearby sensitive receiver locations in the Project study area.

3.5 VIBRATION STANDARDS

The County of Riverside does not have vibration standards for temporary construction, but the County's General Plan Noise Element does contain the human reaction to typical vibration levels. Vibration levels with peak particle velocity of 0.0787 inches per second are considered readily perceptible and above 0.1968 in/sec are considered annoying to people in buildings. Further, County of Riverside General Plan Policy N 16.3 identifies a motion velocity perception threshold for vibration due to passing trains of 0.01 inches per second (in/sec) over the range of one to 100 Hz, which is used in this noise study to assess potential impacts due to Project construction vibration levels. (13)

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4 SIGNIFICANCE CRITERIA

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

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

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

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

While the County of Riverside 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 located approximately 2.5 miles southwest of MARB/IPA and would not be exposed to excessive aircraft noise levels. Therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Guideline C.

4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (18)

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (19) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on

studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (18) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS

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

Federal Interagency Committee on Noise (FICON), 1992.

4.3 NON-NOISE-SENSITIVE RECEIVERS

The County of Riverside General Plan Noise Element, Table N-1, *Land Use Compatibility for Community Noise Exposure* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise levels for non-noise-sensitive land uses is 70 dBA CNEL. Noise levels greater than 70 dBA CNEL are considered *conditionally acceptable* per the *Land Use Compatibility for Community Noise Exposure*. (13)

To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria were used. When the without Project noise levels at the non-noise-sensitive land uses are below the *normally acceptable* 70 dBA CNEL compatibility criteria, a *readily perceptible* 5 dBA or greater noise level increase is considered a significant impact. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts

for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds s for noise-sensitive land uses but instead rely on the County of Riverside General Plan Noise Element, Table N-1, *Land Use Compatibility for Community Noise Exposure normally acceptable* 70 dBA CNEL exterior noise level criteria.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-2 shows the significance criteria summary matrix.

OFF-SITE 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 increase of greater than 1.5 dBA CNEL (FICON, 1992).
- When the noise levels at existing and future non-noise-sensitive land uses (e.g., office, commercial, industrial):
    - are less than the County of Riverside General Plan Noise Element, Table N-1, *normally acceptable* 70 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project related noise level increase; or
    - are greater than the County of Riverside General Plan Noise Element, Table N-1, *normally acceptable* 70 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project noise level increase.

OPERATIONAL NOISE & VIBRATION

- If Project-related operational (stationary-source) noise levels exceed the exterior 65 dBA L_{eq} daytime or 45 dBA L_{eq} nighttime noise level standards at nearby sensitive receiver locations in the County of Riverside (County of Riverside General Plan Noise Element, Table N-2).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
    - are less than 60 dBA L_{eq} and the Project creates a *readily perceptible* 5 dBA L_{eq} or greater Project-related noise level increase; or
    - range from 60 to 65 dBA L_{eq} and the Project creates a *barely perceptible* 3 dBA L_{eq} or greater Project-related noise level increase; or
    - already exceed 65 dBA L_{eq} and the Project creates a community noise level increase of greater than 1.5 dBA L_{eq} (FICON, 1992).
- If Project generated operational vibration levels exceed the County of Riverside acceptable vibration standard of 0.01 in/sec RMS at sensitive receiver locations (County of Riverside General Plan , Policy N 16.3).

CONSTRUCTION NOISE & VIBRATION

- If Project-related construction activities create noise levels which exceed the 85 dBA L_{eq} acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure);
- If short-term Project-generated construction vibration levels exceed the County of Riverside vibration standard of 0.01 in/sec RMS at sensitive receiver locations (County of Riverside General Plan Noise Element, Policy N 16.3).

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[1]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[1,2]	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Noise-Sensitive	Exterior Noise Level Standards[3]	65 dBA L_{eq}	45 dBA L_{eq}
		If ambient is < 60 dBA Leq1	≥ 5 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA Leq1	≥ 3 dBA L_{eq} Project increase	
		If ambient is > 65 dBA Leq1	≥ 1.5 dBA L_{eq} Project increase	
		Vibration Level Threshold[4]	0.01 in/sec RMS	
Construction	Noise-Sensitive	Noise Level Threshold[5]	85 dBA L_{eq}	
		Vibration Level Threshold[4]	0.01 in/sec RMS	

[1] Source: FICON, 1992.
[2] Source: County of Riverside General Plan Noise Element, Table N-1.
[3] Source: County of Riverside General Plan Noise Element, Table N-2.
[4] Source: County of Riverside General Plan Noise Element, Policy N 16.3.
[5] Acceptable threshold for construction noise based on the Criteria for Recommended Standard: Occupational Noise Exposure prepared by the National Institute for Occupational Safety and Health.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at five locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A 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 Thursday, February 7th, 2019. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (20)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (4) 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*. (3)

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. (3) 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 Patterson Avenue adjacent to existing rural-residential land use near U-Turn for Christ. The noise level measurements collected show an overall 24-hour exterior noise level of 65.7 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 61.4 dBA L_{eq} with an average nighttime noise level of 58.5 dBA L_{eq}.
- Location L2 represents the noise levels on Harvill Avenue northeast of the Project site adjacent to Daytona Business Park and existing industrial land use area. The noise level measurements collected show an overall 24-hour exterior noise level of 77.6 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 73.3 dBA L_{eq} with an average nighttime noise level of 70.5 dBA L_{eq}.
- Location L3 represents the noise levels on Placentia Street southeast of the Project site adjacent to existing rural residential land use. The 24-hour CNEL indicates that the overall exterior noise level is 62.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 56.4 dBA L_{eq} with an average nighttime noise level of 55.3 dBA L_{eq}.
- Location L4 represents the noise levels on Placentia Street south of the Project site adjacent to Tobacco Road and existing rural residential land use. The noise level measurements collected show an overall 24-hour exterior noise level of 65.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.7 dBA L_{eq} with an average nighttime noise level of 58.2 dBA L_{eq}.
- Location L5 represents the noise levels on Patterson Avenue west of the Project site adjacent to existing rural residential land use. The 24-hour CNEL indicates that the overall exterior noise level is 62.8 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 58.9 dBA L_{eq} with an average nighttime noise level of 55.5 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 I-215, the BNSF railroad lines, and MARB/IPA, in addition to background industrial land use activities. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 5-1.

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

Location[1]	Distance to Project Boundary (Feet)	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
			Daytime	Nighttime	
L1	0'	Located on Patterson Avenue adjacent to existing rural-residential land use near U-Turn for Christ.	61.4	58.5	65.7
L2	650'	Located on Harvill Avenue northeast of the Project site adjacent to Daytona Business Park and existing industrial land use area.	73.3	70.5	77.6
L3	70'	Located on Placentia Street southeast of the Project site adjacent to existing rural residential land use.	56.4	55.3	62.1
L4	0'	Located on Placentia Street south of the Project site adjacent to Tobacco Road and existing rural residential land use.	60.7	58.2	65.3
L5	0'	Located on Patterson Avenue west of the Project site adjacent to existing rural residential land use.	58.9	55.5	62.8

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

EXHIBIT 5-A: 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 expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (21) 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. (22) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (23)

This methodology is consistent with the County of Riverside Office of Industrial Hygiene *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures*, which specifically requires the FHWA RD-77-108 model to be used in analysis within the County's jurisdiction. (24)

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 10 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the County of Riverside General Plan Circulation Element, and the posted vehicle speeds. Where posted vehicle speeds are unavailable, the 40 mph speed identified in the County of Riverside Office of Industrial Hygiene Noise Study Guidelines is used. The ADT volumes used in this study are presented on Table 6-2 are based on the *Barker Logistics Traffic Impact Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios under both Without and With Placentia Street Interchange alternatives: Existing (2018), Existing plus Ambient Growth (EA) (2021), and EA plus Cumulative (EAC) (2021). (2)

Although the I-215/Placentia Avenue Interchange project is funded and construction is anticipated to commence in 2020, at the County's request, the EAP (2021) and EAPC (2021) analysis scenarios have been evaluated both without and with the proposed interchange in the event the Project were to open before the completion of the interchange.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Adjacent Planned (Existing if Different) Land Use[1]	Distance from Centerline to Nearest Adjacent Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	Patterson Av.	n/o Walnut St.	Residential	50'	40
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	50'	40
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	59'	50
4	Harvill Av.	s/o Rider St.	BP/LI	59'	50
5	Harvill Av.	s/o Placentia St.	BP/LI	59'	50
6	Harvill Av.	s/o Orange Av.	BP/LI	59'	50
7	Harvill Av.	s/o A St.	BP/Commercial	59'	50
8	Rider St.	e/o Patterson Av.	BP/LI	50'	40
9	Placentia St.	e/o Patterson Av.	BP/Residential	50'	40
10	Placentia St.	e/o Dwy. 2	BP/Residential	50'	40

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the General Plan Circulation Element.
[3] Sources: Barker Logistics Traffic Impact Analysis, prepared by Urban Crossroads, Inc. and the County of Riverside Office of Industrial Hygiene noise study guidelines.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]									
			Without Interchange						With Interchange			
			Existing 2018		Existing + Ambient Growth (EA)		EA + Cumulative Development (EAC)		EA		EAC	
			Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Patterson Av.	n/o Walnut St.	293	589	305	601	305	601	305	432	305	432
2	Patterson Av.	n/o Placentia St.	337	443	351	457	351	457	351	542	351	542
3	Harvill Av.	s/o Cajalco Expy.	15,861	16,769	16,502	17,410	20,142	21,050	16,837	17,119	20,379	20,661
4	Harvill Av.	s/o Rider St.	13,941	14,552	14,504	15,115	17,580	18,191	18,088	18,243	21,068	21,223
5	Harvill Av.	s/o Placentia St.	8,663	9,305	9,013	9,655	12,051	12,693	13,512	13,703	16,522	16,713
6	Harvill Av.	s/o Orange Av.	8,370	9,012	8,708	9,350	11,732	12,374	11,469	11,660	14,433	14,624
7	Harvill Av.	s/o A St.	12,417	13,059	12,918	13,560	15,942	16,584	18,545	18,736	21,509	21,700
8	Rider St.	e/o Patterson Av.	1,788	2,084	1,861	2,157	1,861	2,157	1,861	1,988	1,861	1,988
9	Placentia St.	e/o Patterson Av.	381	487	397	503	397	503	397	588	397	588
10	Placentia St.	e/o Dwy. 2	399	1,077	415	1,093	415	1,093	415	1,178	415	1,178

[1] Source: Barker Logistics Traffic Impact Analysis, Urban Crossroads, Inc.

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

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Traffic Impact Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-5 to 6-9 show the vehicle mixes used for the with Project traffic scenarios.

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

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	68.65%	11.26%	20.09%	100.00%
Medium Trucks	74.35%	5.18%	20.47%	100.00%
Heavy Trucks	74.40%	5.86%	19.74%	100.00%

Based on an existing vehicle count taken at Cajalco Road west of Harvill Avenue. Vehicle mix percentage values rounded to the nearest one-hundredth (Barker Logistics Traffic Impact Analysis, Urban Crossroads, Inc.).
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: WITHOUT PROJECT CONDITIONS VEHICLE MIX

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	87.95%	7.05%	5.00%	100.00%

Based on an existing vehicle count taken at Cajalco Road west of Harvill Avenue. Vehicle mix percentage values rounded to the nearest one-hundredth (Barker Logistics Traffic Impact Analysis, Urban Crossroads, Inc.).

TABLE 6-5: EXISTING WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Patterson Av.	n/o Walnut St.	86.88%	6.56%	6.56%	100.00%
2	Patterson Av.	n/o Placentia St.	81.34%	9.43%	9.23%	100.00%
3	Harvill Av.	s/o Cajalco Expy.	87.36%	7.20%	5.44%	100.00%
4	Harvill Av.	s/o Rider St.	87.32%	7.24%	5.44%	100.00%
5	Harvill Av.	s/o Placentia St.	88.03%	6.89%	5.08%	100.00%
6	Harvill Av.	s/o Orange Av.	88.03%	6.88%	5.09%	100.00%
7	Harvill Av.	s/o A St.	88.01%	6.93%	5.06%	100.00%
8	Rider St.	e/o Patterson Av.	87.65%	6.91%	5.44%	100.00%
9	Placentia St.	e/o Patterson Av.	81.93%	9.22%	8.85%	100.00%
10	Placentia St.	e/o Dwy. 2	91.64%	4.28%	4.08%	100.00%

[1] Source: Barker Logistics Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: EA WITHOUT INTERCHANGE WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Patterson Av.	n/o Walnut St.	86.91%	6.57%	6.53%	100.00%
2	Patterson Av.	n/o Placentia St.	81.54%	9.36%	9.10%	100.00%
3	Harvill Av.	s/o Cajalco Expy.	87.38%	7.19%	5.42%	100.00%
4	Harvill Av.	s/o Rider St.	87.34%	7.23%	5.43%	100.00%
5	Harvill Av.	s/o Placentia St.	88.03%	6.89%	5.08%	100.00%
6	Harvill Av.	s/o Orange Av.	88.03%	6.89%	5.08%	100.00%
7	Harvill Av.	s/o A St.	88.00%	6.94%	5.06%	100.00%
8	Rider St.	e/o Patterson Av.	87.66%	6.92%	5.43%	100.00%
9	Placentia St.	e/o Patterson Av.	82.13%	9.15%	8.72%	100.00%
10	Placentia St.	e/o Dwy. 2	91.58%	4.32%	4.09%	100.00%

[1] Source: Barker Logistics Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-7: EAC WITHOUT INTERCHANGE WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Patterson Av.	n/o Walnut St.	86.91%	6.57%	6.53%	100.00%
2	Patterson Av.	n/o Placentia St.	81.54%	9.36%	9.10%	100.00%
3	Harvill Av.	s/o Cajalco Expy.	87.48%	7.17%	5.35%	100.00%
4	Harvill Av.	s/o Rider St.	87.44%	7.20%	5.35%	100.00%
5	Harvill Av.	s/o Placentia St.	88.01%	6.93%	5.06%	100.00%
6	Harvill Av.	s/o Orange Av.	88.01%	6.93%	5.06%	100.00%
7	Harvill Av.	s/o A St.	87.99%	6.96%	5.05%	100.00%
8	Rider St.	e/o Patterson Av.	87.66%	6.92%	5.43%	100.00%
9	Placentia St.	e/o Patterson Av.	82.13%	9.15%	8.72%	100.00%
10	Placentia St.	e/o Dwy. 2	91.58%	4.32%	4.09%	100.00%

[1] Source: Barker Logistics Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-8: EA WITHOUT INTERCHANGE WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Patterson Av.	n/o Walnut St.	91.50%	4.98%	3.53%	100.00%
2	Patterson Av.	n/o Placentia St.	92.19%	4.57%	3.24%	100.00%
3	Harvill Av.	s/o Cajalco Expy.	87.99%	7.00%	5.01%	100.00%
4	Harvill Av.	s/o Rider St.	87.90%	7.06%	5.05%	100.00%
5	Harvill Av.	s/o Placentia St.	88.12%	6.95%	4.93%	100.00%
6	Harvill Av.	s/o Orange Av.	88.15%	6.93%	4.92%	100.00%
7	Harvill Av.	s/o A St.	88.07%	6.98%	4.95%	100.00%
8	Rider St.	e/o Patterson Av.	88.72%	6.60%	4.68%	100.00%
9	Placentia St.	e/o Patterson Av.	91.86%	4.76%	3.38%	100.00%
10	Placentia St.	e/o Dwy. 2	95.76%	2.48%	1.76%	100.00%

[1] Source: Barker Logistics Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-9: EAC WITHOUT INTERCHANGE WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Patterson Av.	n/o Walnut St.	91.50%	4.98%	3.53%	100.00%
2	Patterson Av.	n/o Placentia St.	92.19%	4.57%	3.24%	100.00%
3	Harvill Av.	s/o Cajalco Expy.	87.98%	7.01%	5.01%	100.00%
4	Harvill Av.	s/o Rider St.	87.91%	7.05%	5.04%	100.00%
5	Harvill Av.	s/o Placentia St.	88.09%	6.97%	4.94%	100.00%
6	Harvill Av.	s/o Orange Av.	88.11%	6.96%	4.93%	100.00%
7	Harvill Av.	s/o A St.	88.06%	6.99%	4.96%	100.00%
8	Rider St.	e/o Patterson Av.	88.72%	6.60%	4.68%	100.00%
9	Placentia St.	e/o Patterson Av.	91.86%	4.76%	3.38%	100.00%
10	Placentia St.	e/o Dwy. 2	95.76%	2.48%	1.76%	100.00%

[1] Source: Barker Logistics Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

6.3 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 6-10. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. The FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-10: 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.

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7 OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with the proposed Project, noise contours were developed based on the *Barker Logistics Traffic Impact Analysis*. (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:

Without Placentia Street Interchange

- Existing Without / With Project:
    - This scenario refers to the Existing present-day noise conditions, without and with the proposed Project.
- Existing plus Ambient Growth (EA) (2021) Without / With Project:
    - This scenario below refers to the background noise conditions at future Year 2021 without and with the proposed Project plus ambient growth.
- EA plus Cumulative (EAC) (2021) Without / With Project:
    - This scenario below refers to the background noise conditions at future Year 2021 without and with the proposed Project plus ambient growth, and includes all cumulative projects identified in the *Traffic Impact Analysis*.

With Placentia Street Interchange

- Existing plus Ambient Growth (EA) (2021) Without / With Project:
    - This scenario below refers to the background noise conditions at future Year 2021 without and with the proposed Project plus ambient growth.
- EA plus Cumulative (EAC) (2021) Without / With Project:
    - This scenario below refers to the background noise conditions at future Year 2021 without and with the proposed Project plus ambient growth, and includes all cumulative projects identified in the *Traffic Impact Analysis*.

7.1 WITHOUT INTERCHANGE TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 through 7-6 present a summary of the exterior traffic noise levels under Without Placentia Street Interchange conditions. All scenarios do not include barrier attenuation. Roadway segments are analyzed from the without Project to the with Project conditions in each of the following timeframes: Existing, Existing plus Ambient Growth (EA), and EA plus Cumulative

(EAC). 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	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	55.9	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	56.5	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	74.3	114	245	529
4	Harvill Av.	s/o Rider St.	BP/LI	73.7	105	225	485
5	Harvill Av.	s/o Placentia St.	BP/LI	71.7	76	164	353
6	Harvill Av.	s/o Orange Av.	BP/LI	71.5	74	160	345
7	Harvill Av.	s/o A St.	BP/Commercial	73.2	97	209	449
8	Rider St.	e/o Patterson Av.	BP/LI	63.8	RW	RW	89
9	Placentia St.	e/o Patterson Av.	BP/Residential	57.1	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	57.3	RW	RW	RW

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"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	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	59.6	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	59.5	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	74.7	122	262	565
4	Harvill Av.	s/o Rider St.	BP/LI	74.1	111	239	515
5	Harvill Av.	s/o Placentia St.	BP/LI	72.0	80	172	371
6	Harvill Av.	s/o Orange Av.	BP/LI	71.8	78	169	363
7	Harvill Av.	s/o A St.	BP/Commercial	73.5	100	216	465
8	Rider St.	e/o Patterson Av.	BP/LI	64.6	RW	RW	102
9	Placentia St.	e/o Patterson Av.	BP/Residential	59.8	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	60.7	RW	RW	56

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: EA WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	56.1	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	56.7	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	74.5	117	252	543
4	Harvill Av.	s/o Rider St.	BP/LI	73.9	107	231	498
5	Harvill Av.	s/o Placentia St.	BP/LI	71.8	78	168	363
6	Harvill Av.	s/o Orange Av.	BP/LI	71.7	76	165	355
7	Harvill Av.	s/o A St.	BP/Commercial	73.4	99	214	461
8	Rider St.	e/o Patterson Av.	BP/LI	64.0	RW	RW	92
9	Placentia St.	e/o Patterson Av.	BP/Residential	57.3	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	57.4	RW	RW	RW

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: EA WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	59.7	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	59.6	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	74.9	125	269	579
4	Harvill Av.	s/o Rider St.	BP/LI	74.3	114	245	528
5	Harvill Av.	s/o Placentia St.	BP/LI	72.1	82	177	381
6	Harvill Av.	s/o Orange Av.	BP/LI	72.0	80	173	372
7	Harvill Av.	s/o A St.	BP/Commercial	73.6	103	221	477
8	Rider St.	e/o Patterson Av.	BP/LI	64.8	RW	RW	104
9	Placentia St.	e/o Patterson Av.	BP/Residential	59.9	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	60.8	RW	RW	57

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: EAC WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	56.1	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	56.7	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	75.3	134	288	620
4	Harvill Av.	s/o Rider St.	BP/LI	74.7	122	263	566
5	Harvill Av.	s/o Placentia St.	BP/LI	73.1	95	204	440
6	Harvill Av.	s/o Orange Av.	BP/LI	73.0	93	201	433
7	Harvill Av.	s/o A St.	BP/Commercial	74.3	114	246	531
8	Rider St.	e/o Patterson Av.	BP/LI	64.0	RW	RW	92
9	Placentia St.	e/o Patterson Av.	BP/Residential	57.3	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	57.4	RW	RW	RW

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: EAC WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	59.7	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	59.6	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	75.7	141	304	654
4	Harvill Av.	s/o Rider St.	BP/LI	75.0	128	276	594
5	Harvill Av.	s/o Placentia St.	BP/LI	73.3	98	212	456
6	Harvill Av.	s/o Orange Av.	BP/LI	73.2	97	208	449
7	Harvill Av.	s/o A St.	BP/Commercial	74.5	117	253	545
8	Rider St.	e/o Patterson Av.	BP/LI	64.8	RW	RW	104
9	Placentia St.	e/o Patterson Av.	BP/Residential	59.9	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	60.8	RW	RW	57

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 WITHOUT INTERCHANGE EXISTING CONDITIONS PROJECT CONTRIBUTIONS

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes. However, the analysis of existing traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until Year 2021 cumulative conditions.

Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 55.9 to 74.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 59.5 to 74.7 dBA CNEL. Table 7-7 shows that the Project off-site traffic noise level increases will range from 0.2 to 3.6 dBA CNEL.

TABLE 7-7: UNMITIGATED EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?
			No Project	With Project	Project Addition	
1	Patterson Av.	n/o Walnut St.	55.9	59.6	3.6	Yes
2	Patterson Av.	n/o Placentia St.	56.5	59.5	3.0	Yes
3	Harvill Av.	s/o Cajalco Expy.	74.3	74.7	0.4	No
4	Harvill Av.	s/o Rider St.	73.7	74.1	0.4	No
5	Harvill Av.	s/o Placentia St.	71.7	72.0	0.3	No
6	Harvill Av.	s/o Orange Av.	71.5	71.8	0.3	No
7	Harvill Av.	s/o A St.	73.2	73.5	0.2	No
8	Rider St.	e/o Patterson Av.	63.8	64.6	0.8	No
9	Placentia St.	e/o Patterson Av.	57.1	59.8	2.7	Yes
10	Placentia St.	e/o Dwy. 2	57.3	60.7	3.4	Yes

[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. Values rounded to the nearest one-tenth.

7.3 WITHOUT INTERCHANGE EA PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-3 presents the Existing plus Ambient Growth (EA) without Project conditions CNEL noise levels. The EA without Project exterior noise levels are expected to range from 56.1 to 74.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-4 shows the EA with Project conditions will range from 59.6 to 74.9 dBA CNEL. Table 7-8 shows that the Project off-site traffic noise level increases will range from 0.2 to 3.5 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-8: UNMITIGATED EA WITH PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	Patterson Av.	n/o Walnut St.	56.1	59.7	3.5	Yes	No
2	Patterson Av.	n/o Placentia St.	56.7	59.6	2.9	Yes	No
3	Harvill Av.	s/o Cajalco Expy.	74.5	74.9	0.4	No	No
4	Harvill Av.	s/o Rider St.	73.9	74.3	0.4	No	No
5	Harvill Av.	s/o Placentia St.	71.8	72.1	0.3	No	No
6	Harvill Av.	s/o Orange Av.	71.7	72.0	0.3	No	No
7	Harvill Av.	s/o A St.	73.4	73.6	0.2	No	No
8	Rider St.	e/o Patterson Av.	64.0	64.8	0.8	No	No
9	Placentia St.	e/o Patterson Av.	57.3	59.9	2.7	Yes	No
10	Placentia St.	e/o Dwy. 2	57.4	60.8	3.4	Yes	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. Values rounded to the nearest one-tenth.
[2] Significance Criteria (Section 4).

7.4 WITHOUT INTERCHANGE EAC PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-5 presents the Existing plus Ambient Growth plus Cumulative (EAC) without Project conditions CNEL noise levels. The EAC without Project exterior noise levels are expected to range from 56.1 to 75.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-6 shows the EAC with Project conditions will range from 59.6 to 75.7 dBA CNEL. Table 7-9 shows that the Project off-site traffic noise level increases will range from 0.2 to 3.5 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-9: UNMITIGATED EAC WITH PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	Patterson Av.	n/o Walnut St.	56.1	59.7	3.5	Yes	No
2	Patterson Av.	n/o Placentia St.	56.7	59.6	2.9	Yes	No
3	Harvill Av.	s/o Cajalco Expy.	75.3	75.7	0.3	No	No
4	Harvill Av.	s/o Rider St.	74.7	75.0	0.3	No	No
5	Harvill Av.	s/o Placentia St.	73.1	73.3	0.2	No	No
6	Harvill Av.	s/o Orange Av.	73.0	73.2	0.2	No	No
7	Harvill Av.	s/o A St.	74.3	74.5	0.2	No	No
8	Rider St.	e/o Patterson Av.	64.0	64.8	0.8	No	No
9	Placentia St.	e/o Patterson Av.	57.3	59.9	2.7	Yes	No
10	Placentia St.	e/o Dwy. 2	57.4	60.8	3.4	Yes	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. Values rounded to the nearest one-tenth.
[2] Significance Criteria (Section 4).

7.5 WITH INTERCHANGE TRAFFIC NOISE CONTOURS

Tables 7-10 through 7-13 present a summary of the exterior traffic noise levels under With Placentia Street Interchange conditions. All scenarios do not include barrier attenuation. Roadway segments are analyzed from the without Project to the with Project conditions in each of the following timeframes: Existing, Existing plus Ambient Growth (EA), and EA plus Cumulative (EAC). Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-10: EA WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	56.1	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	56.7	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	74.5	119	255	550
4	Harvill Av.	s/o Rider St.	BP/LI	74.9	124	268	577
5	Harvill Av.	s/o Placentia St.	BP/LI	73.6	102	221	475
6	Harvill Av.	s/o Orange Av.	BP/LI	72.9	92	198	426
7	Harvill Av.	s/o A St.	BP/Commercial	75.0	126	272	587
8	Rider St.	e/o Patterson Av.	BP/LI	64.0	RW	RW	92
9	Placentia St.	e/o Patterson Av.	BP/Residential	57.3	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	57.4	RW	RW	RW

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-11: EA WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	56.5	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	57.3	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	74.6	120	258	556
4	Harvill Av.	s/o Rider St.	BP/LI	74.9	125	270	582
5	Harvill Av.	s/o Placentia St.	BP/LI	73.6	103	221	477
6	Harvill Av.	s/o Orange Av.	BP/LI	72.9	92	198	428
7	Harvill Av.	s/o A St.	BP/Commercial	75.0	127	273	588
8	Rider St.	e/o Patterson Av.	BP/LI	64.0	RW	RW	93
9	Placentia St.	e/o Patterson Av.	BP/Residential	57.8	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	59.1	RW	RW	RW

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-12: EAC WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	56.1	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	56.7	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	75.4	135	290	625
4	Harvill Av.	s/o Rider St.	BP/LI	75.5	138	297	639
5	Harvill Av.	s/o Placentia St.	BP/LI	74.5	117	252	544
6	Harvill Av.	s/o Orange Av.	BP/LI	73.9	107	231	497
7	Harvill Av.	s/o A St.	BP/Commercial	75.6	140	301	648
8	Rider St.	e/o Patterson Av.	BP/LI	64.0	RW	RW	92
9	Placentia St.	e/o Patterson Av.	BP/Residential	57.3	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	57.4	RW	RW	RW

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-13: EAC WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Patterson Av.	n/o Walnut St.	Residential	56.5	RW	RW	RW
2	Patterson Av.	n/o Placentia St.	Business Park (BP)/Residential	57.3	RW	RW	RW
3	Harvill Av.	s/o Cajalco Expy.	Light Industrial (LI)	75.4	136	293	631
4	Harvill Av.	s/o Rider St.	BP/LI	75.6	139	299	644
5	Harvill Av.	s/o Placentia St.	BP/LI	74.5	117	253	545
6	Harvill Av.	s/o Orange Av.	BP/LI	73.9	107	231	498
7	Harvill Av.	s/o A St.	BP/Commercial	75.6	140	301	649
8	Rider St.	e/o Patterson Av.	BP/LI	64.0	RW	RW	93
9	Placentia St.	e/o Patterson Av.	BP/Residential	57.8	RW	RW	RW
10	Placentia St.	e/o Dwy. 2	BP/Residential	59.1	RW	RW	RW

[1] Sources: Mead Valley Area Plan, Land Use Plan, Figure 3 and Nearmap aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.6 WITH INTERCHANGE EA PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-10 presents the Existing plus Ambient Growth (EA) without Project conditions CNEL noise levels. The EA without Project exterior noise levels are expected to range from 56.1 to 75.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-11 shows the EA with Project conditions will range from 56.5 to 75.0 dBA CNEL. Table 7-14 shows that the Project off-site traffic noise level increases will range from 0.0 to 1.7 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-14: UNMITIGATED EA WITH PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	Patterson Av.	n/o Walnut St.	56.1	56.5	0.4	Yes	No
2	Patterson Av.	n/o Placentia St.	56.7	57.3	0.6	Yes	No
3	Harvill Av.	s/o Cajalco Expy.	74.5	74.6	0.1	No	No
4	Harvill Av.	s/o Rider St.	74.9	74.9	0.1	No	No
5	Harvill Av.	s/o Placentia St.	73.6	73.6	0.0	No	No
6	Harvill Av.	s/o Orange Av.	72.9	72.9	0.0	No	No
7	Harvill Av.	s/o A St.	75.0	75.0	0.0	No	No
8	Rider St.	e/o Patterson Av.	64.0	64.0	0.1	No	No
9	Placentia St.	e/o Patterson Av.	57.3	57.8	0.5	Yes	No
10	Placentia St.	e/o Dwy. 2	57.4	59.1	1.7	Yes	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. Values rounded to the nearest one-tenth.
[2] Significance Criteria (Section 4).

7.7 WITH INTERCHANGE EAC PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-12 presents the Existing plus Ambient Growth plus Cumulative (EAC) without Project conditions CNEL noise levels. The EAC without Project exterior noise levels are expected to range from 56.1 to 75.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-13 shows the EAC with Project conditions will range from 56.5 to 75.6 dBA CNEL. Table 7-15 shows that the Project off-site traffic noise level increases will range from 0.0 to 1.7 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-15: UNMITIGATED EAC WITH PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	Patterson Av.	n/o Walnut St.	56.1	56.5	0.4	Yes	No
2	Patterson Av.	n/o Placentia St.	56.7	57.3	0.6	Yes	No
3	Harvill Av.	s/o Cajalco Expy.	75.4	75.4	0.1	No	No
4	Harvill Av.	s/o Rider St.	75.5	75.6	0.0	No	No
5	Harvill Av.	s/o Placentia St.	74.5	74.5	0.0	No	No
6	Harvill Av.	s/o Orange Av.	73.9	73.9	0.0	No	No
7	Harvill Av.	s/o A St.	75.6	75.6	0.0	No	No
8	Rider St.	e/o Patterson Av.	64.0	64.0	0.1	No	No
9	Placentia St.	e/o Patterson Av.	57.3	57.8	0.5	Yes	No
10	Placentia St.	e/o Dwy. 2	57.4	59.1	1.7	Yes	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. Values rounded to the nearest one-tenth.
[2] Significance Criteria (Section 4).

8 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include: schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include: multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Receiver locations are located in outdoor living areas (e.g., backyards) at 10 feet from any existing or proposed barriers or at the building façade, whichever is closer to the Project site, based on FHWA guidance, and consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Sensitive receiver locations in the Project study area include residential uses, as described below. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

R1: Located approximately 66 feet north of the Project site, R1 represents existing residential homes on the east side of Patterson Avenue. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents existing residential outdoor living areas (backyards) located east of the Project site at roughly 10 feet, on the north side of Placentia Street. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R3: Location R3 represents existing residential outdoor living areas (backyards) located east of the Project site at roughly 10 feet, on the north side of Placentia Street. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

R4: Location R4 represents the existing residential home located roughly 112 feet south of the Project site, south of Placentia Street. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

R5: Located approximately 102 feet west of the Project site, R5 represents existing residential homes on the west side of Patterson Avenue. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

EXHIBIT 8-A: SENSITIVE RECEIVER LOCATIONS

9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from the operation of the proposed Barker Logistics Project. Exhibit 9-A identifies the representative receiver locations and noise source locations used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown. The on-site Project-related noise sources are expected to include: idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site.

9.2 OPERATIONAL NOISE BARRIERS

A review of the Project site plan indicates that the distribution/warehouse activity loading dock areas will benefit from a planned 14-high screen wall as shown on Exhibit 9-A. In addition, the site plan and elevations included in Appendix 9.2 indicate that the building will be 35 feet high with an additional 8-foot high parapet wall.

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. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements all operating continuously. These sources of noise activity will likely vary throughout the day.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

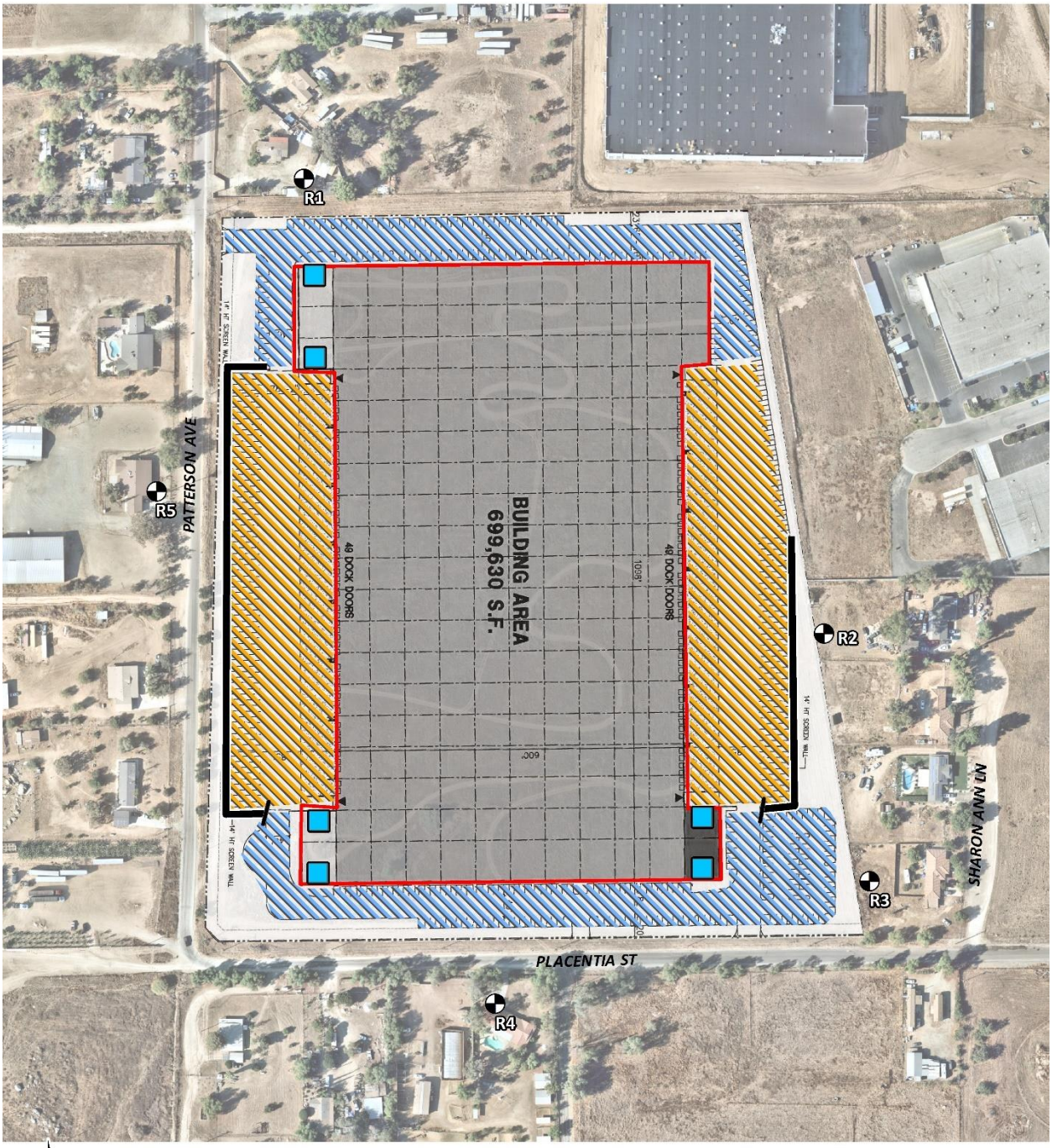

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Ref. Distance (Feet)	Noise Source Height (Feet)	Reference Noise Level (dBA L_{eq})		Sound Power Level (dBA)[4]
				@ Ref. Dist.	@ 50 Feet	
Truck Unloading/Docking Activity[1]	00:15:00	30'	8'	67.2	62.8	94.5
Roof-Top Air Conditioning Units[2]	96:00:00	5'	5'	77.2	57.2	88.9
Parking Lot Vehicle Movements[3]	01:00:00	10'	5'	52.2	41.7	73.4

[1] Reference noise level measurements were collected from the existing operations of the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino on Wednesday, January 7, 2015.
[2] As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.
[3] As measured by Urban Crossroads, Inc. on 5/17/2017 at the Panasonic Avionics Corporation parking lot in the City of Lake Forest.
[4] Calculated using the CadnaA noise model at the reference distance to the noise source.

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (21)

9.2.2 TRUCK IDLING, DELIVERIES, BACKUP ALARMS, UNLOADING/LOADING, AND DOCKING

Short-term reference noise level measurements were collected on Wednesday, January 7th, 2015, by Urban Crossroads, Inc. at the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino. The noise level measurements represent the typical weekday dry goods logistics warehouse operation in a single building, of roughly 285,000 square feet, with a loading dock area on the western side of the building façade. Up to ten trucks were observed in the loading dock area including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background forklift operations. The unloading/docking activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources taken from the center of loading dock activities generating a reference noise level of 62.8 dBA L_{eq} at a uniform reference distance of 50 feet.

At this measurement location, the noise sources associated with employees unloading a docked truck container included the squeaking of the truck's shocks when weight was removed from the truck, employees playing music over a radio, as well as a forklift horn and backup alarm. In addition, during the noise level measurement a truck entered the loading dock area and proceeded to reverse and dock in a nearby loading bay, adding truck engine, idling, and air brakes noise, in addition to on-going idling of an already docked truck

9.2.3 ROOF-TOP AIR CONDITIONING UNITS

To assess the impacts created by the roof-top air conditioning units at the Project buildings, reference noise levels measurements were taken over a four-day total duration 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 with additional roof-top units operating in the background. The reference noise level represents Lennox SCA120 series 10-ton model packaged air conditioning units. At 5 feet from the closest roof-top air conditioning unit, the highest exterior noise level from all four days of the measurement period was measured at 77.2 dBA L_{eq}. Using the uniform reference distance of 50 feet, the noise level is 57.2 dBA L_{eq}.

9.2.4 PARKING LOT VEHICLE MOVEMENTS (AUTOS)

To determine the noise levels associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements over a 24-hour period on May 17th, 2017 at the parking lot for the Panasonic Avionics Corporation in the City of Lake Forest. The peak hour of activity measured over the 24-hour noise level measurement period occurred between 12:00 p.m. to 1:00 p.m., or the typical lunch hour for employees working in the area. The measured reference noise level at 50 feet from parking lot vehicle movements was measured at 41.7 dBA L_{eq}. The parking lot noise levels are mainly due to cars pulling in and out of spaces during peak lunch hour activity and employees talking.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze the noise level of multiple types of noise sources and calculates the noise levels at any location using the spatially accurate Project site plan and includes the effects of topography, buildings, and multiple barriers in its calculations using the latest standards to predict outdoor noise impacts. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

Using the spatially accurate Project site plan and flown aerial imagery and point cloud elevation data from Nearmap, a CadnaA noise prediction model of the Project study area was developed. The noise model provides a three-dimensional representation of the Project study area using the following key data inputs:

- Ground absorption;
- Multiple reflections at buildings and barriers;
- Reference noise level sources by type (area, point, etc.) and noise source height;
- Multiple noise receiver locations and heights;
- Topography and earthen berms;
- Barrier and building heights.

Using the ISO 9613 protocol, the CadnaA noise prediction model will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level calculations at each receiver location and the partial noise level contributions by noise source.

The reference sound power level (PWL) for the highest noise source expected at the Project site was input into the CadnaA noise prediction model. While sound pressure levels (e.g. L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source, and also diminish as a result of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6.0 dBA for each doubling of distance from a point source, based on existing conditions in the Project study area.

9.3 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. As indicated on Table 9-2, the Project-only operational noise levels will range from 36.8 to 42.4 dBA L_{eq} at the receiver locations. Exhibit 9-B shows the unmitigated Project operational noise level contours.

TABLE 9-2: UNMITIGATED PROJECT-ONLY OPERATIONAL NOISE LEVELS

Receiver Location[1]	Noise Levels by Noise Source (dBA L_{eq})[2]			Combined Operational Noise Levels (dBA L_{eq})
	Truck Unloading/ Docking Activity	Roof-Top Air Conditioning Units	Parking Lot Vehicle Movements	
R1	36.4	35.8	28.2	39.5
R2	41.8	33.6	18.6	42.4
R3	38.6	35.3	28.9	40.6
R4	22.8	36.4	22.5	36.8
R5	40.0	36.0	14.5	41.5

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 9-1.

EXHIBIT 9-B: UNMITIGATED PROJECT OPERATIONAL NOISE LEVEL CONTOURS

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the County of Riverside exterior noise level standards at nearby noise-sensitive receiver locations. Table 9-3 shows the operational noise levels associated with Barker Logistics Project will satisfy the County of Riverside 65 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-3: UNMITIGATED OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Noise Level at Receiver Locations (dBA L_{eq})[2]	Threshold Exceeded?[3]	
		Daytime (65 dBA L_{eq})	Nighttime (45 dBA L_{eq})
R1	39.5	No	No
R2	42.4	No	No
R3	40.6	No	No
R4	36.8	No	No
R5	41.5	No	No

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Estimated Project operational noise levels as shown on Table 9-2.
[3] Do the estimated Project operational noise levels meet the operational noise level standards? "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.4 PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTIONS

To describe the Project operational noise level contributions, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (4) Instead, they must be logarithmically added using the following base equation:

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 9-4 and 9-5, respectively.

As indicated on Tables 9-4 and 9-5, the Project will generate an unmitigated daytime and nighttime operational noise level increases ranging from 0.0 to 0.2 dBA L_{eq} at the nearby receiver locations. Since the Project-related operational noise level contributions will satisfy the operational noise level increase significance criteria presented in Table 4-2, the increases at the sensitive receiver locations will be *less than significant*

TABLE 9-4: PROJECT DAYTIME NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Threshold[7]	Threshold Exceeded?[7]
R1	39.5	L1	61.4	61.4	0.0	3.0	No
R2	42.4	L3	56.4	56.6	0.2	5.0	No
R3	40.6	L3	56.4	56.5	0.1	5.0	No
R4	36.8	L4	60.7	60.7	0.0	3.0	No
R5	41.5	L5	58.9	59.0	0.1	5.0	No

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

TABLE 9-5: PROJECT NIGHTTIME NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Threshold[7]	Threshold Exceeded?[7]
R1	39.5	L1	58.5	58.6	0.1	5.0	No
R2	42.4	L3	55.3	55.5	0.2	5.0	No
R3	40.6	L3	55.3	55.4	0.1	5.0	No
R4	36.8	L4	58.2	58.2	0.0	5.0	No
R5	41.5	L5	55.5	55.7	0.2	5.0	No

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

9.5 REFLECTION

Field studies conducted by the FHWA have shown that the reflection from barriers and buildings does not substantially increase noise levels. (11) If all the noise striking a structure was reflected back to a given receiving point, the increase would be theoretically limited to 3 dBA. Further, not all of the acoustical energy is reflected back to same point. Some of the energy would go over the structure, some is reflected to points other than the given receiving point, some is scattered by ground coverings (e.g., grass and other plants), and some is blocked by intervening structures and/or obstacles (e.g., the noise source itself). Additionally, some of the reflected energy is lost due to the longer path that the noise must travel. FHWA measurements made to quantify

reflective increases in traffic noise have not shown an increase of greater than 1-2 dBA; an increase that is not perceptible to the average human ear.

9.6 OPERATIONAL VIBRATION IMPACTS

To assess the potential vibration impacts from truck haul trips associated with operational activities the County of Riverside threshold for vibration of 0.01 in/sec RMS is used. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. According to the FTA *Transit Noise Impact and Vibration Assessment,* (28 p. 113) trucks rarely create vibration that exceeds 70 VdB or 0.003 in/sec RMS (4 p. 7) (unless there are bumps due to frequent potholes in the road. Trucks transiting on site will be travelling at very low speeds so it is expected that delivery truck vibration impacts at nearby homes will satisfy the County of Riverside vibration threshold of 0.01 in/sec RMS, and therefore, will be *less than significant*.

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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 noise source locations in relation to the nearby sensitive receiver locations previously described in Section 8.

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, based on the *Barker Logistics Air Quality Impact Analysis* for the Project: (28)

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to 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.

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 construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 10-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS

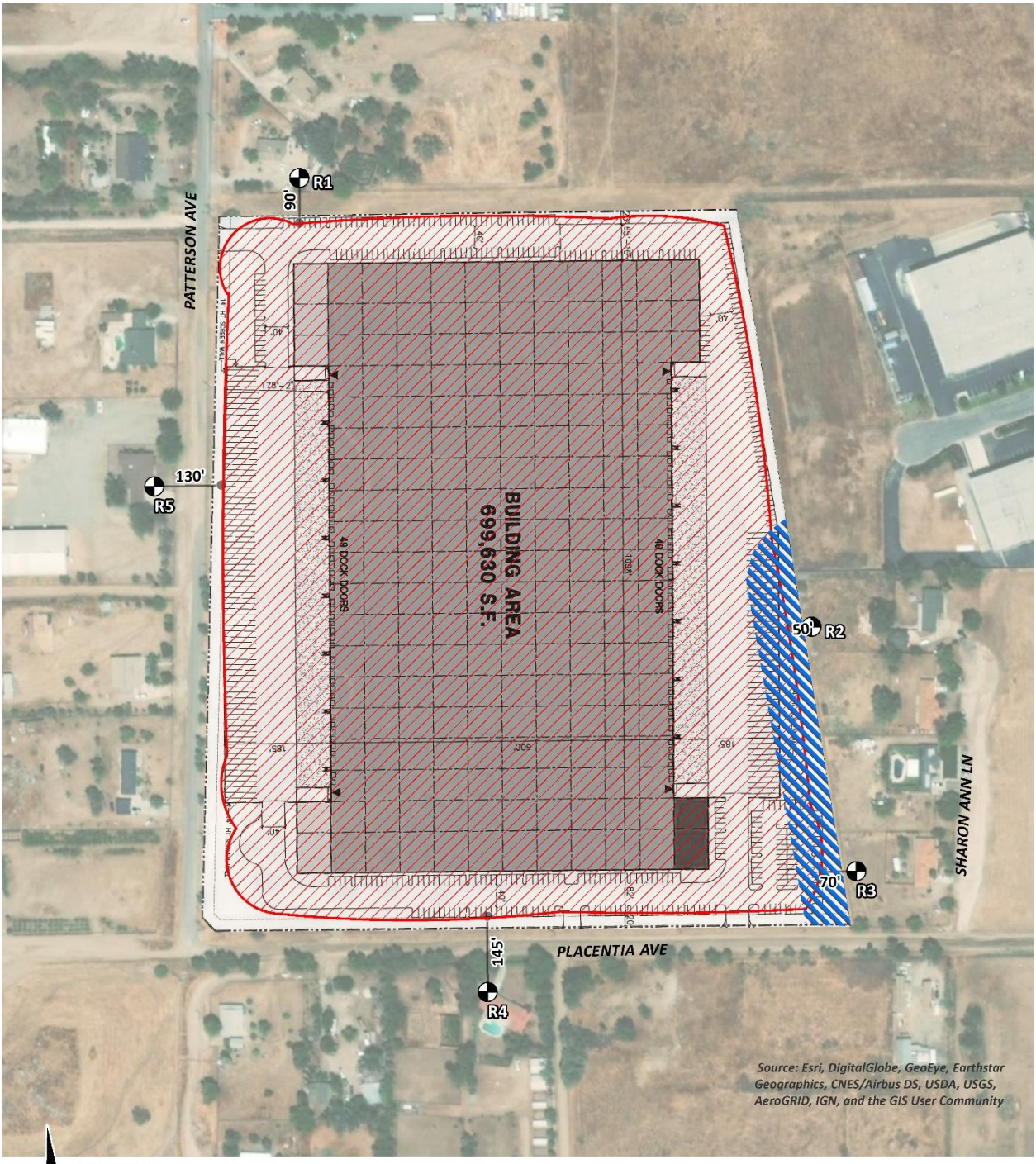

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

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
5	Rough Grading Activities[2]	0:05:00	30'	77.9	73.5
6	Framing[3]	0:02:00	30'	66.7	62.3
7	Dozer Pass-By[4]	0:00:32	30'	84.0	79.6
8	Concrete Mixer Truck Movements[5]	0:01:00	50'	71.2	71.2
9	Concrete Paver Activities[5]	0:01:00	30'	70.0	65.6
10	Concrete Mixer Pour & Paving Activities[5]	0:01:00	30'	70.3	65.9
11	Concrete Mixer Backup Alarms & Air Brakes[5]	0:00:20	50'	71.6	71.6
12	Concrete Mixer Pour Activities[5]	1:00:00	50'	67.7	67.7

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

10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Tables 10-2 to 10-6 present the short-term construction noise levels for each stage of construction. Table 10-7 provides a summary of the construction noise levels by stage at the nearby noise-sensitive receiver locations. Based on the stages of construction, the noise impacts associated with the proposed Project are expected to create temporarily high noise levels at the nearby receiver locations. To assess the worst-case construction noise levels, this analysis shows the highest noise impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity to each 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
Dozer Pass-By	79.6
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	79.6

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	86'	-4.7	0.0	74.9
R2	50'	0.0	0.0	79.6
R3	70'	-2.9	0.0	76.6
R4	145'	-9.2	0.0	70.3
R5	130'	-8.3	0.0	71.3

[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 attenuation from existing barriers/berms 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
Rough Grading Activities	73.5
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	73.5

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	86'	-4.7	0.0	68.8
R2	50'	0.0	0.0	73.5
R3	70'	-2.9	0.0	70.5
R4	145'	-9.2	0.0	64.2
R5	130'	-8.3	0.0	65.2

[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 attenuation from existing barriers/berms 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
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	86'	-4.7	0.0	63.5
R2	50'	0.0	0.0	68.2
R3	70'	-2.9	0.0	65.2
R4	145'	-9.2	0.0	58.9
R5	130'	-8.3	0.0	59.9

[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 attenuation from existing barriers/berms in the Project study area.

TABLE 10-5: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

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

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	86'	-4.7	0.0	62.8
R2	50'	0.0	0.0	67.5
R3	70'	-2.9	0.0	64.5
R4	145'	-9.2	0.0	58.2
R5	130'	-8.3	0.0	59.2

[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 attenuation from existing barriers/berms in the Project study area.

TABLE 10-6: PAVING EQUIPMENT NOISE LEVELS

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

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	86'	-4.7	0.0	66.9
R2	50'	0.0	0.0	71.6
R3	70'	-2.9	0.0	68.7
R4	145'	-9.2	0.0	62.4
R5	130'	-8.3	0.0	63.3

[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 attenuation from existing barriers/berms in the Project study area.

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 closest point from primary Project construction activity to each of the nearby receiver locations. As shown on Table 10-7, the unmitigated construction noise levels are expected to range from 58.2 to 79.6 dBA L_{eq} at the nearby receiver locations.

TABLE 10-7: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Level (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Architectural Coating	Paving	Highest Activity Noise Levels[2]
R1	74.9	68.8	63.5	62.8	66.9	74.9
R2	79.6	73.5	68.2	67.5	71.6	79.6
R3	76.6	70.5	65.2	64.5	68.7	76.6
R4	70.3	64.2	58.9	58.2	62.4	70.3
R5	71.3	65.2	59.9	59.2	63.3	71.3

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

To evaluate whether the Project will generate potentially significant short-term noise levels at off-site sensitive receiver locations a construction-related the NIOSH noise level threshold of 85 dBA L_{eq} is used as acceptable thresholds for construction noise at the nearby sensitive receiver locations. Table 10-8 shows the highest construction noise levels at the potentially impacted receiver locations are estimated at 79.6 dBA L_{eq} and will satisfy the NIOSH 85 dBA L_{eq} significance threshold during temporary Project construction activities. The noise impact due to unmitigated Project construction noise levels is, therefore, considered a *less than significant* impact at all nearby sensitive receiver locations.

TABLE 10-8: CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	74.9	85	No
R2	79.6	85	No
R3	76.6	85	No
R4	70.3	85	No
R5	71.3	85	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Estimated construction noise levels during peak operating conditions, as shown on Table 10-7.
[3] Construction noise thresholds as shown on Table 4-2.
[4] Do the estimated Project construction noise levels satisfy the construction noise level threshold?

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. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to 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 6-10 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-9 presents the expected Project related vibration levels at the nearby receiver locations.

At distances ranging from 50 to 145 feet from primary construction activities, construction vibration velocity levels are estimated at 0.022 in/sec RMS and will exceed County of Riverside RMS vibration threshold of 0.01 in/sec at receiver locations R2 and R3, as shown on Table 10-9. As such, the Project-related vibration impacts will be *potentially significant* during the construction activities at the Project site.

Therefore, a 90-foot buffer zone vibration mitigation measure is required which would restrict the use of large loaded trucks and dozers (greater than 80,000 pounds) within 90-feet of occupied sensitive receiver locations represented by R2 and R3. With the mitigation measures identified in this report, and shown on Exhibit 10-A, the mitigated vibration levels with the 90-foot buffer zone will be reduced to 0.0093 in/sec RMS, and will satisfy the County of Riverside perceptible vibration threshold of 0.01 in/sec RMS, as shown on Table 10-10. Therefore, impacts with the construction vibration mitigation measure identified in this study will be *less than significant*.

Further, the vibration levels due to Project construction do not represent vibration levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (5) The peak Project-construction vibration levels of 0.031 in/sec PPV will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Further, the levels at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 10-9: UNMITIGATED PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					RMS Velocity Levels (in/sec)[3]	Threshold	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration			
R1	86'	0.0005	0.0055	0.0119	0.0139	0.0139	0.0099	0.01	No
R2	50'	0.0011	0.0124	0.0269	0.0315	0.0315	0.0223	0.01	Yes
R3	70'	0.0006	0.0075	0.0162	0.0190	0.0190	0.0135	0.01	Yes
R4	145'	0.0002	0.0025	0.0054	0.0064	0.0064	0.0045	0.01	No
R5	130'	0.0003	0.0030	0.0064	0.0075	0.0075	0.0053	0.01	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-10.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

TABLE 10-10: MITIGATED PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Mitigated Receiver PPV Levels (in/sec)[2]					RMS Velocity Levels (in/sec)[3]	Threshold	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration			
R2	90'	-	-	0.0111	0.0130	0.0130	0.0093	0.01	No
R3	90'	-	-	0.0111	0.0130	0.0130	0.0093	0.01	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-10.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

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11 REFERENCES

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

24. **County of Riverside, Office of Industrial Hygiene.** *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures.* April 2015.

25. **Urban Crossroads, Inc.** *Barker Logistics Air Quality Impact Analysis.* March 2019.

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Barker Logistics 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:

COUNTY OF RIVERSIDE MUNICIPAL CODE

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9.52.010 - Intent.

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

(Ord. 847 § 1, 2006)

9.52.020 - Exemptions.

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

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

B. Capital improvement projects of a governmental agency;

C. The maintenance or repair of public properties;

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

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

F. Agricultural operations on land designated "Agriculture" in the Riverside County general plan, or land zoned A-l (light agriculture), A-P (light agriculture with poultry), A-2 (heavy agriculture), A-D (agriculture-dairy) or C/V (citrus/vineyard), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile;

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

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

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

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

2. Construction does not occur between the hours of six p.m. and seven a.m. during the months of October through May;

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

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

L. Heating and air conditioning equipment;

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

N. The discharge of firearms consistent with all state laws.

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:12218 Study Area Photos

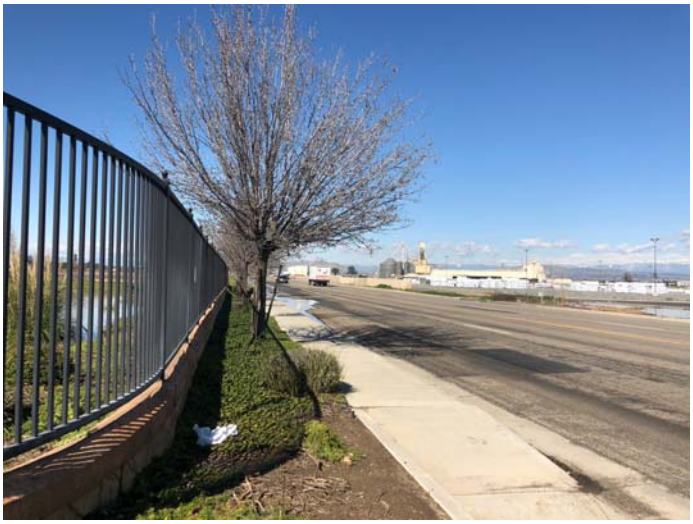
L1 East
33, 49' 35.920000", 117, 15' 9.810000"

L1 North
33, 49' 35.880000", 117, 15' 9.810000"

L1 South
33, 49' 35.990000", 117, 15' 9.810000"

L1 West
33, 49' 35.990000", 117, 15' 9.810000"

L2 East
33, 49' 33.810000", 117, 14' 49.180000"



L2 North
33, 49' 33.900000", 117, 14' 49.230000"

JN:12218 Study Area Photos

L2 South
33, 49' 33.680000", 117, 14' 49.120000"

L2 West
33, 49' 33.940000", 117, 14' 49.230000"

L3 East
33, 49' 23.120000", 117, 14' 54.750000"

L3 North
33, 49' 23.110000", 117, 14' 54.780000"

L3 South
33, 49' 23.120000", 117, 14' 54.670000"

L3 West
33, 49' 23.120000", 117, 14' 54.620000"

JN:12218 Study Area Photos

L4 East
33, 49' 23.380000", 117, 15' 2.640000"

L4 North
33, 49' 22.990000", 117, 15' 2.610000"

L4 South
33, 49' 22.990000", 117, 15' 2.640000"

L4 West
33, 49' 22.990000", 117, 15' 2.610000"

L5 East
33, 49' 30.300000", 117, 15' 9.830000"

L5 North
33, 49' 30.300000", 117, 15' 9.830000"

JN:12218 Study Area Photos

L5 South
33, 49' 30.320000", 117, 15' 9.830000"

L5 West
33, 49' 30.320000", 117, 15' 9.830000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

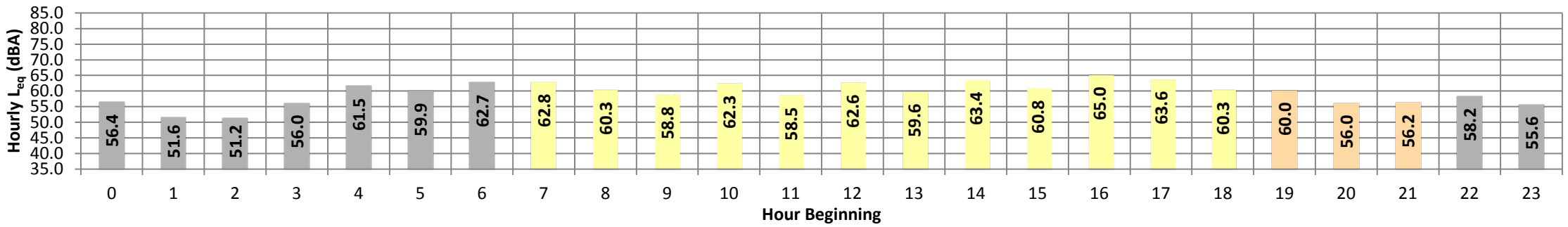
Date: Thursday, February 07, 2019
Project: Barker Property

Location: L1 - Located on Patterson Avenue adjacent to existing rural-residential land use near U-Turn for Christ.

Meter: Piccolo I

JN: 12218
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	56.4	74.2	45.7	67.0	66.0	62.0	59.0	54.0	52.0	49.0	48.0	47.0	56.4	10.0	66.4
	1	51.6	58.8	46.5	55.0	54.0	53.0	53.0	52.0	51.0	49.0	48.0	48.0	51.6	10.0	61.6
	2	51.2	59.7	47.1	54.0	54.0	53.0	53.0	52.0	50.0	48.0	48.0	47.0	51.2	10.0	61.2
	3	56.0	62.2	49.2	59.0	59.0	58.0	58.0	57.0	55.0	52.0	51.0	50.0	56.0	10.0	66.0
	4	61.5	82.6	54.9	66.0	64.0	63.0	63.0	61.0	59.0	57.0	56.0	55.0	61.5	10.0	71.5
	5	59.9	83.5	53.5	66.0	64.0	63.0	62.0	59.0	57.0	55.0	55.0	54.0	59.9	10.0	69.9
	6	62.7	86.9	53.9	74.0	69.0	62.0	61.0	59.0	58.0	56.0	56.0	55.0	62.7	10.0	72.7
Day	7	62.8	89.0	49.6	75.0	70.0	63.0	60.0	58.0	55.0	52.0	51.0	50.0	62.8	0.0	62.8
	8	60.3	87.3	45.2	72.0	65.0	58.0	55.0	51.0	50.0	47.0	47.0	46.0	60.3	0.0	60.3
	9	58.8	85.4	44.1	70.0	65.0	60.0	57.0	51.0	48.0	46.0	45.0	45.0	58.8	0.0	58.8
	10	62.3	90.5	43.4	74.0	68.0	59.0	56.0	49.0	47.0	45.0	45.0	44.0	62.3	0.0	62.3
	11	58.5	83.4	44.8	70.0	65.0	57.0	54.0	51.0	49.0	47.0	46.0	46.0	58.5	0.0	58.5
	12	62.6	86.3	43.7	76.0	72.0	68.0	62.0	55.0	50.0	46.0	45.0	44.0	62.6	0.0	62.6
	13	59.6	82.6	46.2	73.0	70.0	60.0	57.0	52.0	51.0	48.0	48.0	47.0	59.6	0.0	59.6
	14	63.4	86.5	47.5	76.0	72.0	64.0	60.0	55.0	53.0	50.0	49.0	48.0	63.4	0.0	63.4
	15	60.8	88.9	52.0	71.0	66.0	60.0	59.0	57.0	56.0	54.0	53.0	52.0	60.8	0.0	60.8
	16	65.0	92.8	54.7	76.0	72.0	65.0	62.0	60.0	58.0	57.0	56.0	56.0	65.0	0.0	65.0
	17	63.6	85.8	56.4	74.0	69.0	65.0	63.0	60.0	59.0	58.0	58.0	57.0	63.6	0.0	63.6
	18	60.3	81.9	53.7	67.0	64.0	61.0	60.0	59.0	58.0	56.0	56.0	55.0	60.3	0.0	60.3
Evening	19	60.0	82.5	51.6	70.0	65.0	60.0	58.0	56.0	55.0	53.0	53.0	52.0	60.0	5.0	65.0
	20	56.0	79.7	51.2	62.0	58.0	57.0	56.0	55.0	54.0	53.0	52.0	52.0	56.0	5.0	61.0
	21	56.2	78.6	50.5	62.0	60.0	58.0	57.0	55.0	54.0	52.0	52.0	51.0	56.2	5.0	61.2
Night	22	58.2	85.1	49.6	65.0	61.0	58.0	57.0	55.0	54.0	51.0	51.0	50.0	58.2	10.0	68.2
	23	55.6	80.6	49.3	62.0	60.0	57.0	56.0	55.0	54.0	51.0	51.0	50.0	55.6	10.0	65.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	58.5	81.9	43.4	67.0	64.0	57.0	54.0	49.0	47.0	45.0	45.0	44.0
	Max	65.0	92.8	56.4	76.0	72.0	68.0	63.0	60.0	59.0	58.0	58.0	57.0
Energy Average		61.9	Average:		72.8	68.2	61.7	58.8	54.8	52.8	50.5	49.9	49.2
Evening	Min	56.0	78.6	50.5	62.0	58.0	57.0	56.0	55.0	54.0	52.0	52.0	51.0
	Max	60.0	82.5	51.6	70.0	65.0	60.0	58.0	56.0	55.0	53.0	53.0	52.0
Energy Average		57.8	Average:		64.7	61.0	58.3	57.0	55.3	54.3	52.7	52.3	51.7
Night	Min	51.2	58.8	45.7	54.0	54.0	53.0	53.0	52.0	50.0	48.0	48.0	47.0
	Max	62.7	86.9	54.9	74.0	69.0	63.0	63.0	61.0	59.0	57.0	56.0	55.0
Energy Average		58.5	Average:		63.1	61.2	58.8	58.0	56.0	54.4	52.0	51.6	50.7

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
60.5	61.4	58.5

24-Hour CNEL (dBA)
65.7

24-Hour Noise Level Measurement Summary

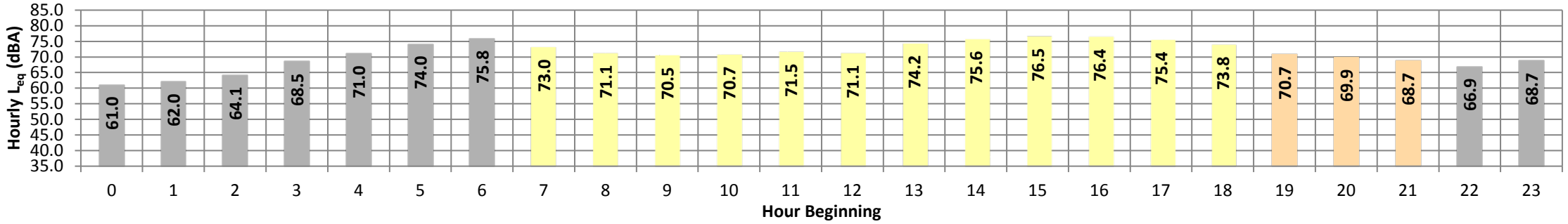
Date: Thursday, February 07, 2019
Project: Barker Property

Location: L2 - Located on Harvill Avenue northeast of the Project site adjacent to Daytona Business Park and existing industrial land use area

Meter: Piccolo I

JN: 12218
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	61.0	81.5	46.8	74.0	71.0	61.0	58.0	55.0	53.0	51.0	50.0	49.0	61.0	10.0	71.0
	1	62.0	81.2	48.7	75.0	72.0	67.0	63.0	57.0	55.0	52.0	51.0	50.0	62.0	10.0	72.0
	2	64.1	86.0	50.4	76.0	74.0	70.0	67.0	59.0	57.0	54.0	53.0	52.0	64.1	10.0	74.1
	3	68.5	87.8	52.9	78.0	77.0	75.0	73.0	66.0	61.0	58.0	57.0	55.0	68.5	10.0	78.5
	4	71.0	91.2	59.2	80.0	78.0	76.0	75.0	70.0	65.0	62.0	61.0	60.0	71.0	10.0	81.0
	5	74.0	90.0	60.2	81.0	80.0	79.0	78.0	75.0	71.0	63.0	62.0	61.0	74.0	10.0	84.0
	6	75.8	88.1	61.7	81.0	81.0	79.0	79.0	76.0	74.0	69.0	67.0	64.0	75.8	10.0	85.8
Day	7	73.0	86.3	53.7	80.0	79.0	78.0	77.0	74.0	70.0	60.0	59.0	56.0	73.0	0.0	73.0
	8	71.1	86.0	54.3	79.0	78.0	76.0	75.0	72.0	66.0	58.0	57.0	56.0	71.1	0.0	71.1
	9	70.5	86.2	53.9	79.0	77.0	76.0	75.0	71.0	66.0	58.0	57.0	55.0	70.5	0.0	70.5
	10	70.7	85.5	51.2	79.0	78.0	76.0	75.0	71.0	66.0	56.0	55.0	53.0	70.7	0.0	70.7
	11	71.5	94.4	52.6	79.0	78.0	76.0	75.0	72.0	67.0	57.0	56.0	54.0	71.5	0.0	71.5
	12	71.1	83.8	52.7	79.0	78.0	77.0	75.0	72.0	67.0	57.0	55.0	54.0	71.1	0.0	71.1
	13	74.2	86.7	54.2	82.0	81.0	79.0	78.0	75.0	71.0	60.0	58.0	56.0	74.2	0.0	74.2
	14	75.6	86.8	56.2	83.0	82.0	80.0	79.0	77.0	73.0	62.0	60.0	57.0	75.6	0.0	75.6
	15	76.5	95.7	58.6	83.0	82.0	81.0	80.0	77.0	74.0	64.0	61.0	59.0	76.5	0.0	76.5
	16	76.4	92.3	60.2	83.0	82.0	81.0	80.0	77.0	74.0	64.0	62.0	61.0	76.4	0.0	76.4
	17	75.4	95.9	59.4	82.0	81.0	80.0	79.0	76.0	72.0	63.0	61.0	60.0	75.4	0.0	75.4
	18	73.8	93.8	56.4	82.0	81.0	79.0	78.0	74.0	69.0	61.0	60.0	58.0	73.8	0.0	73.8
Evening	19	70.7	89.7	54.8	80.0	78.0	77.0	76.0	71.0	64.0	58.0	58.0	56.0	70.7	5.0	75.7
	20	69.9	84.9	54.6	80.0	79.0	76.0	75.0	69.0	61.0	57.0	56.0	55.0	69.9	5.0	74.9
	21	68.7	85.7	52.4	79.0	78.0	75.0	74.0	66.0	59.0	56.0	55.0	54.0	68.7	5.0	73.7
Night	22	66.9	86.6	53.1	78.0	77.0	74.0	71.0	62.0	58.0	56.0	55.0	54.0	66.9	10.0	76.9
	23	68.7	96.4	49.2	79.0	77.0	74.0	71.0	61.0	57.0	53.0	52.0	50.0	68.7	10.0	78.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	70.5	83.8	51.2	79.0	77.0	76.0	75.0	71.0	66.0	56.0	55.0	53.0
	Max	76.5	95.9	60.2	83.0	82.0	81.0	80.0	77.0	74.0	64.0	62.0	61.0
Energy Average		73.9	Average:		80.8	79.8	78.3	77.2	74.0	69.6	60.0	58.4	56.6
Evening	Min	68.7	84.9	52.4	79.0	78.0	75.0	74.0	66.0	59.0	56.0	55.0	54.0
	Max	70.7	89.7	54.8	80.0	79.0	77.0	76.0	71.0	64.0	58.0	58.0	56.0
Energy Average		69.8	Average:		79.7	78.3	76.0	75.0	68.7	61.3	57.0	56.3	55.0
Night	Min	61.0	81.2	46.8	74.0	71.0	61.0	58.0	55.0	53.0	51.0	50.0	49.0
	Max	75.8	96.4	61.7	81.0	81.0	79.0	79.0	76.0	74.0	69.0	67.0	64.0
Energy Average		70.5	Average:		78.0	76.3	72.8	70.6	64.6	61.2	57.6	56.4	55.0

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
72.4	73.3	70.5

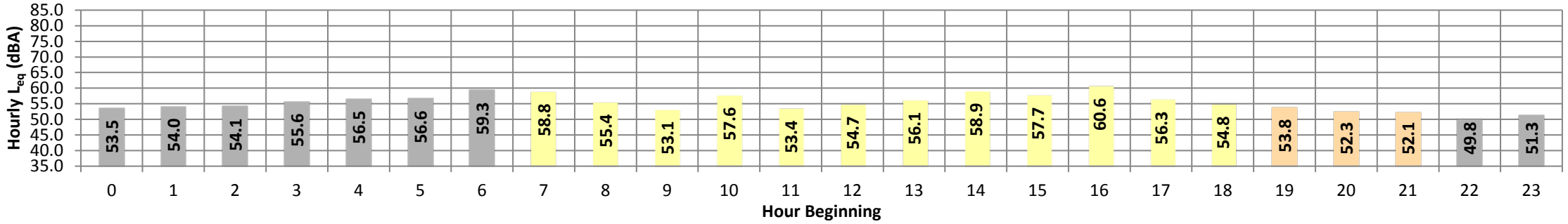
24-Hour CNEL (dBA)
77.6

24-Hour Noise Level Measurement Summary

Date: Thursday, February 07, 2019 *Location:* L3 - Located on Placentia Avenue southeast of the Project site adjacent to existing rural residential land use. *Meter:* Piccolo I *JN:* 12218

Project: Barker Property *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	53.5	65.1	52.2	57.0	56.0	54.0	54.0	53.0	53.0	52.0	52.0	52.0	53.5	10.0	63.5
	1	54.0	65.2	52.6	59.0	57.0	55.0	54.0	53.0	53.0	53.0	53.0	52.0	54.0	10.0	64.0
	2	54.1	65.2	53.0	57.0	56.0	55.0	54.0	54.0	53.0	53.0	53.0	53.0	54.1	10.0	64.1
	3	55.6	68.1	53.7	59.0	58.0	56.0	56.0	55.0	55.0	54.0	54.0	54.0	55.6	10.0	65.6
	4	56.5	72.1	54.0	61.0	60.0	58.0	57.0	56.0	55.0	54.0	54.0	54.0	56.5	10.0	66.5
	5	56.6	74.8	53.9	61.0	60.0	58.0	58.0	56.0	55.0	54.0	54.0	54.0	56.6	10.0	66.6
	6	59.3	73.0	55.1	67.0	65.0	62.0	61.0	59.0	57.0	56.0	55.0	55.0	59.3	10.0	69.3
Day	7	58.8	74.5	56.1	64.0	62.0	60.0	60.0	58.0	58.0	57.0	57.0	56.0	58.8	0.0	58.8
	8	55.4	70.7	48.8	64.0	61.0	58.0	57.0	55.0	53.0	51.0	50.0	49.0	55.4	0.0	55.4
	9	53.1	72.1	44.5	64.0	61.0	56.0	54.0	51.0	49.0	47.0	46.0	45.0	53.1	0.0	53.1
	10	57.6	87.4	44.3	66.0	61.0	56.0	54.0	51.0	49.0	46.0	46.0	45.0	57.6	0.0	57.6
	11	53.4	73.2	44.4	65.0	62.0	56.0	54.0	50.0	48.0	46.0	46.0	45.0	53.4	0.0	53.4
	12	54.7	74.4	43.5	67.0	63.0	58.0	56.0	51.0	49.0	46.0	45.0	44.0	54.7	0.0	54.7
	13	56.1	76.1	44.4	69.0	66.0	59.0	57.0	53.0	50.0	47.0	47.0	46.0	56.1	0.0	56.1
	14	58.9	82.7	45.3	70.0	67.0	62.0	59.0	54.0	51.0	48.0	47.0	46.0	58.9	0.0	58.9
	15	57.7	79.3	47.8	68.0	66.0	61.0	59.0	55.0	52.0	50.0	50.0	49.0	57.7	0.0	57.7
	16	60.6	90.1	49.2	69.0	67.0	62.0	60.0	56.0	53.0	51.0	50.0	50.0	60.6	0.0	60.6
	17	56.3	77.0	49.7	65.0	63.0	60.0	58.0	55.0	53.0	51.0	51.0	50.0	56.3	0.0	56.3
	18	54.8	72.5	48.5	64.0	62.0	59.0	57.0	53.0	52.0	50.0	50.0	49.0	54.8	0.0	54.8
Evening	19	53.8	73.3	46.4	65.0	61.0	57.0	55.0	51.0	50.0	48.0	48.0	47.0	53.8	5.0	58.8
	20	52.3	70.2	45.4	63.0	61.0	56.0	54.0	50.0	48.0	47.0	46.0	46.0	52.3	5.0	57.3
	21	52.1	73.4	44.6	62.0	58.0	55.0	53.0	50.0	48.0	46.0	46.0	45.0	52.1	5.0	57.1
Night	22	49.8	68.9	44.2	58.0	55.0	51.0	50.0	49.0	48.0	46.0	45.0	45.0	49.8	10.0	59.8
	23	51.3	73.5	43.4	60.0	57.0	53.0	52.0	49.0	47.0	44.0	44.0	43.0	51.3	10.0	61.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.1	70.7	43.5	64.0	61.0	56.0	54.0	50.0	48.0	46.0	45.0	44.0
	Max	60.6	90.1	56.1	70.0	67.0	62.0	60.0	58.0	58.0	57.0	57.0	56.0
Energy Average		57.0	Average:		66.3	63.4	58.9	57.1	53.5	51.4	49.2	48.8	47.8
Evening	Min	52.1	70.2	44.6	62.0	58.0	55.0	53.0	50.0	48.0	46.0	46.0	45.0
	Max	53.8	73.4	46.4	65.0	61.0	57.0	55.0	51.0	50.0	48.0	48.0	47.0
Energy Average		52.8	Average:		63.3	60.0	56.0	54.0	50.3	48.7	47.0	46.7	46.0
Night	Min	49.8	65.1	43.4	57.0	55.0	51.0	50.0	49.0	47.0	44.0	44.0	43.0
	Max	59.3	74.8	55.1	67.0	65.0	62.0	61.0	59.0	57.0	56.0	55.0	55.0
Energy Average		55.3	Average:		59.9	58.2	55.8	55.1	53.8	52.9	51.8	51.6	51.3

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
56.1	56.4	55.3

24-Hour CNEL (dBA)
62.1

24-Hour Noise Level Measurement Summary

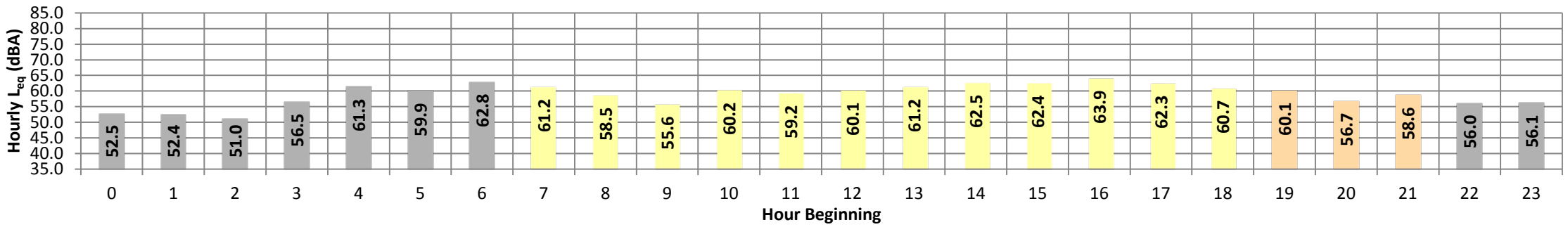
Date: Thursday, February 07, 2019
Project: Barker Property

Location: L4 - Located on Placentia Avenue south of the Project site adjacent to Tobacco Road and existing rural residential land use.

Meter: Piccolo I

JN: 12218
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	52.5	61.2	46.5	57.0	56.0	55.0	55.0	53.0	51.0	49.0	48.0	47.0	52.5	10.0	62.5
	1	52.4	64.8	46.8	58.0	56.0	55.0	54.0	53.0	51.0	49.0	48.0	47.0	52.4	10.0	62.4
	2	51.0	56.7	47.1	54.0	53.0	53.0	52.0	51.0	50.0	49.0	48.0	48.0	51.0	10.0	61.0
	3	56.5	78.7	48.4	59.0	58.0	58.0	57.0	56.0	55.0	51.0	50.0	49.0	56.5	10.0	66.5
	4	61.3	83.7	55.3	68.0	64.0	63.0	62.0	61.0	59.0	57.0	56.0	56.0	61.3	10.0	71.3
	5	59.9	86.9	53.8	64.0	62.0	61.0	61.0	58.0	56.0	55.0	54.0	54.0	59.9	10.0	69.9
	6	62.8	84.1	55.2	74.0	70.0	65.0	63.0	60.0	58.0	57.0	56.0	55.0	62.8	10.0	72.8
Day	7	61.2	81.7	51.1	71.0	67.0	63.0	62.0	60.0	57.0	53.0	52.0	51.0	61.2	0.0	61.2
	8	58.5	80.7	46.6	71.0	66.0	60.0	57.0	53.0	52.0	48.0	48.0	47.0	58.5	0.0	58.5
	9	55.6	78.0	46.2	67.0	62.0	57.0	54.0	51.0	49.0	48.0	47.0	46.0	55.6	0.0	55.6
	10	60.2	86.8	44.9	73.0	67.0	58.0	55.0	50.0	48.0	46.0	46.0	45.0	60.2	0.0	60.2
	11	59.2	81.1	45.6	72.0	68.0	60.0	57.0	51.0	49.0	47.0	47.0	46.0	59.2	0.0	59.2
	12	60.1	82.2	46.4	73.0	70.0	62.0	59.0	54.0	52.0	48.0	48.0	47.0	60.1	0.0	60.1
	13	61.2	84.7	48.6	73.0	72.0	65.0	61.0	55.0	54.0	51.0	50.0	49.0	61.2	0.0	61.2
	14	62.5	83.0	48.8	76.0	73.0	65.0	61.0	55.0	53.0	51.0	50.0	49.0	62.5	0.0	62.5
	15	62.4	85.9	52.5	75.0	71.0	64.0	61.0	58.0	56.0	54.0	54.0	53.0	62.4	0.0	62.4
	16	63.9	85.1	55.9	76.0	72.0	66.0	62.0	59.0	58.0	57.0	57.0	56.0	63.9	0.0	63.9
	17	62.3	85.9	56.2	71.0	68.0	63.0	62.0	60.0	59.0	58.0	57.0	57.0	62.3	0.0	62.3
	18	60.7	80.8	53.9	69.0	66.0	62.0	61.0	59.0	58.0	57.0	56.0	55.0	60.7	0.0	60.7
Evening	19	60.1	81.9	52.6	73.0	66.0	59.0	58.0	56.0	55.0	54.0	54.0	53.0	60.1	5.0	65.1
	20	56.7	79.5	51.3	62.0	59.0	57.0	56.0	55.0	54.0	53.0	52.0	52.0	56.7	5.0	61.7
	21	58.6	84.2	50.3	66.0	62.0	58.0	56.0	55.0	54.0	52.0	52.0	51.0	58.6	5.0	63.6
Night	22	56.0	77.1	48.8	64.0	59.0	56.0	56.0	54.0	53.0	51.0	51.0	50.0	56.0	10.0	66.0
	23	56.1	80.0	49.3	63.0	60.0	58.0	57.0	55.0	53.0	51.0	50.0	50.0	56.1	10.0	66.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.6	78.0	44.9	67.0	62.0	57.0	54.0	50.0	48.0	46.0	46.0	45.0
	Max	63.9	86.8	56.2	76.0	73.0	66.0	62.0	60.0	59.0	58.0	57.0	57.0
Energy Average		61.1	Average:		72.3	68.5	62.1	59.3	55.4	53.8	51.5	51.0	50.1
Evening	Min	56.7	79.5	50.3	62.0	59.0	57.0	56.0	55.0	54.0	52.0	52.0	51.0
	Max	60.1	84.2	52.6	73.0	66.0	59.0	58.0	56.0	55.0	54.0	54.0	53.0
Energy Average		58.7	Average:		67.0	62.3	58.0	56.7	55.3	54.3	53.0	52.7	52.0
Night	Min	51.0	56.7	46.5	54.0	53.0	53.0	52.0	51.0	50.0	49.0	48.0	47.0
	Max	62.8	86.9	55.3	74.0	70.0	65.0	63.0	61.0	59.0	57.0	56.0	56.0
Energy Average		58.2	Average:		62.3	59.8	58.2	57.4	55.7	54.0	52.1	51.2	50.7

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
59.9	60.7	58.2

24-Hour CNEL (dBA)
65.3

24-Hour Noise Level Measurement Summary

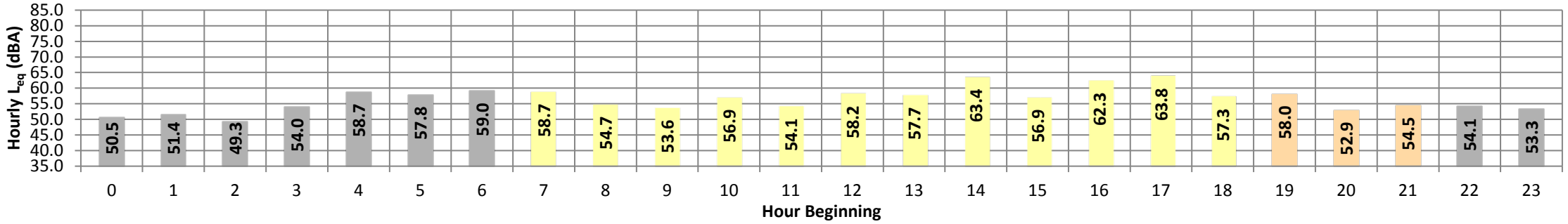
Date: Thursday, February 07, 2019
Project: Barker Property

Location: L5 - Located on Patterson Avenue west of the Project site adjacent to existing rural residential land use.

Meter: Piccolo I

JN: 12218
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	50.5	59.4	44.3	55.0	54.0	53.0	53.0	51.0	49.0	47.0	46.0	45.0	50.5	10.0	60.5
	1	51.4	63.6	46.1	56.0	55.0	54.0	53.0	52.0	50.0	48.0	48.0	47.0	51.4	10.0	61.4
	2	49.3	54.0	45.6	52.0	51.0	51.0	50.0	49.0	49.0	47.0	47.0	46.0	49.3	10.0	59.3
	3	54.0	61.2	46.4	57.0	57.0	57.0	56.0	55.0	53.0	49.0	49.0	48.0	54.0	10.0	64.0
	4	58.7	75.6	53.2	63.0	62.0	61.0	61.0	59.0	57.0	55.0	54.0	54.0	58.7	10.0	68.7
	5	57.8	76.7	52.8	61.0	61.0	60.0	60.0	58.0	56.0	54.0	54.0	53.0	57.8	10.0	67.8
	6	59.0	77.8	53.2	68.0	63.0	60.0	59.0	58.0	57.0	55.0	55.0	54.0	59.0	10.0	69.0
Day	7	58.7	79.6	49.8	68.0	63.0	61.0	60.0	58.0	55.0	52.0	51.0	50.0	58.7	0.0	58.7
	8	54.7	78.6	46.1	65.0	61.0	56.0	54.0	52.0	51.0	48.0	47.0	47.0	54.7	0.0	54.7
	9	53.6	75.2	45.0	65.0	61.0	56.0	54.0	50.0	48.0	46.0	46.0	46.0	53.6	0.0	53.6
	10	56.9	83.7	44.2	68.0	64.0	57.0	54.0	49.0	47.0	46.0	45.0	45.0	56.9	0.0	56.9
	11	54.1	75.6	44.8	67.0	61.0	54.0	52.0	50.0	49.0	47.0	46.0	45.0	54.1	0.0	54.1
	12	58.2	78.3	44.2	72.0	68.0	61.0	57.0	52.0	50.0	46.0	45.0	45.0	58.2	0.0	58.2
	13	57.7	80.4	46.5	71.0	68.0	59.0	56.0	52.0	51.0	49.0	48.0	47.0	57.7	0.0	57.7
	14	63.4	89.3	47.1	73.0	69.0	60.0	58.0	53.0	51.0	49.0	48.0	48.0	63.4	0.0	63.4
	15	56.9	81.3	49.8	67.0	63.0	57.0	56.0	54.0	53.0	52.0	51.0	50.0	56.9	0.0	56.9
	16	62.3	79.7	53.8	71.0	69.0	66.0	65.0	61.0	59.0	56.0	56.0	55.0	62.3	0.0	62.3
	17	63.8	83.3	54.8	77.0	75.0	71.0	63.0	58.0	57.0	56.0	55.0	55.0	63.8	0.0	63.8
	18	57.3	73.0	51.9	64.0	62.0	59.0	58.0	57.0	56.0	55.0	54.0	54.0	57.3	0.0	57.3
Evening	19	58.0	82.4	49.0	67.0	62.0	57.0	55.0	54.0	53.0	51.0	51.0	50.0	58.0	5.0	63.0
	20	52.9	75.1	48.8	57.0	55.0	54.0	54.0	52.0	51.0	50.0	50.0	49.0	52.9	5.0	57.9
	21	54.5	78.0	48.1	61.0	58.0	55.0	54.0	53.0	52.0	50.0	50.0	49.0	54.5	5.0	59.5
Night	22	54.1	75.3	48.2	59.0	56.0	55.0	54.0	53.0	52.0	50.0	50.0	49.0	54.1	10.0	64.1
	23	53.3	68.6	48.5	60.0	58.0	55.0	55.0	53.0	52.0	50.0	49.0	49.0	53.3	10.0	63.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.6	73.0	44.2	64.0	61.0	54.0	52.0	49.0	47.0	46.0	45.0	45.0
	Max	63.8	89.3	54.8	77.0	75.0	71.0	65.0	61.0	59.0	56.0	56.0	55.0
Energy Average		59.5	Average:		69.0	65.3	59.8	57.3	53.8	52.3	50.2	49.3	48.9
Evening	Min	52.9	75.1	48.1	57.0	55.0	54.0	54.0	52.0	51.0	50.0	50.0	49.0
	Max	58.0	82.4	49.0	67.0	62.0	57.0	55.0	54.0	53.0	51.0	51.0	50.0
Energy Average		55.7	Average:		61.7	58.3	55.3	54.3	53.0	52.0	50.3	50.3	49.3
Night	Min	49.3	54.0	44.3	52.0	51.0	51.0	50.0	49.0	49.0	47.0	46.0	45.0
	Max	59.0	77.8	53.2	68.0	63.0	61.0	61.0	59.0	57.0	55.0	55.0	54.0
Energy Average		55.5	Average:		59.0	57.4	56.2	55.7	54.2	52.8	50.6	50.2	49.4

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
57.9	58.9	55.5

24-Hour CNEL (dBA)
62.8

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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: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Walnut St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	293 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	29 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-17.21	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-28.18	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.67	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.4	46.0	44.2	41.9	49.1	49.5
Medium Trucks:	48.7	46.6	41.1	42.2	49.4	49.6
Heavy Trucks:	52.5	50.4	45.4	45.9	53.1	53.3
Vehicle Noise:	55.0	52.9	48.6	48.5	55.7	55.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	12	26	56
CNEL:	6	12	27	58

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Placentia St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	337 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	34 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.61	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-27.57	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.06	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.0	46.6	44.8	42.5	49.7	50.1
Medium Trucks:	49.3	47.2	41.7	42.9	50.0	50.2
Heavy Trucks:	53.1	51.0	46.0	46.5	53.7	53.9
Vehicle Noise:	55.7	53.5	49.3	49.1	56.3	56.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	28	61
CNEL:	6	14	29	63

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Barker
Road Name: Harvill Av. | Job Number: 12218
Road Segment: s/o Cajalco Expy.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,861 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,586 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.85	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.81	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.30	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	65.1	63.3	61.0	68.2	68.6
Medium Trucks:	67.4	65.3	59.8	61.0	68.1	68.3
Heavy Trucks:	70.3	68.2	63.2	63.7	70.9	71.1
Vehicle Noise:	73.4	71.2	67.1	66.9	74.1	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	237	510	1,100
CNEL:	114	245	529	1,139

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Barker
Road Name: Harvill Av. | Job Number: 12218
Road Segment: s/o Rider St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,941 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,394 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.41	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.37	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.86	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.0	64.5	62.7	60.5	67.7	68.0
Medium Trucks:	66.8	64.8	59.2	60.4	67.6	67.7
Heavy Trucks:	69.7	67.6	62.6	63.1	70.3	70.5
Vehicle Noise:	72.8	70.7	66.6	66.3	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	101	217	468	1,009
CNEL:	105	225	485	1,046

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,663 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	866 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.48	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.44	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.93	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	62.5	60.7	58.4	65.6	66.0
Medium Trucks:	64.8	62.7	57.1	58.3	65.5	65.7
Heavy Trucks:	67.6	65.6	60.6	61.1	68.3	68.5
Vehicle Noise:	70.8	68.6	64.5	64.2	71.4	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	158	341	735
CNEL:	76	164	353	761

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,370 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	837 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.63	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.59	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.08	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.8	62.3	60.5	58.2	65.4	65.8
Medium Trucks:	64.6	62.5	57.0	58.2	65.3	65.5
Heavy Trucks:	67.5	65.4	60.4	60.9	68.1	68.3
Vehicle Noise:	70.6	68.4	64.3	64.1	71.3	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	155	333	718
CNEL:	74	160	345	744

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,417 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,242 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.91	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.87	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.37	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	64.0	62.2	60.0	67.2	67.5
Medium Trucks:	66.3	64.2	58.7	59.9	67.1	67.2
Heavy Trucks:	69.2	67.1	62.1	62.6	69.8	70.0
Vehicle Noise:	72.3	70.2	66.1	65.8	73.0	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	434	934
CNEL:	97	209	449	968

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,788 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	179 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.36	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.32	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.81	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	53.8	52.0	49.8	56.9	57.3
Medium Trucks:	56.5	54.5	48.9	50.1	57.3	57.4
Heavy Trucks:	60.3	58.2	53.2	53.7	60.9	61.1
Vehicle Noise:	62.9	60.7	56.5	56.4	63.6	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	40	86	186
CNEL:	19	42	89	193

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Barker
Road Name: Placentia St. | Job Number: 12218
Road Segment: e/o Patterson Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	381 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	38 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.07	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-27.03	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.53	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.5	47.1	45.3	43.0	50.2	50.6
Medium Trucks:	49.8	47.7	42.2	43.4	50.6	50.7
Heavy Trucks:	53.6	51.5	46.5	47.0	54.2	54.4
Vehicle Noise:	56.2	54.0	49.8	49.6	56.9	57.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	14	31	66
CNEL:	7	15	32	69

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Barker
Road Name: Placentia St. | Job Number: 12218
Road Segment: e/o Dwy. 2

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	399 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	40 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.87	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.83	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.33	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	47.3	45.5	43.2	50.4	50.8
Medium Trucks:	50.0	47.9	42.4	43.6	50.8	50.9
Heavy Trucks:	53.8	51.7	46.7	47.2	54.4	54.6
Vehicle Noise:	56.4	54.2	50.0	49.8	57.1	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	69
CNEL:	7	15	33	71

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Walnut St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	589 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	59 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	86.88%
Medium Trucks:	74.3%	5.2%	20.5%	6.56%
Heavy Trucks:	74.4%	5.9%	19.7%	6.56%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.23	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-25.45	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.45	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.4	49.0	47.1	44.9	52.1	52.4
Medium Trucks:	51.4	49.3	43.8	45.0	52.1	52.3
Heavy Trucks:	56.7	54.6	49.6	50.1	57.3	57.5
Vehicle Noise:	58.7	56.6	52.2	52.2	59.4	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	45	98
CNEL:	10	22	47	101

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Placentia St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	443 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	44 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	81.34%
Medium Trucks:	74.3%	5.2%	20.5%	9.43%
Heavy Trucks:	74.4%	5.9%	19.7%	9.23%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.76	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-25.12	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.21	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.9	47.4	45.6	43.3	50.5	50.9
Medium Trucks:	51.7	49.7	44.1	45.3	52.5	52.6
Heavy Trucks:	56.9	54.8	49.8	50.3	57.5	57.7
Vehicle Noise:	58.7	56.6	52.0	52.1	59.3	59.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	45	97
CNEL:	10	22	47	101

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Harvill Av.
Road Segment: s/o Cajalco Expy.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,769 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,677 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.36%
Medium Trucks:	74.3%	5.2%	20.5%	7.20%
Heavy Trucks:	74.4%	5.9%	19.7%	5.44%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.64	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.48	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.69	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.3	63.5	61.2	68.4	68.8
Medium Trucks:	67.7	65.6	60.1	61.3	68.5	68.6
Heavy Trucks:	70.9	68.8	63.8	64.3	71.5	71.7
Vehicle Noise:	73.8	71.7	67.5	67.3	74.5	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	253	546	1,176
CNEL:	122	262	565	1,218

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Harvill Av.
Road Segment: s/o Rider St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,552 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,455 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.32%
Medium Trucks:	74.3%	5.2%	20.5%	7.24%
Heavy Trucks:	74.4%	5.9%	19.7%	5.44%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.25	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.07	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.31	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	64.7	62.9	60.6	67.8	68.2
Medium Trucks:	67.1	65.1	59.5	60.7	67.9	68.0
Heavy Trucks:	70.3	68.2	63.2	63.7	70.9	71.1
Vehicle Noise:	73.2	71.1	66.9	66.7	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	107	231	497	1,071
CNEL:	111	239	515	1,110

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,305 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	931 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.03%
Medium Trucks:	74.3%	5.2%	20.5%	6.89%
Heavy Trucks:	74.4%	5.9%	19.7%	5.08%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.16	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.23	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.55	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	62.8	61.0	58.7	65.9	66.3
Medium Trucks:	65.0	62.9	57.3	58.5	65.7	65.9
Heavy Trucks:	68.0	66.0	60.9	61.4	68.7	68.9
Vehicle Noise:	71.1	68.9	64.8	64.6	71.8	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	166	358	772
CNEL:	80	172	371	800

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,012 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	901 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.03%
Medium Trucks:	74.3%	5.2%	20.5%	6.88%
Heavy Trucks:	74.4%	5.9%	19.7%	5.09%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.30	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.37	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.68	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	62.7	60.8	58.6	65.8	66.1
Medium Trucks:	64.8	62.8	57.2	58.4	65.6	65.7
Heavy Trucks:	67.9	65.8	60.8	61.3	68.5	68.7
Vehicle Noise:	70.9	68.8	64.7	64.4	71.6	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	163	351	756
CNEL:	78	169	363	783

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,059 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,306 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.01%
Medium Trucks:	74.3%	5.2%	20.5%	6.93%
Heavy Trucks:	74.4%	5.9%	19.7%	5.06%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.69	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.73	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.09	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	64.3	62.4	60.2	67.4	67.7
Medium Trucks:	66.5	64.4	58.8	60.0	67.2	67.4
Heavy Trucks:	69.5	67.4	62.4	62.9	70.1	70.3
Vehicle Noise:	72.5	70.4	66.3	66.0	73.2	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	208	449	967
CNEL:	100	216	465	1,002

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,084 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	208 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.65%
Medium Trucks:	74.3%	5.2%	20.5%	6.91%
Heavy Trucks:	74.4%	5.9%	19.7%	5.44%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.71	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.74	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.78	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.9	54.5	52.7	50.4	57.6	58.0
Medium Trucks:	57.1	55.0	49.5	50.7	57.8	58.0
Heavy Trucks:	61.3	59.3	54.3	54.8	62.0	62.2
Vehicle Noise:	63.7	61.6	57.3	57.2	64.4	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	46	98	212
CNEL:	22	47	102	219

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Placentia St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	487 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	49 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	81.93%
Medium Trucks:	74.3%	5.2%	20.5%	9.22%
Heavy Trucks:	74.4%	5.9%	19.7%	8.85%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.32	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-24.81	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.99	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.3	47.9	46.0	43.8	51.0	51.3
Medium Trucks:	52.0	50.0	44.4	45.6	52.8	52.9
Heavy Trucks:	57.1	55.1	50.0	50.6	57.8	58.0
Vehicle Noise:	59.0	56.8	52.3	52.4	59.6	59.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	22	47	101
CNEL:	10	23	49	105

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Project
Road Name: Placentia St.
Road Segment: e/o Dwy. 2
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,077 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	108 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	91.64%
Medium Trucks:	74.3%	5.2%	20.5%	4.28%
Heavy Trucks:	74.4%	5.9%	19.7%	4.08%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-11.38	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-24.69	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.90	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.2	51.8	50.0	47.7	54.9	55.3
Medium Trucks:	52.2	50.1	44.5	45.7	52.9	53.1
Heavy Trucks:	57.2	55.2	50.1	50.6	57.9	58.1
Vehicle Noise:	59.8	57.6	53.6	53.3	60.5	60.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	25	54	116
CNEL:	12	26	56	120

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Walnut St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	305 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	31 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-17.04	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-28.00	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.49	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.6	46.2	44.3	42.1	49.3	49.6
Medium Trucks:	48.9	46.8	41.2	42.4	49.6	49.8
Heavy Trucks:	52.6	50.6	45.5	46.0	53.3	53.5
Vehicle Noise:	55.2	53.1	48.8	48.7	55.9	56.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	12	27	57
CNEL:	6	13	28	59

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Placentia St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	351 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	35 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.43	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-27.39	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.88	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.2	46.8	44.9	42.7	49.9	50.2
Medium Trucks:	49.5	47.4	41.8	43.0	50.2	50.4
Heavy Trucks:	53.2	51.2	46.2	46.7	53.9	54.1
Vehicle Noise:	55.8	53.7	49.4	49.3	56.5	56.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	29	63
CNEL:	7	14	30	65

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project | Project Name: Barker
Road Name: Harvill Av. | Job Number: 12218
Road Segment: s/o Cajalco Expy.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,502 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,650 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.68	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.64	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.13	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.3	63.5	61.2	68.4	68.7
Medium Trucks:	67.6	65.5	59.9	61.1	68.3	68.5
Heavy Trucks:	70.4	68.4	63.4	63.9	71.1	71.3
Vehicle Noise:	73.6	71.4	67.3	67.0	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	243	524	1,129
CNEL:	117	252	543	1,170

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project | Project Name: Barker
Road Name: Harvill Av. | Job Number: 12218
Road Segment: s/o Rider St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,504 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,450 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.24	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.20	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.69	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	64.7	62.9	60.6	67.8	68.2
Medium Trucks:	67.0	64.9	59.4	60.6	67.7	67.9
Heavy Trucks:	69.9	67.8	62.8	63.3	70.5	70.7
Vehicle Noise:	73.0	70.8	66.7	66.5	73.7	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	223	481	1,036
CNEL:	107	231	498	1,074

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,013 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	901 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.30	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.26	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.76	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	62.7	60.8	58.6	65.8	66.1
Medium Trucks:	64.9	62.9	57.3	58.5	65.7	65.8
Heavy Trucks:	67.8	65.7	60.7	61.2	68.5	68.6
Vehicle Noise:	70.9	68.8	64.7	64.4	71.6	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	163	350	754
CNEL:	78	168	363	782

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,708 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	871 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.45	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.41	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.91	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	62.5	60.7	58.4	65.6	66.0
Medium Trucks:	64.8	62.7	57.2	58.4	65.5	65.7
Heavy Trucks:	67.7	65.6	60.6	61.1	68.3	68.5
Vehicle Noise:	70.8	68.6	64.5	64.3	71.5	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	159	342	737
CNEL:	76	165	355	764

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,918 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,292 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.74	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.70	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.19	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	64.2	62.4	60.1	67.3	67.7
Medium Trucks:	66.5	64.4	58.9	60.1	67.2	67.4
Heavy Trucks:	69.4	67.3	62.3	62.8	70.0	70.2
Vehicle Noise:	72.5	70.3	66.2	66.0	73.2	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	96	207	445	959
CNEL:	99	214	461	994

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,861 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	186 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.19	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.64	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	54.0	52.2	49.9	57.1	57.5
Medium Trucks:	56.7	54.6	49.1	50.3	57.4	57.6
Heavy Trucks:	60.5	58.4	53.4	53.9	61.1	61.3
Vehicle Noise:	63.1	60.9	56.7	56.5	63.7	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	89	191
CNEL:	20	43	92	198

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project | Project Name: Barker
Road Name: Placentia St. | Job Number: 12218
Road Segment: e/o Patterson Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	397 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	40 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.90	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.86	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.35	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	47.3	45.5	43.2	50.4	50.8
Medium Trucks:	50.0	47.9	42.4	43.6	50.7	50.9
Heavy Trucks:	53.8	51.7	46.7	47.2	54.4	54.6
Vehicle Noise:	56.4	54.2	50.0	49.8	57.0	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	68
CNEL:	7	15	33	71

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA Without Project | Project Name: Barker
Road Name: Placentia St. | Job Number: 12218
Road Segment: e/o Dwy. 2

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	415 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	42 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.70	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.66	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.16	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.9	47.5	45.7	43.4	50.6	51.0
Medium Trucks:	50.2	48.1	42.6	43.8	50.9	51.1
Heavy Trucks:	54.0	51.9	46.9	47.4	54.6	54.8
Vehicle Noise:	56.6	54.4	50.2	50.0	57.2	57.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	33	70
CNEL:	7	16	34	73

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Walnut St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	601 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	60 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	86.91%
Medium Trucks:	74.3%	5.2%	20.5%	6.57%
Heavy Trucks:	74.4%	5.9%	19.7%	6.53%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.14	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-25.36	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.39	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.5	49.1	47.2	45.0	52.2	52.5
Medium Trucks:	51.5	49.4	43.9	45.1	52.2	52.4
Heavy Trucks:	56.7	54.7	49.6	50.2	57.4	57.6
Vehicle Noise:	58.8	56.6	52.3	52.2	59.4	59.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	46	99
CNEL:	10	22	47	102

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Placentia St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	457 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	46 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	81.54%
Medium Trucks:	74.3%	5.2%	20.5%	9.36%
Heavy Trucks:	74.4%	5.9%	19.7%	9.10%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.62	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-25.02	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.14	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.0	47.6	45.8	43.5	50.7	51.0
Medium Trucks:	51.8	49.8	44.2	45.4	52.6	52.7
Heavy Trucks:	57.0	54.9	49.9	50.4	57.6	57.8
Vehicle Noise:	58.8	56.6	52.1	52.2	59.4	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	46	99
CNEL:	10	22	47	102

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project
Road Name: Harvill Av.
Road Segment: s/o Cajalco Expy.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,410 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,741 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.38%
Medium Trucks:	74.3%	5.2%	20.5%	7.19%
Heavy Trucks:	74.4%	5.9%	19.7%	5.42%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.47	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.32	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.54	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	65.5	63.7	61.4	68.6	69.0
Medium Trucks:	67.9	65.8	60.3	61.5	68.6	68.8
Heavy Trucks:	71.0	69.0	63.9	64.4	71.7	71.9
Vehicle Noise:	74.0	71.8	67.7	67.4	74.7	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	260	559	1,205
CNEL:	125	269	579	1,248

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project
Road Name: Harvill Av.
Road Segment: s/o Rider St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,115 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,512 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.34%
Medium Trucks:	74.3%	5.2%	20.5%	7.23%
Heavy Trucks:	74.4%	5.9%	19.7%	5.43%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.09	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.91	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.16	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.3	64.9	63.0	60.8	68.0	68.3
Medium Trucks:	67.3	65.2	59.7	60.9	68.0	68.2
Heavy Trucks:	70.4	68.3	63.3	63.8	71.1	71.2
Vehicle Noise:	73.4	71.2	67.1	66.8	74.0	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	236	509	1,097
CNEL:	114	245	528	1,137

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,655 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	966 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.03%
Medium Trucks:	74.3%	5.2%	20.5%	6.89%
Heavy Trucks:	74.4%	5.9%	19.7%	5.08%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.00	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.06	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.39	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.0	61.1	58.9	66.1	66.4
Medium Trucks:	65.1	63.1	57.5	58.7	65.9	66.0
Heavy Trucks:	68.2	66.1	61.1	61.6	68.8	69.0
Vehicle Noise:	71.2	69.1	65.0	64.7	71.9	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	367	791
CNEL:	82	177	381	820

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,350 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	935 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.03%
Medium Trucks:	74.3%	5.2%	20.5%	6.89%
Heavy Trucks:	74.4%	5.9%	19.7%	5.08%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.14	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-14.21	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.52	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	62.8	61.0	58.7	65.9	66.3
Medium Trucks:	65.0	62.9	57.4	58.6	65.7	65.9
Heavy Trucks:	68.1	66.0	61.0	61.5	68.7	68.9
Vehicle Noise:	71.1	68.9	64.8	64.6	71.8	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	167	359	774
CNEL:	80	173	372	802

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,560 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,356 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.00%
Medium Trucks:	74.3%	5.2%	20.5%	6.94%
Heavy Trucks:	74.4%	5.9%	19.7%	5.06%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.53	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.56	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.93	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	64.4	62.6	60.3	67.5	67.9
Medium Trucks:	66.6	64.6	59.0	60.2	67.4	67.5
Heavy Trucks:	69.6	67.6	62.5	63.1	70.3	70.5
Vehicle Noise:	72.7	70.5	66.4	66.2	73.4	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	99	214	460	992
CNEL:	103	221	477	1,028

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,157 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	216 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.66%
Medium Trucks:	74.3%	5.2%	20.5%	6.92%
Heavy Trucks:	74.4%	5.9%	19.7%	5.43%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.56	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.59	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.64	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	54.6	52.8	50.6	57.7	58.1
Medium Trucks:	57.3	55.2	49.6	50.8	58.0	58.2
Heavy Trucks:	61.5	59.4	54.4	54.9	62.1	62.3
Vehicle Noise:	63.9	61.7	57.5	57.4	64.6	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	47	101	217
CNEL:	22	48	104	224

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project
Road Name: Placentia St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	503 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	50 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	82.13%
Medium Trucks:	74.3%	5.2%	20.5%	9.15%
Heavy Trucks:	74.4%	5.9%	19.7%	8.72%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.17	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-24.70	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.91	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.5	48.0	46.2	43.9	51.1	51.5
Medium Trucks:	52.2	50.1	44.5	45.7	52.9	53.1
Heavy Trucks:	57.2	55.1	50.1	50.6	57.9	58.0
Vehicle Noise:	59.0	56.9	52.4	52.5	59.7	59.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	22	48	103
CNEL:	11	23	49	106

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA With Project
Road Name: Placentia St.
Road Segment: e/o Dwy. 2
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,093 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	109 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	91.58%
Medium Trucks:	74.3%	5.2%	20.5%	4.32%
Heavy Trucks:	74.4%	5.9%	19.7%	4.09%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-11.32	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-24.58	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.82	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.3	51.9	50.0	47.8	55.0	55.3
Medium Trucks:	52.3	50.2	44.6	45.8	53.0	53.2
Heavy Trucks:	57.3	55.2	50.2	50.7	57.9	58.1
Vehicle Noise:	59.9	57.7	53.7	53.4	60.6	60.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	25	54	117
CNEL:	12	26	57	122

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project
Road Name: Patterson Av.
Road Segment: n/o Walnut St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	305 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	31 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-17.04	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-28.00	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.49	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.6	46.2	44.3	42.1	49.3	49.6
Medium Trucks:	48.9	46.8	41.2	42.4	49.6	49.8
Heavy Trucks:	52.6	50.6	45.5	46.0	53.3	53.5
Vehicle Noise:	55.2	53.1	48.8	48.7	55.9	56.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	12	27	57
CNEL:	6	13	28	59

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project
Road Name: Patterson Av.
Road Segment: n/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	351 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	35 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.43	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-27.39	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.88	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.2	46.8	44.9	42.7	49.9	50.2
Medium Trucks:	49.5	47.4	41.8	43.0	50.2	50.4
Heavy Trucks:	53.2	51.2	46.2	46.7	53.9	54.1
Vehicle Noise:	55.8	53.7	49.4	49.3	56.5	56.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	29	63
CNEL:	7	14	30	65

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project
Road Name: Harvill Av.
Road Segment: s/o Cajalco Expy.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,142 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,014 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.19	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.77	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.26	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	66.1	64.3	62.1	69.3	69.6
Medium Trucks:	68.4	66.3	60.8	62.0	69.2	69.3
Heavy Trucks:	71.3	69.2	64.2	64.7	71.9	72.1
Vehicle Noise:	74.4	72.3	68.2	67.9	75.1	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	129	278	599	1,290
CNEL:	134	288	620	1,336

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project
Road Name: Harvill Av.
Road Segment: s/o Rider St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,580 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,758 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.40	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.36	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.86	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.0	65.6	63.7	61.5	68.7	69.0
Medium Trucks:	67.8	65.8	60.2	61.4	68.6	68.7
Heavy Trucks:	70.7	68.6	63.6	64.1	71.4	71.5
Vehicle Noise:	73.8	71.7	67.6	67.3	74.5	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	254	547	1,178
CNEL:	122	263	566	1,220

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,051 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,205 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.04	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-13.00	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.50	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.3	63.9	62.1	59.8	67.0	67.4
Medium Trucks:	66.2	64.1	58.6	59.8	66.9	67.1
Heavy Trucks:	69.1	67.0	62.0	62.5	69.7	69.9
Vehicle Noise:	72.2	70.0	65.9	65.7	72.9	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	197	425	916
CNEL:	95	204	440	949

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,732 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,173 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.16	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-13.12	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.61	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	63.8	62.0	59.7	66.9	67.3
Medium Trucks:	66.1	64.0	58.5	59.6	66.8	67.0
Heavy Trucks:	69.0	66.9	61.9	62.4	69.6	69.8
Vehicle Noise:	72.1	69.9	65.8	65.5	72.7	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	90	194	417	899
CNEL:	93	201	433	932

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,942 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,594 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.83	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.79	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.28	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	65.1	63.3	61.0	68.2	68.6
Medium Trucks:	67.4	65.3	59.8	61.0	68.1	68.3
Heavy Trucks:	70.3	68.2	63.2	63.7	70.9	71.1
Vehicle Noise:	73.4	71.2	67.1	66.9	74.1	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	238	512	1,103
CNEL:	114	246	531	1,143

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,861 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	186 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.19	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.64	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	54.0	52.2	49.9	57.1	57.5
Medium Trucks:	56.7	54.6	49.1	50.3	57.4	57.6
Heavy Trucks:	60.5	58.4	53.4	53.9	61.1	61.3
Vehicle Noise:	63.1	60.9	56.7	56.5	63.7	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	89	191
CNEL:	20	43	92	198

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project | Project Name: Barker
Road Name: Placentia St. | Job Number: 12218
Road Segment: e/o Patterson Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	397 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	40 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.90	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.86	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.35	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	47.3	45.5	43.2	50.4	50.8
Medium Trucks:	50.0	47.9	42.4	43.6	50.7	50.9
Heavy Trucks:	53.8	51.7	46.7	47.2	54.4	54.6
Vehicle Noise:	56.4	54.2	50.0	49.8	57.0	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	68
CNEL:	7	15	33	71

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC Without Project | Project Name: Barker
Road Name: Placentia St. | Job Number: 12218
Road Segment: e/o Dwy. 2

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	415 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	42 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.70	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.66	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.16	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.9	47.5	45.7	43.4	50.6	51.0
Medium Trucks:	50.2	48.1	42.6	43.8	50.9	51.1
Heavy Trucks:	54.0	51.9	46.9	47.4	54.6	54.8
Vehicle Noise:	56.6	54.4	50.2	50.0	57.2	57.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	33	70
CNEL:	7	16	34	73

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Walnut St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	601 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	60 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	86.91%
Medium Trucks:	74.3%	5.2%	20.5%	6.57%
Heavy Trucks:	74.4%	5.9%	19.7%	6.53%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.14	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-25.36	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.39	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.5	49.1	47.2	45.0	52.2	52.5
Medium Trucks:	51.5	49.4	43.9	45.1	52.2	52.4
Heavy Trucks:	56.7	54.7	49.6	50.2	57.4	57.6
Vehicle Noise:	58.8	56.6	52.3	52.2	59.4	59.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	46	99
CNEL:	10	22	47	102

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project | Project Name: Barker
Road Name: Patterson Av. | Job Number: 12218
Road Segment: n/o Placentia St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	457 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	46 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	81.54%
Medium Trucks:	74.3%	5.2%	20.5%	9.36%
Heavy Trucks:	74.4%	5.9%	19.7%	9.10%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.62	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-25.02	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.14	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.0	47.6	45.8	43.5	50.7	51.0
Medium Trucks:	51.8	49.8	44.2	45.4	52.6	52.7
Heavy Trucks:	57.0	54.9	49.9	50.4	57.6	57.8
Vehicle Noise:	58.8	56.6	52.1	52.2	59.4	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	46	99
CNEL:	10	22	47	102

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project | Project Name: Barker
Road Name: Harvill Av. | Job Number: 12218
Road Segment: s/o Cajalco Expy.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,050 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,105 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.48%
Medium Trucks:	74.3%	5.2%	20.5%	7.17%
Heavy Trucks:	74.4%	5.9%	19.7%	5.35%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.36	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.51	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.78	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	66.3	64.5	62.2	69.4	69.8
Medium Trucks:	68.7	66.6	61.1	62.3	69.4	69.6
Heavy Trucks:	71.8	69.7	64.7	65.2	72.4	72.6
Vehicle Noise:	74.8	72.6	68.5	68.2	75.4	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	136	293	631	1,360
CNEL:	141	304	654	1,409

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project | Project Name: Barker
Road Name: Harvill Av. | Job Number: 12218
Road Segment: s/o Rider St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,191 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,819 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.44%
Medium Trucks:	74.3%	5.2%	20.5%	7.20%
Heavy Trucks:	74.4%	5.9%	19.7%	5.35%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.28	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.12	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.41	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	65.7	63.8	61.6	68.8	69.1
Medium Trucks:	68.1	66.0	60.5	61.6	68.8	69.0
Heavy Trucks:	71.2	69.1	64.1	64.6	71.8	72.0
Vehicle Noise:	74.1	72.0	67.8	67.6	74.8	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	124	266	573	1,236
CNEL:	128	276	594	1,280

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project | Project Name: Barker
Road Name: Harvill Av. | Job Number: 12218
Road Segment: s/o Placentia St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,693 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,269 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.01%
Medium Trucks:	74.3%	5.2%	20.5%	6.93%
Heavy Trucks:	74.4%	5.9%	19.7%	5.06%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.81	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.85	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.22	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	64.1	62.3	60.1	67.3	67.6
Medium Trucks:	66.3	64.3	58.7	59.9	67.1	67.3
Heavy Trucks:	69.4	67.3	62.3	62.8	70.0	70.2
Vehicle Noise:	72.4	70.3	66.2	65.9	73.1	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	204	441	949
CNEL:	98	212	456	983

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project | Project Name: Barker
Road Name: Harvill Av. | Job Number: 12218
Road Segment: s/o Orange Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,374 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,237 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.01%
Medium Trucks:	74.3%	5.2%	20.5%	6.93%
Heavy Trucks:	74.4%	5.9%	19.7%	5.06%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.92	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.96	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.33	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	64.0	62.2	59.9	67.1	67.5
Medium Trucks:	66.2	64.2	58.6	59.8	67.0	67.1
Heavy Trucks:	69.3	67.2	62.2	62.7	69.9	70.1
Vehicle Noise:	72.3	70.2	66.1	65.8	73.0	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	201	433	933
CNEL:	97	208	449	967

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,584 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,658 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.99%
Medium Trucks:	74.3%	5.2%	20.5%	6.96%
Heavy Trucks:	74.4%	5.9%	19.7%	5.05%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.65	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.67	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.07	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.3	63.5	61.2	68.4	68.8
Medium Trucks:	67.5	65.4	59.9	61.1	68.3	68.4
Heavy Trucks:	70.5	68.4	63.4	63.9	71.1	71.3
Vehicle Noise:	73.6	71.4	67.3	67.1	74.3	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	244	526	1,134
CNEL:	117	253	545	1,175

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,157 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	216 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.66%
Medium Trucks:	74.3%	5.2%	20.5%	6.92%
Heavy Trucks:	74.4%	5.9%	19.7%	5.43%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.56	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-19.59	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.64	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	54.6	52.8	50.6	57.7	58.1
Medium Trucks:	57.3	55.2	49.6	50.8	58.0	58.2
Heavy Trucks:	61.5	59.4	54.4	54.9	62.1	62.3
Vehicle Noise:	63.9	61.7	57.5	57.4	64.6	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	47	101	217
CNEL:	22	48	104	224

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project
Road Name: Placentia St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	503 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	50 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	82.13%
Medium Trucks:	74.3%	5.2%	20.5%	9.15%
Heavy Trucks:	74.4%	5.9%	19.7%	8.72%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.17	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-24.70	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.91	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.5	48.0	46.2	43.9	51.1	51.5
Medium Trucks:	52.2	50.1	44.5	45.7	52.9	53.1
Heavy Trucks:	57.2	55.1	50.1	50.6	57.9	58.0
Vehicle Noise:	59.0	56.9	52.4	52.5	59.7	59.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	22	48	103
CNEL:	11	23	49	106

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC With Project
Road Name: Placentia St.
Road Segment: e/o Dwy. 2
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,093 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	109 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	91.58%
Medium Trucks:	74.3%	5.2%	20.5%	4.32%
Heavy Trucks:	74.4%	5.9%	19.7%	4.09%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-11.32	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-24.58	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.82	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.3	51.9	50.0	47.8	55.0	55.3
Medium Trucks:	52.3	50.2	44.6	45.8	53.0	53.2
Heavy Trucks:	57.3	55.2	50.2	50.7	57.9	58.1
Vehicle Noise:	59.9	57.7	53.7	53.4	60.6	60.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	25	54	117
CNEL:	12	26	57	122

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Patterson Av.
Road Segment: n/o Walnut St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	305 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	31 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-17.04	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-28.00	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.49	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.6	46.2	44.3	42.1	49.3	49.6
Medium Trucks:	48.9	46.8	41.2	42.4	49.6	49.8
Heavy Trucks:	52.6	50.6	45.5	46.0	53.3	53.5
Vehicle Noise:	55.2	53.1	48.8	48.7	55.9	56.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	12	27	57
CNEL:	6	13	28	59

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Patterson Av.
Road Segment: n/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	351 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	35 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.43	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-27.39	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.88	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.2	46.8	44.9	42.7	49.9	50.2
Medium Trucks:	49.5	47.4	41.8	43.0	50.2	50.4
Heavy Trucks:	53.2	51.2	46.2	46.7	53.9	54.1
Vehicle Noise:	55.8	53.7	49.4	49.3	56.5	56.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	29	63
CNEL:	7	14	30	65

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Cajalco Expy.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,837 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,684 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.59	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.55	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.04	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	65.4	63.5	61.3	68.5	68.8
Medium Trucks:	67.6	65.6	60.0	61.2	68.4	68.6
Heavy Trucks:	70.5	68.5	63.4	63.9	71.2	71.4
Vehicle Noise:	73.6	71.5	67.4	67.1	74.3	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	114	247	531	1,144
CNEL:	119	255	550	1,186

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Rider St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,088 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,809 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.28	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.24	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.73	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	65.7	63.8	61.6	68.8	69.1
Medium Trucks:	68.0	65.9	60.3	61.5	68.7	68.9
Heavy Trucks:	70.8	68.8	63.7	64.3	71.5	71.7
Vehicle Noise:	74.0	71.8	67.7	67.4	74.6	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	557	1,200
CNEL:	124	268	577	1,244

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,512 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,351 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.55	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.51	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.00	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.8	64.4	62.6	60.3	67.5	67.9
Medium Trucks:	66.7	64.6	59.1	60.3	67.4	67.6
Heavy Trucks:	69.6	67.5	62.5	63.0	70.2	70.4
Vehicle Noise:	72.7	70.5	66.4	66.2	73.4	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	99	213	459	988
CNEL:	102	221	475	1,024

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,469 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,147 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.26	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-13.22	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.71	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.1	63.7	61.9	59.6	66.8	67.2
Medium Trucks:	66.0	63.9	58.4	59.6	66.7	66.9
Heavy Trucks:	68.9	66.8	61.8	62.3	69.5	69.7
Vehicle Noise:	72.0	69.8	65.7	65.4	72.6	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	191	411	886
CNEL:	92	198	426	918

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,545 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,855 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.17	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.13	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.62	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	65.8	64.0	61.7	68.9	69.3
Medium Trucks:	68.1	66.0	60.4	61.6	68.8	69.0
Heavy Trucks:	71.0	68.9	63.9	64.4	71.6	71.8
Vehicle Noise:	74.1	71.9	67.8	67.5	74.7	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	567	1,221
CNEL:	126	272	587	1,265

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,861 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	186 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.19	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.64	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	54.0	52.2	49.9	57.1	57.5
Medium Trucks:	56.7	54.6	49.1	50.3	57.4	57.6
Heavy Trucks:	60.5	58.4	53.4	53.9	61.1	61.3
Vehicle Noise:	63.1	60.9	56.7	56.5	63.7	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	89	191
CNEL:	20	43	92	198

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Placentia St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	397 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	40 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.90	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.86	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.35	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	47.3	45.5	43.2	50.4	50.8
Medium Trucks:	50.0	47.9	42.4	43.6	50.7	50.9
Heavy Trucks:	53.8	51.7	46.7	47.2	54.4	54.6
Vehicle Noise:	56.4	54.2	50.0	49.8	57.0	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	68
CNEL:	7	15	33	71

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA w/o Project w/o Interchange
Road Name: Placentia St.
Road Segment: e/o Dwy. 2
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	415 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	42 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.70	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.66	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.16	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.9	47.5	45.7	43.4	50.6	51.0
Medium Trucks:	50.2	48.1	42.6	43.8	50.9	51.1
Heavy Trucks:	54.0	51.9	46.9	47.4	54.6	54.8
Vehicle Noise:	56.6	54.4	50.2	50.0	57.2	57.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	33	70
CNEL:	7	16	34	73

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Patterson Av.
Road Segment: n/o Walnut St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	432 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	43 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	91.50%
Medium Trucks:	74.3%	5.2%	20.5%	4.98%
Heavy Trucks:	74.4%	5.9%	19.7%	3.53%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.36	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-28.00	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.49	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.3	47.8	46.0	43.8	51.0	51.3
Medium Trucks:	48.9	46.8	41.2	42.4	49.6	49.8
Heavy Trucks:	52.6	50.6	45.5	46.0	53.3	53.5
Vehicle Noise:	55.6	53.5	49.5	49.1	56.3	56.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	28	61
CNEL:	6	14	29	63

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Patterson Av.
Road Segment: n/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	542 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	54 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	92.19%
Medium Trucks:	74.3%	5.2%	20.5%	4.57%
Heavy Trucks:	74.4%	5.9%	19.7%	3.24%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.34	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-27.39	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.88	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.3	48.9	47.0	44.8	52.0	52.3
Medium Trucks:	49.5	47.4	41.8	43.0	50.2	50.4
Heavy Trucks:	53.2	51.2	46.2	46.7	53.9	54.1
Vehicle Noise:	56.4	54.2	50.3	49.8	57.0	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	68
CNEL:	7	15	33	71

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Cajalco Expy.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,119 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,712 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.99%
Medium Trucks:	74.3%	5.2%	20.5%	7.00%
Heavy Trucks:	74.4%	5.9%	19.7%	5.01%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.52	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.51	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.96	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	65.4	63.6	61.4	68.6	68.9
Medium Trucks:	67.7	65.6	60.1	61.3	68.4	68.6
Heavy Trucks:	70.6	68.5	63.5	64.0	71.2	71.4
Vehicle Noise:	73.7	71.5	67.5	67.2	74.4	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	116	249	537	1,157
CNEL:	120	258	556	1,199

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Rider St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,243 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,824 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.90%
Medium Trucks:	74.3%	5.2%	20.5%	7.06%
Heavy Trucks:	74.4%	5.9%	19.7%	5.05%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.24	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.20	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.66	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	65.7	63.9	61.6	68.8	69.2
Medium Trucks:	68.0	65.9	60.4	61.6	68.7	68.9
Heavy Trucks:	70.9	68.8	63.8	64.3	71.6	71.7
Vehicle Noise:	74.0	71.8	67.7	67.5	74.7	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	121	261	562	1,211
CNEL:	125	270	582	1,255

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,703 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,370 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.12%
Medium Trucks:	74.3%	5.2%	20.5%	6.95%
Heavy Trucks:	74.4%	5.9%	19.7%	4.93%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.48	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.51	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.00	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	64.5	62.7	60.4	67.6	68.0
Medium Trucks:	66.7	64.6	59.1	60.3	67.4	67.6
Heavy Trucks:	69.6	67.5	62.5	63.0	70.2	70.4
Vehicle Noise:	72.7	70.5	66.5	66.2	73.4	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	99	214	460	991
CNEL:	103	221	477	1,027

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,660 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,166 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.15%
Medium Trucks:	74.3%	5.2%	20.5%	6.93%
Heavy Trucks:	74.4%	5.9%	19.7%	4.92%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.18	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-13.22	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.71	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	63.8	62.0	59.7	66.9	67.3
Medium Trucks:	66.0	63.9	58.4	59.6	66.7	66.9
Heavy Trucks:	68.9	66.8	61.8	62.3	69.5	69.7
Vehicle Noise:	72.0	69.8	65.7	65.5	72.7	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	192	413	889
CNEL:	92	198	428	921

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,736 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,874 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.07%
Medium Trucks:	74.3%	5.2%	20.5%	6.98%
Heavy Trucks:	74.4%	5.9%	19.7%	4.95%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.12	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.13	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.62	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.3	65.8	64.0	61.8	68.9	69.3
Medium Trucks:	68.1	66.0	60.4	61.6	68.8	69.0
Heavy Trucks:	71.0	68.9	63.9	64.4	71.6	71.8
Vehicle Noise:	74.1	71.9	67.8	67.5	74.7	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	568	1,223
CNEL:	127	273	588	1,267

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,988 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	199 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.72%
Medium Trucks:	74.3%	5.2%	20.5%	6.60%
Heavy Trucks:	74.4%	5.9%	19.7%	4.68%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.86	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.64	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	54.3	52.5	50.3	57.4	57.8
Medium Trucks:	56.7	54.6	49.1	50.3	57.4	57.6
Heavy Trucks:	60.5	58.4	53.4	53.9	61.1	61.3
Vehicle Noise:	63.1	61.0	56.8	56.6	63.8	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	42	90	193
CNEL:	20	43	93	200

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Placentia St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	588 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	59 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	91.86%
Medium Trucks:	74.3%	5.2%	20.5%	4.76%
Heavy Trucks:	74.4%	5.9%	19.7%	3.38%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.00	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.86	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.35	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.6	49.2	47.4	45.1	52.3	52.7
Medium Trucks:	50.0	47.9	42.4	43.6	50.7	50.9
Heavy Trucks:	53.8	51.7	46.7	47.2	54.4	54.6
Vehicle Noise:	56.8	54.7	50.7	50.3	57.5	57.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	16	34	74
CNEL:	8	16	35	76

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP w/o Project w/o Interchange
Road Name: Placentia St.
Road Segment: e/o Dwy. 2
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,178 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	118 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	95.76%
Medium Trucks:	74.3%	5.2%	20.5%	2.48%
Heavy Trucks:	74.4%	5.9%	19.7%	1.76%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-10.80	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.66	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.16	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.8	52.4	50.6	48.3	55.5	55.9
Medium Trucks:	50.2	48.1	42.6	43.8	50.9	51.1
Heavy Trucks:	54.0	51.9	46.9	47.4	54.6	54.8
Vehicle Noise:	58.2	55.9	52.6	51.7	58.9	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	19	42	90
CNEL:	9	20	44	94

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Patterson Av.
Road Segment: n/o Walnut St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	305 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	31 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-17.04	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-28.00	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.49	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.6	46.2	44.3	42.1	49.3	49.6
Medium Trucks:	48.9	46.8	41.2	42.4	49.6	49.8
Heavy Trucks:	52.6	50.6	45.5	46.0	53.3	53.5
Vehicle Noise:	55.2	53.1	48.8	48.7	55.9	56.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	12	27	57
CNEL:	6	13	28	59

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Patterson Av.
Road Segment: n/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	351 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	35 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.43	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-27.39	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.88	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.2	46.8	44.9	42.7	49.9	50.2
Medium Trucks:	49.5	47.4	41.8	43.0	50.2	50.4
Heavy Trucks:	53.2	51.2	46.2	46.7	53.9	54.1
Vehicle Noise:	55.8	53.7	49.4	49.3	56.5	56.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	29	63
CNEL:	7	14	30	65

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Cajalco Expy.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,379 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,038 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.24	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.72	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.21	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	66.2	64.4	62.1	69.3	69.7
Medium Trucks:	68.5	66.4	60.9	62.0	69.2	69.4
Heavy Trucks:	71.4	69.3	64.3	64.8	72.0	72.2
Vehicle Noise:	74.5	72.3	68.2	67.9	75.1	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	130	280	603	1,300
CNEL:	135	290	625	1,347

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Rider St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,068 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,107 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.38	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.58	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.07	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	66.3	64.5	62.3	69.4	69.8
Medium Trucks:	68.6	66.5	61.0	62.2	69.4	69.5
Heavy Trucks:	71.5	69.4	64.4	64.9	72.1	72.3
Vehicle Noise:	74.6	72.5	68.4	68.1	75.3	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	133	286	617	1,329
CNEL:	138	297	639	1,377

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,522 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,652 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.67	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.63	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.12	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.3	63.5	61.2	68.4	68.8
Medium Trucks:	67.6	65.5	59.9	61.1	68.3	68.5
Heavy Trucks:	70.5	68.4	63.4	63.9	71.1	71.3
Vehicle Noise:	73.6	71.4	67.3	67.0	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	243	525	1,130
CNEL:	117	252	544	1,171

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,433 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,443 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.26	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.22	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.71	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	64.7	62.9	60.6	67.8	68.2
Medium Trucks:	67.0	64.9	59.4	60.5	67.7	67.9
Heavy Trucks:	69.9	67.8	62.8	63.3	70.5	70.7
Vehicle Noise:	73.0	70.8	66.7	66.4	73.6	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	103	222	479	1,033
CNEL:	107	231	497	1,070

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,509 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,151 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.47	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.49	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.98	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	66.4	64.6	62.3	69.5	69.9
Medium Trucks:	68.7	66.6	61.1	62.3	69.4	69.6
Heavy Trucks:	71.6	69.5	64.5	65.0	72.2	72.4
Vehicle Noise:	74.7	72.5	68.4	68.2	75.4	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	135	290	625	1,347
CNEL:	140	301	648	1,396

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,861 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	186 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.19	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.64	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	54.0	52.2	49.9	57.1	57.5
Medium Trucks:	56.7	54.6	49.1	50.3	57.4	57.6
Heavy Trucks:	60.5	58.4	53.4	53.9	61.1	61.3
Vehicle Noise:	63.1	60.9	56.7	56.5	63.7	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	89	191
CNEL:	20	43	92	198

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Placentia St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	397 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	40 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.90	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.86	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.35	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	47.3	45.5	43.2	50.4	50.8
Medium Trucks:	50.0	47.9	42.4	43.6	50.7	50.9
Heavy Trucks:	53.8	51.7	46.7	47.2	54.4	54.6
Vehicle Noise:	56.4	54.2	50.0	49.8	57.0	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	68
CNEL:	7	15	33	71

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC w/o Project w/o Interchange
Road Name: Placentia St.
Road Segment: e/o Dwy. 2
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	415 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	42 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.95%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.70	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.66	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.16	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.9	47.5	45.7	43.4	50.6	51.0
Medium Trucks:	50.2	48.1	42.6	43.8	50.9	51.1
Heavy Trucks:	54.0	51.9	46.9	47.4	54.6	54.8
Vehicle Noise:	56.6	54.4	50.2	50.0	57.2	57.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	33	70
CNEL:	7	16	34	73

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Patterson Av.
Road Segment: n/o Walnut St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	432 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	43 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	91.50%
Medium Trucks:	74.3%	5.2%	20.5%	4.98%
Heavy Trucks:	74.4%	5.9%	19.7%	3.53%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.36	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-28.00	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-29.49	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.3	47.8	46.0	43.8	51.0	51.3
Medium Trucks:	48.9	46.8	41.2	42.4	49.6	49.8
Heavy Trucks:	52.6	50.6	45.5	46.0	53.3	53.5
Vehicle Noise:	55.6	53.5	49.5	49.1	56.3	56.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	28	61
CNEL:	6	14	29	63

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Patterson Av.
Road Segment: n/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	542 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	54 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	92.19%
Medium Trucks:	74.3%	5.2%	20.5%	4.57%
Heavy Trucks:	74.4%	5.9%	19.7%	3.24%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.34	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-27.39	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.88	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.3	48.9	47.0	44.8	52.0	52.3
Medium Trucks:	49.5	47.4	41.8	43.0	50.2	50.4
Heavy Trucks:	53.2	51.2	46.2	46.7	53.9	54.1
Vehicle Noise:	56.4	54.2	50.3	49.8	57.0	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	68
CNEL:	7	15	33	71

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Harvill Av.
Road Segment: s/o Cajalco Expy.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,661 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,066 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.98%
Medium Trucks:	74.3%	5.2%	20.5%	7.01%
Heavy Trucks:	74.4%	5.9%	19.7%	5.01%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.30	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.69	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.15	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	66.3	64.4	62.2	69.4	69.7
Medium Trucks:	68.5	66.4	60.9	62.1	69.2	69.4
Heavy Trucks:	71.4	69.4	64.3	64.8	72.1	72.3
Vehicle Noise:	74.5	72.4	68.3	68.0	75.2	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	131	283	609	1,311
CNEL:	136	293	631	1,359

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Harvill Av.
Road Segment: s/o Rider St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,223 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,122 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	87.91%
Medium Trucks:	74.3%	5.2%	20.5%	7.05%
Heavy Trucks:	74.4%	5.9%	19.7%	5.04%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.41	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.54	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.00	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	66.4	64.5	62.3	69.5	69.8
Medium Trucks:	68.7	66.6	61.0	62.2	69.4	69.6
Heavy Trucks:	71.6	69.5	64.5	65.0	72.2	72.4
Vehicle Noise:	74.7	72.5	68.4	68.1	75.3	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	288	621	1,339
CNEL:	139	299	644	1,387

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Harvill Av.
Road Segment: s/o Placentia St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,713 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,671 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.09%
Medium Trucks:	74.3%	5.2%	20.5%	6.97%
Heavy Trucks:	74.4%	5.9%	19.7%	4.94%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.62	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-11.63	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.12	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	65.3	63.5	61.3	68.5	68.8
Medium Trucks:	67.6	65.5	59.9	61.1	68.3	68.5
Heavy Trucks:	70.5	68.4	63.4	63.9	71.1	71.3
Vehicle Noise:	73.6	71.4	67.3	67.0	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	244	526	1,133
CNEL:	117	253	545	1,174

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Harvill Av.
Road Segment: s/o Orange Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,624 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,462 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.11%
Medium Trucks:	74.3%	5.2%	20.5%	6.96%
Heavy Trucks:	74.4%	5.9%	19.7%	4.93%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.19	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-12.22	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.71	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	64.8	62.9	60.7	67.9	68.2
Medium Trucks:	67.0	64.9	59.4	60.5	67.7	67.9
Heavy Trucks:	69.9	67.8	62.8	63.3	70.5	70.7
Vehicle Noise:	73.0	70.8	66.7	66.5	73.7	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	223	481	1,035
CNEL:	107	231	498	1,073

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Harvill Av.
Road Segment: s/o A St.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,170 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.06%
Medium Trucks:	74.3%	5.2%	20.5%	6.99%
Heavy Trucks:	74.4%	5.9%	19.7%	4.96%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.52	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.49	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.98	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	66.5	64.6	62.4	69.6	69.9
Medium Trucks:	68.7	66.6	61.1	62.3	69.4	69.6
Heavy Trucks:	71.6	69.5	64.5	65.0	72.2	72.4
Vehicle Noise:	74.7	72.6	68.5	68.2	75.4	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	135	291	626	1,350
CNEL:	140	301	649	1,399

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Rider St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,988 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	199 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	88.72%
Medium Trucks:	74.3%	5.2%	20.5%	6.60%
Heavy Trucks:	74.4%	5.9%	19.7%	4.68%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.86	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-20.15	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.64	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	54.3	52.5	50.3	57.4	57.8
Medium Trucks:	56.7	54.6	49.1	50.3	57.4	57.6
Heavy Trucks:	60.5	58.4	53.4	53.9	61.1	61.3
Vehicle Noise:	63.1	61.0	56.8	56.6	63.8	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	42	90	193
CNEL:	20	43	93	200

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Placentia St.
Road Segment: e/o Patterson Av.
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	588 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	59 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	91.86%
Medium Trucks:	74.3%	5.2%	20.5%	4.76%
Heavy Trucks:	74.4%	5.9%	19.7%	3.38%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.00	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.86	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.35	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.6	49.2	47.4	45.1	52.3	52.7
Medium Trucks:	50.0	47.9	42.4	43.6	50.7	50.9
Heavy Trucks:	53.8	51.7	46.7	47.2	54.4	54.6
Vehicle Noise:	56.8	54.7	50.7	50.3	57.5	57.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	16	34	74
CNEL:	8	16	35	76

Tuesday, March 12, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC w/o Project w/o Interchang
Road Name: Placentia St.
Road Segment: e/o Dwy. 2
Project Name: Barker
Job Number: 12218

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,178 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	118 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	68.6%	11.3%	20.1%	95.76%
Medium Trucks:	74.3%	5.2%	20.5%	2.48%
Heavy Trucks:	74.4%	5.9%	19.7%	1.76%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-10.80	0.31	-1.20	-4.65	0.000	0.000
Medium Trucks:	77.72	-26.66	0.34	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.16	0.34	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.8	52.4	50.6	48.3	55.5	55.9
Medium Trucks:	50.2	48.1	42.6	43.8	50.9	51.1
Heavy Trucks:	54.0	51.9	46.9	47.4	54.6	54.8
Vehicle Noise:	58.2	55.9	52.6	51.7	58.9	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	19	42	90
CNEL:	9	20	44	94

Tuesday, March 12, 2019

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APPENDIX 9.1:

CADNAA NOISE MODEL INPUTS

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12218

CadnaA Noise Prediction Model
12218_35 GRID.cna
Date:
07.12.19
Analyst:
B. Lawson

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	39.4	39.4	46.1	0.0	0.0	0.0		x	Total	5.00	r	6257313.90	2245945.71	476.43
R2		R2	42.5	42.5	49.1	0.0	0.0	0.0		x	Total	5.00	r	6258228.48	2245144.32	470.41
R3		R3	40.5	40.5	47.2	0.0	0.0	0.0		x	Total	5.00	r	6258308.78	2244708.12	472.68
R4		R4	36.7	36.7	43.4	0.0	0.0	0.0		x	Total	5.00	r	6257650.14	2244492.19	481.78
R5		R5	41.5	41.5	48.1	0.0	0.0	0.0		x	Total	5.00	r	6257054.44	2245394.97	480.19

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates	
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)
Point_01		AC_01	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	5.00	g	6257331.70	2245775.83
Point_02		AC_02	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	5.00	g	6257333.00	2245630.50
Point_05		AC_05	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	5.00	g	6258014.20	2244820.84
Point_06		AC_06	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	5.00	g	6258014.20	2244731.31
Point_04		AC_04	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	5.00	g	6257338.19	2244722.23
Point_03		AC_03	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	5.00	g	6257339.49	2244814.36

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	D
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night			
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)	
PARKING		PARKING00007	73.4	73.4	73.4	34.3	34.3	34.3	Lw	73.4		0.0	0.0	0.0							0.0	500	(r
PARKING		PARKING00008	73.4	73.4	73.4	33.7	33.7	33.7	Lw	73.4		0.0	0.0	0.0							0.0	500	(r
DISTRIBUTION		DISTRIBUTION00001	94.5	94.5	94.5	53.5	53.5	53.5	Lw	94.5		0.0	0.0	0.0							0.0	500	(r
DISTRIBUTION		DISTRIBUTION00002	94.5	94.5	94.5	53.8	53.8	53.8	Lw	94.5		0.0	0.0	0.0							0.0	500	(r

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			
			left	right		horz.	vert.	Begin		End	
					(ft)	(ft)	(ft)	(ft)		(ft)	
BARRIERPLANNED		BARRIERPLANNED00001						14.00	r		
BARRIERRECOMMENDED		BARRIERRECOMMENDED00002						14.00	r		
PARAPET		PARAPET00001						8.00	g	8.00	g

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(ft)	
BUILDING		BUILDING00001	x	0		35.00	r
BUILDING		BUILDING00002	x	0		14.00	r
BUILDING		BUILDING00003	x	0		14.00	r
BUILDING		BUILDING00004	x	0		14.00	r
BUILDING		BUILDING00005	x	0		14.00	r
BUILDING		BUILDING00006	x	0		14.00	r
BUILDING		BUILDING00007	x	0		14.00	r
BUILDING		BUILDING00008	x	0		14.00	r
BUILDING		BUILDING00009	x	0		14.00	r
BUILDING		BUILDING00010	x	0		14.00	r
BUILDING		BUILDING00011	x	0		14.00	r
BUILDING		BUILDING00012	x	0		14.00	r
BUILDING		BUILDING00013	x	0		14.00	r
BUILDING		BUILDING00014	x	0		25.00	r
BUILDING		BUILDING00015	x	0		25.00	r
BUILDING		BUILDING00016	x	0		14.00	r
BUILDING		BUILDING00017	x	0		25.00	r

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APPENDIX 9.2:

PROJECT SITE PLAN AND ELEVATIONS

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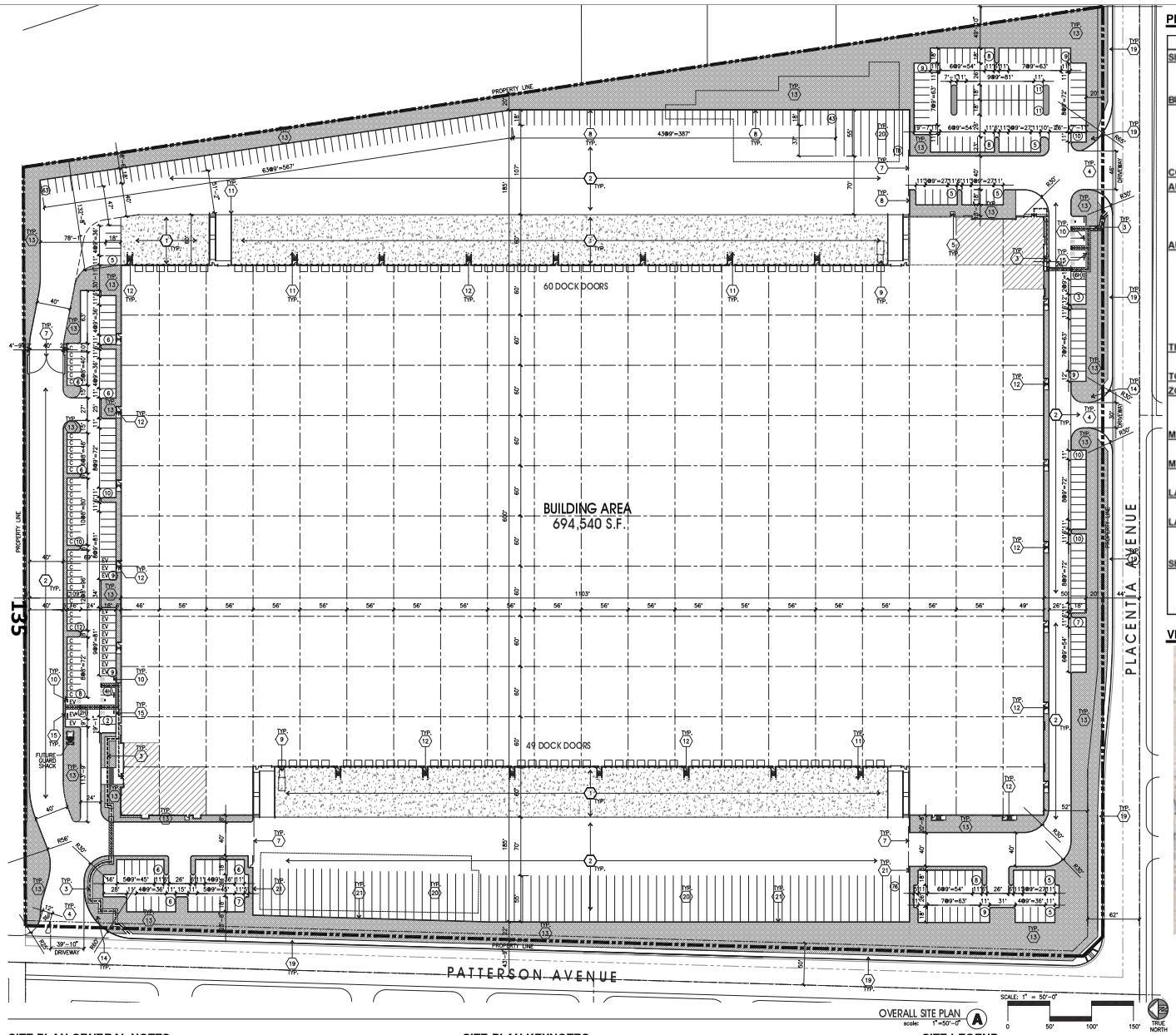

OVERALL SITE PLAN (A)
scale: 1"=50'-0"

SCALE: 1" = 50'-0"
0 50' 100' 150'
TRUE NORTH

PROJECT DATA

SITE AREA		
In s.f.		1,315,102 s.f.
In acres		30.19 ac
BUILDING AREA		
Office - 1st floor		5,000 s.f.
Office - 2nd floor		5,000 s.f.
Warehouse		684,540 s.f.
TOTAL		694,540 s.f.
COVERAGE		52.8%
AUTO PARKING REQUIRED		69454000.00%
Office:	1/250 s.f.	40 stalls
Whse:	1/2000 s.f.	343 stalls
TOTAL		383 stalls
AUTO PARKING PROVIDED		
Standard (9' x 18')		311 stalls
EV		16 stalls
EV(Accessible)		4 stalls
Accessible (9' x 18')		8 stalls
Compact (8' x 16')(25%)		43 stalls
TOTAL		382 stalls
TRAILER PARKING PROVIDED		
Trailer (10' x 55')		86 stalls
TOTAL PARKING		468 stalls
ZONING ORDINANCE FOR CITY		
Zoning Designation - Light Industrial		
Mead Valley Plan		
MAXIMUM BUILDING HEIGHT ALLOWED		
Height - to be verified		
MAXIMUM FLOOR AREA RATIO		
FAR - 0.25-0.60		
LANDSCAPE REQUIREMENT		
Percentage - 10%		
LANDSCAPE PROVIDED		
In percentage -		10.8%
In s.f. -		142,301 s.f.
SETBACKS		
Building		Parking/Landscape
Front -20', 50' if abuts R zone		20'
Side/Rear - 0'		0

VICINITY MAP

SITE PLAN GENERAL NOTES

1. THE SOILS REPORT PREPARED BY NOR CAL GEOTECHNICAL ON _____ AND SHOULD BE A PART OF THESE CONTRACT DOCUMENTS.
2. IF SOILS ARE EXPANSIVE IN NATURE, USE STEEL REINFORCING FOR ALL SITE CONCRETE.
3. ALL DIMENSIONS ARE TO THE FACE OF CONCRETE WALL, FACE OF CONCRETE CURB OR GRID LINE U.N.O.
4. SEE "C" PLANS FOR ALL CONCRETE CURBS, GUTTERS AND SWALES. DETAILS ON SHEET AD.1 ARE MINIMUM STANDARDS.
5. THE ENTIRE PROJECT SHALL BE PERMANENTLY MAINTAINED WITH AN AUTOMATIC IRRIGATION SYSTEM, PRIOR TO INSTALLATION & AT LEAST 60 DAYS BEFORE BLDG. COMPLETION.
6. SEE "C" DRAWINGS FOR POINT OF CONNECTIONS TO OFF-SITE UTILITIES. CONTRACTOR SHALL VERIFY ACTUAL UTILITY CONTRACTOR SHALL VERIFY ACTUAL UTILITY LOCATIONS.
7. PROVIDE POSITIVE DRAINAGE AWAY FROM BLDG. SEE "C" DRAWINGS.
8. CONTRACTOR TO REFER TO "C" DRAWINGS FOR ALL HORIZONTAL CONTROL DIMENSIONS. SITE PLANS ARE FOR GUIDANCE AND STARTING LAYOUT POINTS.
9. SEE "C" DRAWINGS FOR FINISH GRADE ELEVATIONS.
10. CONCRETE SIDEWALKS TO BE A MINIMUM OF 4" THICK W/ TOOLED JOINTS AT 6' O.C. EXPANSION/CONSTRUCTION JOINTS SHALL BE A MAXIMUM 12' EA. WAY W/ 1/20 MAX. SLOPE. EXPANSION JOINTS TO HAVE COMPRESSIVE EXPANSION FILLER MATERIAL OF 1/4". SEE "L" DRAWINGS FOR FINISH.
11. FOR TRUCK TURNING TEMPLATE SEE TRUCK TURNING EXHIBIT.
12. PAINT CURBS AND PROVIDE SIGNS TO INFORM OF FIRE LANES AS REQUIRED BY FIRE DEPARTMENT.
13. CONSTRUCTION DOCUMENTS PERTAINING TO THE LANDSCAPE AND IRRIGATION OF THE ENTIRE PROJECT SITE SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT AND APPROVED BY PUBLIC FACILITIES DEVELOPMENT PRIOR TO ISSUANCE OF BUILDING PERMITS.
14. PRIOR TO FINAL COUNTY INSPECTION, THE LANDSCAPE ARCHITECT SHALL SUBMIT A CERTIFICATE OF COMPLETION TO PUBLIC FACILITIES DEVELOPMENT.
15. ALL LANDSCAPE AND IRRIGATION DESIGNS SHALL MEET CURRENT COUNTY STANDARDS AS LISTED IN GUIDELINES OR AS OBTAINED FROM PUBLIC FACILITIES DEVELOPMENT.
16. LANDSCAPED AREAS SHALL BE DELINEATED WITH A MINIMUM SIX INCHES (6") HIGH CURB
17. APPROVED CONCEPTUAL LANDSCAPE PLAN PRIOR TO GRADING PERMIT

SITE PLAN KEYNOTES

1. HEAVY BROOM FINISH PORTLAND CONC. CEMENT PAVEMENT
2. ASPHALT CONCRETE (AC) PAVING
3. CONCRETE WALKWAY
4. DRIVEWAY APRONS TO BE CONSTRUCTED PER "L" DRAWINGS.
5. 5'-6"X5'-6"X4" MIN. THICK CONCRETE EXTERIOR LANDING PAD TYP. AT ALL EXTERIOR MAN DOORS TO LANDSCAPED AREAS. FINISH TO BE MEDIUM BROOM FINISH. SLOPE TO BE 1/4" : 12" MAX. PROVIDE WALK TO PUBLIC WAY OR DRIVE WAY W/ 1:20 MAX. AS REQ. BY COUNTY INSPECTOR.
6. BREAK AREA PATIO. SEE LANDSCAPE PLANS
7. PROVIDE METAL MANUAL OPERATED GATES W/ KNOX-PAD LOCK PER FIRE DEPARTMENT STANDARDS PER DRIVEWAY.
8. 17' HIGH SCREEN WALL
9. APPROXIMATE LOCATION OF TRASH COMPACTOR.
10. PRE-CAST CONC. WHEEL STOP
11. CONC. FILLED GUARD POST "6 DIA. U.N.O. 42" H,
12. EXTERIOR CONC. STAIR.
13. LANDSCAPE. SEE "L" DWGS. LANDSCAPE AREAS INDICATED BY SHADED PATTERN.
14. HANDICAPPED ENTRY SIGN.
15. HANDICAPPED PARKING STALL SIGN
16. BICYCLE RACKS
17. APPROXIMATE LOCATION OF THE TRANSFORMER
18. MAX 2:1 SLOPE. SEE CIVIL PLANS.
19. CONCRETE SIDEWALK. SEE CIVIL PLAN.
20. 10'X55' TRAILER STALLS.
21. 14' HIGH SCREEN WALL W/ ROLLING GATE.
22. 8' HIGH TUBULAR STEEL FENCE.
23. CONCRETE RETAINING WALL, SEE CIVIL FOR DESIGN. PAINT TO MATCH PRIMARY BUILDING COLOR.
24. 8' MULTI-PURPOSE TRAIL

SITE LEGEND

- LANDSCAPED AREA
- AC. PAVING - SEE "C" DRWGS. FOR THICKNESS
- CONCRETE PAVING SEE "C" DRWGS. FOR THICKNESS
- 24' MIN. WIDE FIRE APPARATUS ACCESS ROAD. ROAD TO BE IDENTIFIED WITH PAINTED RED CURBS AND MARKED 'FIRE LANE--NO PARKING' PER CO. OF RIVERSIDE FIRE DEPT.
- STANDARD PARKING STALL (9' X 18')
- HANDICAP PARKING STALL (9' X 18')
- E.V. FUEL EFFICIENT VEHICLE STALL (9' X 18')
- C.P. CARPOOL VEHICLE STALL (9' X 18')
- C. COMPACT VEHICLE STALL (8' X 16')
- LIGHT STANDARD
- PRIVATE FIRE HYDRANT- APPROXIMATE LOCATION
- —W— WATER LINE - SEE CIVIL
- —G— GAS LINE - SEE CIVIL
- —S— SEWER LATERAL- SEE CIVIL

OFFICIAL USE ONLY

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Project:

BARKER LOGISTICS

Riverside Placentia & Patterson Ave
City of Riverside, CA

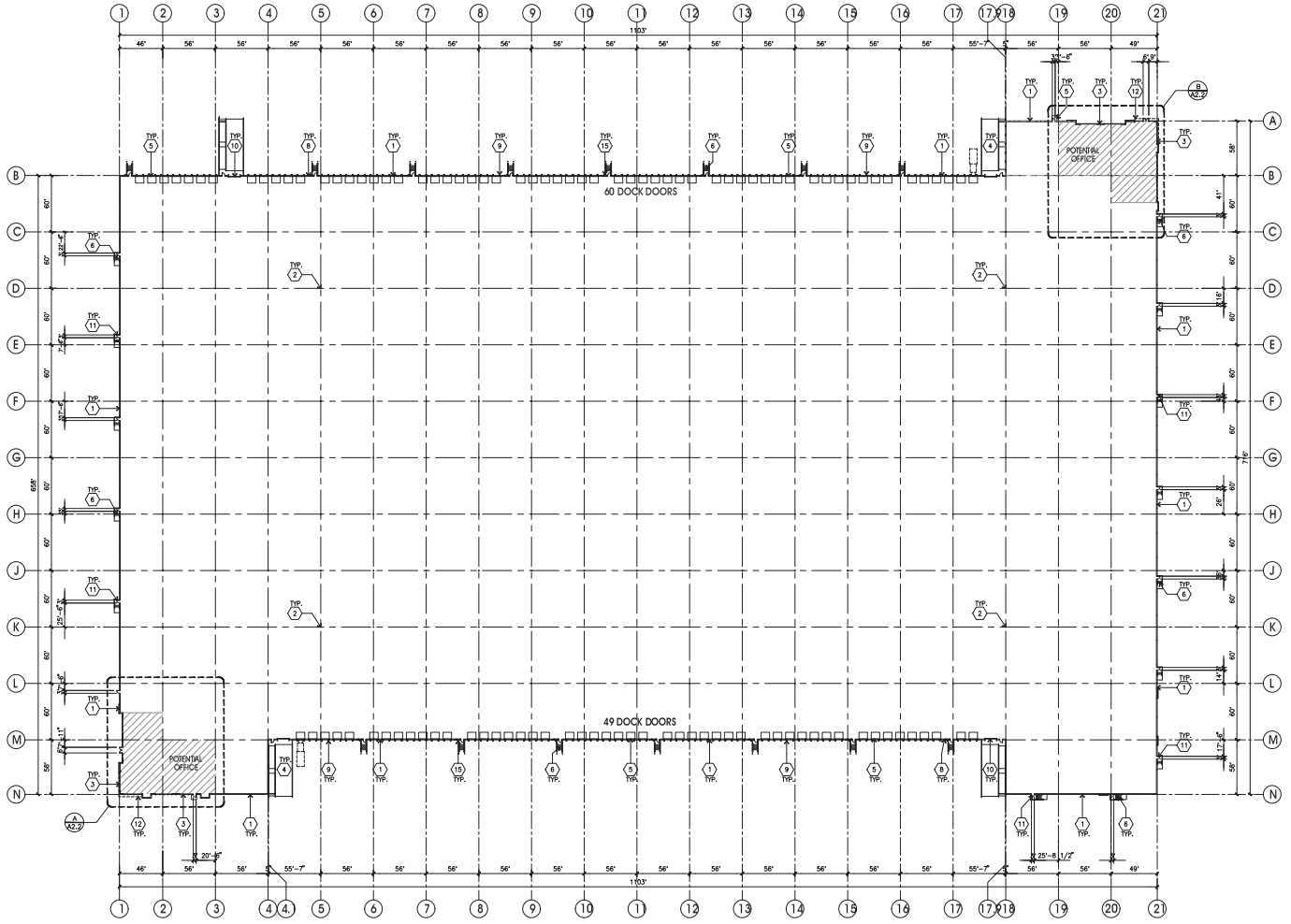
Consultants:

CIVIL	SDH & ASSOCIATES
STRUCTURAL	HSA
MECHANICAL	
PLUMBING	
ELECTRICAL	
LANDSCAPE	SPLA, Inc
FIRE PROTECTION	
SOILS ENGINEER	

Title: OVERALL SITE PLAN

Project Number: 18460
Drawn by: AW
Date: 7/23/19
Revision:

Sheet: DAB-A1.1



OVERALL FLOOR PLAN (A)
scale: 1"=50'-0"

SCALE: 1"=50'-0"
0 50' 100' 150'
TRUE NORTH

KEYNOTES - FLOOR PLAN

1. CONCRETE TILT-UP PANEL.
2. STRUCTURAL STEEL COLUMN.
3. TYPICAL STOREFRONT SYSTEM WITH GLAZING. REFER TO ENLARGED PLAN AND ELEVATIONS FOR SIZE, COLOR AND LOCATIONS.
4. CONCRETE RAMP W/ 42"HIGH CONC TILT-UP GUARD WALL OR BUILDING WALL ON BOTH SIDE OF RAMP.
5. 9'-0" X 10'-0" TRUCK DOOR, SECTIONAL O'H., STANDARD GRADE. DESIGNED TO RESIST WIND 90 MPH., EXPOSURE "C".
6. EXTERIOR CONCRETE STAIR
7. 5'-6" X 5'-6" X 4" THICK CONCRETE EXTERIOR LANDING PAD TYPICAL AT ALL EXTERIOR MAN DOORS TO LANDSCAPED AREA. FINISH TO BE MEDIUM BLOOM FINISH. SLOPE TO BE 1/4" : 12" MAX. PROVIDE WALK TO HARD SURFACE PER COUNTY REQUIREMENTS.
8. LOUVERED OPENING FOR VENTILATION.
9. DOCK DOOR BUMPER
10. 12' X 14' DRIVE THRU, SECTIONAL OH., STANDARD GRADE. DESIGNED TO RESIST WIND 90 MPH., EXPOSURE "C".
11. 3'X7' HOLLOW METAL EXTERIOR MAN DOOR. DESIGNED TO RESIST WIN 90 MPH., EXPOSURE "C".
12. METAL CANOPY
13. SOFFIT LINE ABOVE
14. ELECTRICAL ROOM
15. EXTERIOR DOWNSPOUT WITH OVERFLOW SCUPPERS
16. INTERIOR DOWNSPOUT
17. CONCRETE KNOCK-OUT PANEL
18. APPROXIMATE LOCATION OF ROOF TOP UNITS

GENERAL NOTES - FLOOR PLAN

A. THIS BUILDING IS DESIGNED FOR HIGH PILE STORAGE WITH FIRE ACCESS MAN DOORS AT 100' MAXIMUM O.C. A SEPARATE PERMIT WILL BE REQUIRED FOR ANY RACKING/CONVEYER SYSTEMS.

B. FIRE HOSE LOCATIONS SHALL BE APPROVED PER FIRE DEPARTMENT.

C. THE BUILDING FLOOR SLAB IS SLOPED, SEE "C" DRAWINGS FOR FINISH SURFACE ELEVATIONS.

D. DOCK DOORS SEALS TO BE PROVIDED DURING TENANT IMPROVEMENT

E. WAREHOUSE INTERIOR CONCRETE WALLS ARE PAINTED WHITE. COLUMNS ARE TO RECEIVE PRIMER ONLY. ALL GYP. BD. WALLS IN WAREHOUSE TO RECEIVE 1 COAT OF WHITE TO COVER.

F. SLOPE POUR STRIP 1/2" TO EXTERIOR AT ALL MANDOOR EXITS. SEE "S" DRAWINGS FOR POUR STRIP LOCATION.

G. ALL DIMENSIONS ARE TO THE FACE OF CONCRETE PANEL WALL, GRIDLINE, OR FACE OF STUD U.N.O.

H. SEE CIVIL DRAWINGS FOR POINT OF CONNECTIONS TO OFF-SITE UTILITIES. CONTRACTOR TO VERIFY ACTUAL UTILITY LOCATIONS. PLUMBING/ELECTRICAL COORDINATION.

I. FOR DOOR TYPES AND SIZES, SEE DETAIL SHEET AD.4. NOTE: ALL DOORS PER DOOR SCHEDULE ARE FINISH OPENINGS.

J. CONTRACTOR TO PROTECT AND KEEP THE FLOOR SLAB CLEAN. ALL EQUIPMENT TO BE DIAPERED INCLUDING CARS AND TRUCKS.

K. ALL EXIT MAN DOORS IN WAREHOUSE TO HAVE ILLUMINATED EXIT SIGN. HARDWARE.

L. HIGHLY FLAMMABLE AND COMBUSTIBLE MATERIAL SHALL NOT BE USED OR STORED IN THIS BUILDING.

M. EACH EXTERIOR EXIT DOOR SHALL BE IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORDS "EXIT". THE MOUNTING HEIGHT FOR SUCH SIGNAGE SHALL BE 60" FROM FINISH FLOOR LEVEL TO THE CENTER OF THE SIGN.

N. NON-ACCESSIBLE DOOR. PROVIDE WARNING SIGN LOCATED IN THE INTERIOR SIDE PER CBC 1133B.1.1.1

O. ALL ROOF MOUNTED MATERIALS SHALL BE FULLY SCREENED FROM PUBLIC VIEW, SEE A/A4.1 OFFICE SECTION.

FLOOR SLAB AND POUR STRIPS REQ.

THESE NOTES ARE VERY MIN. REQUIREMENT. SEE "S" DWGS FOR ADDITIONAL REQUIREMENTS

1. FLOOR COMPACTION – 95%
2. TRENCH COMPACTION – 90%
3. BUILDING FLOOR SLAB:
   A. 7" THICK MIN. UNREINFORCED CONCRETE OVER COMPACTED SOILS
   B. 1" – 18"LONG @ 12" O.C. DOWELS AT ALL CONSTRUCTION JOINTS
      1" – 18"LONG @ 24" O.C. DOWELS IN DOWEL BASKET AT ALL CONTROL JOINTS.
   C. 4,000 P.S.I. REQUIREMENT.
   D. SLUMP TO BE 4" +/– 1"
   E. JOINT SPACING PER A.C.I. 302-1R-96
   F. SAW-CUT DEPTH 1/4 T; SOFT SAW-CUTTING WITHIN 2 HRS OF FINISHING
4. CONTRACTOR TO BUILD FOR CLASS V FLOOR PER A.C.I. 302-1R-96
5. NOT USED
6. CONCRETE SLAB TO HAVE STEEL FLOAT HARD TROWEL BURNISHED FINISH.
7. CONTRACTOR TO CURE SLAB TO BE WET CURING USING BURLINE FOR 7 DAYS MIN.
8. ALL EQUIPMENT & MOVING VEHICLES SHALL BE DIAPERED.
9. NO CRANES, CONCRETE TRUCKS, OR ANYTHING HEAVIER WILL BE PLACED ON THE SLAB.
10. SLAB TO BE FF50 FL35 MEASURED WITHIN 24 HOURS.
11. NO FLY ASH IN THE CONCRETE
12. WHERE [ ] INDICATED, PROVIDE VAPOR BARRIER (15MIL STEGO OR EQUAL) UNDER THE CONCRETE SLAB. PROVIDE SAND PER SOILS ENGINEER OR MANUFACTURER'S RECOMMENDATION.
    CONCRETE SLAB IN FUTURE OFFICE AREAS, WHERE SAND OVER VIQUEEN ARE REQUIRED, SHALL BE NATURALLY HYDRATED WITHOUT USE OF BURLENE, CURING COMPOUND, OR RELEASE AGENTS.
    CONTROL/CONSTRUCTION JOINTS SHALL NOT BE FILLED WITH MM-80 JOINT FILLER IN FUTURE OFFICE AREAS.
13. SEAL CONCRETE SLAB W/ "LIPIDOLITH" SEALER

DISABLED ACCESS NOTES

1. EXITS MARKED WITH " ● " SHALL BE INSTALLED DIRECTIONAL SIGNAGE W/ ARROW TO INDICATE NEAREST ACCESSIBLE EXIT
2. TACTILE EXIT SIGNS SHALL BE REQUIRED AT THE FOLLOWING LOCATIONS:
   a. EACH GRADE-LEVEL EXIT DOOR MARKED WITH " ▲ ". THE TACTILE EXIT SIGN SHALL READ "EXIT."
   b. EACH EXIT DOOR (MARKED WITH " ■ ") THAT LEADS DIRECTLY TO A GRADE-LEVEL EXTERIOR EXIT BY MEANS OF A STAIRWAY OR RAMP. THE TACTILE EXIT SIGN SHALL READ "EXIT STAIR DOWN"
3. EXIT SIGN SHALL BE PROVIDED PER CBC SECTION 1011.
4. AT LEAST 1 FOOTCANDLE OF LIGHT AT FLOOR LEVEL SHALL BE PROVIDED TO MEANS OF EGRESS FROM ALL OCCUPIED PARTS OF THE BUILDING.

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BARKER LOGISTICS

Riverside Placentia & Patterson Ave
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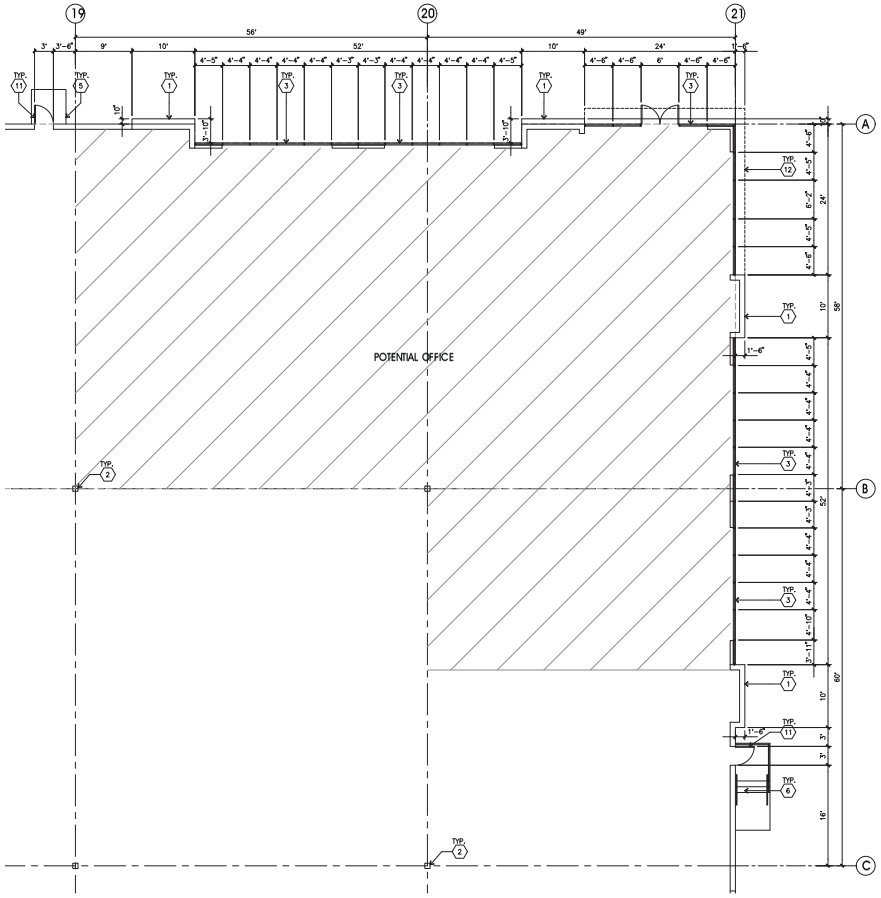
ELECTRICAL	
LANDSCAPE	SPLA, Inc
FIREPROTECTION	
SOILS ENGINEER	

Title: overall floor plan

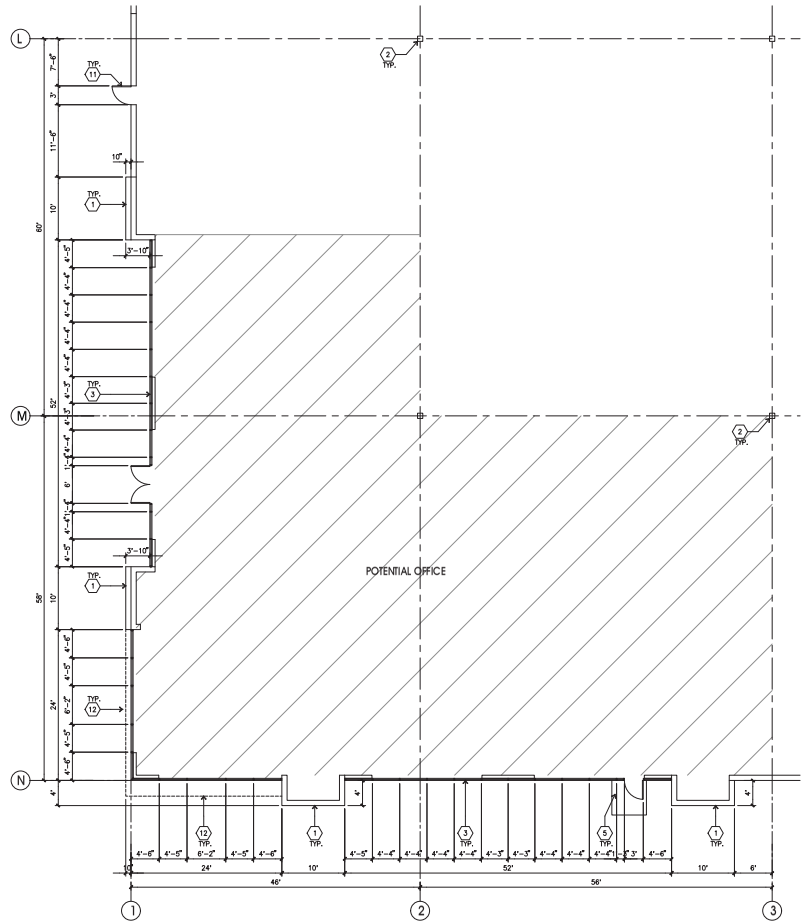
Project Number: 18460
Drawn by: AW
Date: 7/23/19
Revision:

Sheet: DAB-A2.1



ENLARGED FLOOR PLAN B
scale: 1/8"=1'-0"

SCALE: 1/8"=1'-0"
0 8' 16' 24'
TRUE NORTH



ENLARGED FLOOR PLAN A
scale: 1/8"=1'-0"

SCALE: 1/8"=1'-0"
0 8' 16' 24'
TRUE NORTH

KEYNOTES - FLOOR PLAN

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5. 9'-0" X 10'-0" TRUCK DOOR, SECTIONAL O'H., STANDARD GRADE. DESIGNED TO RESIST WIND 90 MPH., EXPOSURE "C".
6. EXTERIOR CONCRETE STAIR
7. 5'-6" X 5'-6" X 4" THICK CONCRETE EXTERIOR LANDING PAD TYPICAL AT ALL EXTERIOR MAN DOORS TO LANDSCAPED AREA. FINISH TO BE MEDIUM BLOOM FINISH. SLOPE TO BE 1/4" : 12" MAX. PROVIDE WALK TO HARD SURFACE PER COUNTY REQUIREMENTS.
8. LOUVERED OPENING FOR VENTILATION.
9. DOCK DOOR BUMPER
10. 12' X 14' DRIVE THRU, SECTIONAL OH., STANDARD GRADE. DESIGNED TO RESIST WIND 90 MPH., EXPOSURE "C".
11. 3'X7' HOLLOW METAL EXTERIOR MAN DOOR. DESIGNED TO RESIST WIN 90 MPH., EXPOSURE "C".
12. METAL CANOPY
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15. EXTERIOR DOWNSPOUT WITH OVERFLOW SCUPPERS
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18. APPROXIMATE LOCATION OF ROOF TOP UNITS

GENERAL NOTES - FLOOR PLAN

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B. FIRE HOSE LOCATIONS SHALL BE APPROVED PER FIRE DEPARTMENT.

C. THE BUILDING FLOOR SLAB IS SLOPED, SEE "C" DRAWINGS FOR FINISH SURFACE ELEVATIONS.

D. DOCK DOORS SEALS TO BE PROVIDED DURING TENANT IMPROVEMENT

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O. ALL ROOF MOUNTED MATERIALS SHALL BE FULLY SCREENED FROM PUBLIC VIEW, SEE A/A4.1 OFFICE SECTION.

FLOOR SLAB AND POUR STRIPS REQ.

THESE NOTES ARE VERY MIN. REQUIREMENT. SEE "S" DWGS FOR ADDITIONAL REQUIREMENTS

1. FLOOR COMPACTION – 95%
2. TRENCH COMPACTION – 90%
3. BUILDING FLOOR SLAB:
   A. 7" THICK MIN. UNREINFORCED CONCRETE OVER COMPACTED SOILS
   B. 1" – 18"LONG @ 12" O.C. DOWELS AT ALL CONSTRUCTION JOINTS
      1" – 18"LONG @ 24" O.C. DOWELS IN DOWEL BASKET AT ALL CONTROL JOINTS.
   C. 4,000 P.S.I. REQUIREMENT.
   D. SLUMP TO BE 4" +/– 1"
   E. JOINT SPACING PER A.C.I. 302-1R-96
   F. SAW-CUT DEPTH 1/4 T; SOFT SAW-CUTTING WITHIN 2 HRS OF FINISHING
4. CONTRACTOR TO BUILD FOR CLASS V FLOOR PER A.C.I. 302-1R-96
5. NOT USED
6. CONCRETE SLAB TO HAVE STEEL FLOAT HARD TROWEL BURNISHED FINISH.
7. CONTRACTOR TO CURE SLAB TO BE WET CURING USING BURLINE FOR 7 DAYS MIN.
8. ALL EQUIPMENT & MOVING VEHICLES SHALL BE DIAPERED.
9. NO CRANES, CONCRETE TRUCKS, OR ANYTHING HEAVIER WILL BE PLACED ON THE SLAB.
10. SLAB TO BE FF50 FL35 MEASURED WITHIN 24 HOURS.
11. NO FLY ASH IN THE CONCRETE
12. WHERE [hatched] INDICATED, PROVIDE VAPOR BARRIER (15MIL STEGO OR EQUAL) UNDER THE CONCRETE SLAB. PROVIDE SAND PER SOILS ENGINEER OR MANUFACTURER'S RECOMMENDATION.
    CONCRETE SLAB IN FUTURE OFFICE AREAS, WHERE SAND OVER VIQUEEN ARE REQUIRED, SHALL BE NATURALLY HYDRATED WITHOUT USE OF BURLENE, CURING COMPOUND, OR RELEASE AGENTS.
    CONTROL/CONSTRUCTION JOINTS SHALL NOT BE FILLED WITH MM-80 JOINT FILLER IN FUTURE OFFICE AREAS.
13. SEAL CONCRETE SLAB W/ "LIPIDOLITH" SEALER

DISABLED ACCESS NOTES

1. EXITS MARKED WITH " ● " SHALL BE INSTALLED DIRECTIONAL SIGNAGE W/ ARROW TO INDICATE NEAREST ACCESSIBLE EXIT
2. TACTILE EXIT SIGNS SHALL BE REQUIRED AT THE FOLLOWING LOCATIONS:
   a. EACH GRADE-LEVEL EXIT DOOR MARKED WITH " ▲ ". THE TACTILE EXIT SIGN SHALL READ "EXIT."
   b. EACH EXIT DOOR (MARKED WITH " ■ ") THAT LEADS DIRECTLY TO A GRADE-LEVEL EXTERIOR EXIT BY MEANS OF A STAIRWAY OR RAMP. THE TACTILE EXIT SIGN SHALL READ "EXIT STAIR DOWN"
3. EXIT SIGN SHALL BE PROVIDED PER CBC SECTION 1011.
4. AT LEAST 1 FOOTCANDLE OF LIGHT AT FLOOR LEVEL SHALL BE PROVIDED TO MEANS OF EGRESS FROM ALL OCCUPIED PARTS OF THE BUILDING.

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Project:

BARKER LOGISTICS

Riverside Placentia & Patterson Ave
City of Riverside, CA

Consultants:

CIVIL	SDH & ASSOCIATES
STRUCTURAL	HSA
MECHANICAL	
PLUMBING	
ELECTRICAL	
LANDSCAPE	SPLA, Inc
FIREPROTECTION	
SOILS ENGINEER	

Title: enlarged floor plan

Project Number: 18460
Drawn by: AW
Date: 7/23/19
Revision:

Sheet: DAB-A2.2

GENERAL NOTES - ELEVATIONS

A. ALL PAINT COLOR CHANGES TO OCCUR AT INSIDE CORNERS UNLESS NOTED OTHERWISE.
B. ALL PAINT FINISHES ARE TO BE FLAT UNLESS NOTED OTHERWISE.
C. T.O.P. EL.= TOP OF PARAPET ELEVATION.
D. F.F. = FINISH FLOOR ELEVATION.
E. STOREFRONT CONSTRUCTION: GLASS, METAL ATTACHMENTS AND LINTELS SHALL BE DESIGNED TO RESIST 90 MPH. EXPOSURE "C" WINDS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PRIOR TO INSTALLATION.
F. CONTRACTOR SHALL FULLY PAINT ONE CONCRETE PANEL W/ SELECTED COLORS. ARCHITECT AND OWNER SHALL APPROVE PRIOR TO PAINTING REMAINDER OF BUILDING.
G. BACK SIDE OF PARAPETS TO HAVE SMOOTH FINISH AND BE PAINTED WITH ELASTOMERIC PAINT.
H. FOR SPANDREL GLAZING, ALLOW SPACE BEHIND SPANDREL TO BREATH.
J. USE ADHESIVE BACK WOOD STRIPS FOR ALL REVEAL FORMS.
K. THE FIRST COAT OF PAINT TO BE ROLLED-ON AND THE SECOND COAT TO BE SPRAYED-ON

KEYNOTES - ELEVATIONS

1. CONCRETE TILT-UP PANEL(PAINTED). FINISH GRADE VARIES. SEE "C" DRAWINGS. WATERPROOF ALL WALLS WHERE GRADE IS HIGHER AND EXPOSED TO THE WEATHER ONE SIDE. WATERPROOFING TO BE PROTECTED WITH PROTECTION BOARD AND A MIN. OF 6" OF GRAVEL. PROVIDE TRENCH DRAIN AT BOTTOM AND DAYLIGHT TO CURB OR TAKE TO STORM DRAIN. NOT REQUIRED AT DOCK HIGH CONDITION OR AT RAMP WALLS.
2. PANEL JOINT.
3. PANEL REVEAL. ALL REVEALS TO HAVE A MAX. OF 3/8" CHAMFER. REVEAL COLOR TO MATCH ADJACENT BUILDING FIELD COLOR. U.N.O.
4. OVERHEAD DOOR @ DRIVE THRU. SEE DOOR SCHEDULE. PROVIDE COMPLETE WEATHER-STRIPPING PROTECTION ALL AROUND. DESIGN TO RESIST 90 MPH WIND EXPOSURE "C".
5. OVERHEAD DOOR @ DOCK HIGH. SEE DOOR SCHEDULE. PROVIDE COMPLETE WEATHER-STRIPPING PROTECTION ALL AROUND. DESIGN TO RESIST 110 MPH WIND EXPOSURE "C".
6. CONCRETE STAIR, LANDING AND GUARDRAIL W/ METAL PIPE HANDRAIL. PROVIDE NON SKID NOSING TO MEET ADA REQUIREMENTS. PROVIDE CONTRASTING COLORED 3" WIDE WARNING STRIPE INTEGRAL TO CONCRETE AT TOP LANDING AND BOTTOM TREAD PER ADA REQUIREMENTS.
7. METAL LOUVER, DESIGN TO RESIST 90 MPH WIND EXPOSURE "C". PAINT TO MATCH BUILDING COLOR
8. HOLLOW METAL DOORS. SEE DOOR SCHEDULE. PROVIDE COMPLETE WEATHER STRIPPING ALL AROUND DOOR. PROVIDE FOR RAIN DIVERTER ABOVE DOOR. DESIGN TO RESIST 90 MPH WIND EXPOSURE "C".
9. EXTERIOR DOWNSPOUT AND OVERFLOW SCUPPER
10. DOCK BUMPER
11. ALUMINUM STOREFRONT FRAMING WITH TEMPERED GLAZING AT ALL DOORS, SIDELITES ADJACENT TO DOORS AND GLAZING WITH BOTTOMS LESS THAN 18" ABOVE FINISH FLOOR ELEVATION. DESIGN TO RESIST 90 MPH WIND EXPOSURE "C".
12. EXTERIOR LIGHTING FIXTURE
13. METAL CANOPY

COLOR SCHED. - ELEVATIONS

1. CONCRETE TILT-UP PANEL PAINT BRAND: SHERWIN WILLIAMS SW7005 PURE WHITE
2. CONCRETE TILT-UP PANEL PAINT BRAND: SHERWIN WILLIAMS SW7071 GRAY SCREEN
3. CONCRETE TILT-UP PANEL PAINT BRAND: SHERWIN WILLIAMS SW7073 NETWORK GRAY
4. CONCRETE TILT-UP PANEL PAINT BRAND: SHERWIN WILLIAMS SW7074 SOFTWARE
5. CONCRETE TILT-UP PANEL PAINT BRAND: SHERWIN WILLIAMS SW7075 WEB GRAY
6. MULLIONS PAINT BRAND: CLEAR ANODIZED MULLIONS
7. GLAZING COLOR: BLUE REFLECTIVE GLAZING
9. CANOPIES/METAL PAINT BRAND: SHERWIN WILLIAMS METALLICS SW7005 PURE WHITE (ACRYLIC LATEX SYSTEMS)

GLAZING LEGEND

- SPANDREL GLASS
- TEMPERED VISION GLASS
- VISION GLASS

Height Above 35'-0"

North Elevation	Run	Dist. Above	Average Height	
Vertical Panel Shift (V.P.S.)	96	9		864
	114	10.5		1197
	88	12.5		1100
	72	14.5		1044
	88	10.5		924
	114	10.5		1197
	86	8		688
			total	7014
Total Elevation Distance				658
			Average Height Above	10.7 ft
			Additional setback required	21.3 ft

Height Above 35'-0"

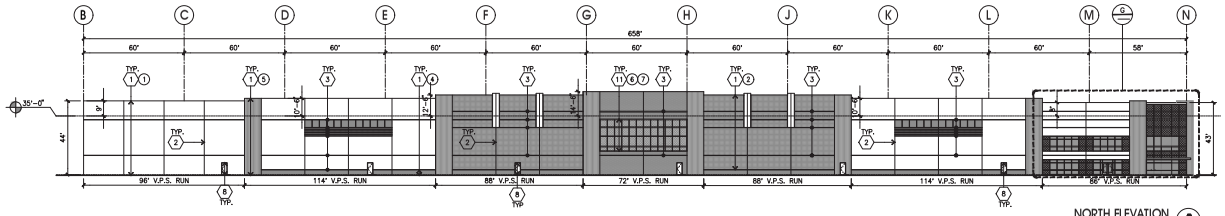
West Elevation	Run	Dist. Above	Average Height	
Vertical Panel Shift (V.P.S.)	148.5	8		1188 ft
	793	9		7137 ft
	161.5	8		1292 ft
				0 ft
				0 ft
				0 ft
				0 ft
			total	9617 ft
			Total Elevation Distance	1103 ft
			Average Height Above	8.7 ft
			Additional setback required (25ft)	17.4 ft

Height Above 35'-0"

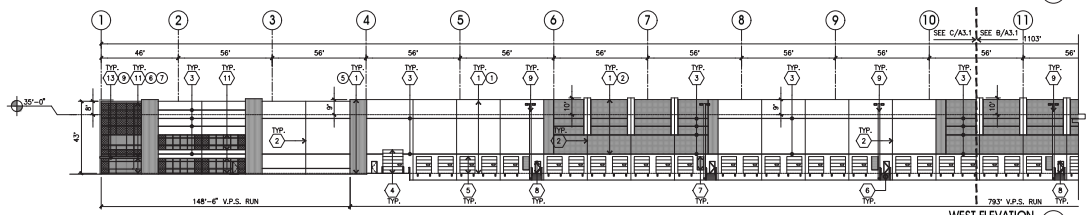
South Elevation	Run	Dist. Above	Average Height	
Vertical Panel Shift (V.P.S.)	52	8		416 ft
	50	9		450 ft
	114	10.5		1197 ft
	114	12.5		1425 ft
	72	14.5		1044 ft
	114	12.5		1425
	114	10.5		1197
	86	8		688 ft
			total	7842 ft
			Total Elevation Distance	716 ft
			Average Height Above	11.0 ft
			Additional setback required (25ft)	21.9 ft

Height Above 35'-0"

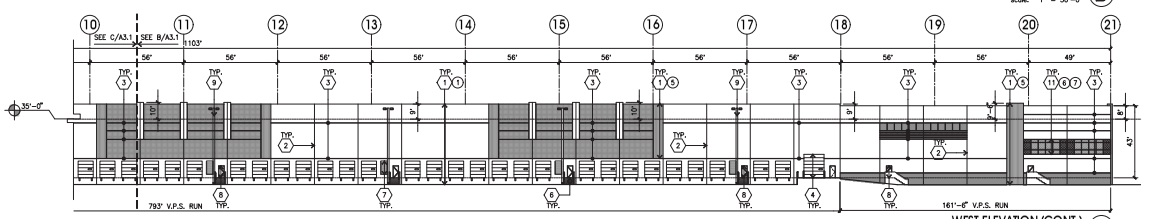
Easet Elevation	Run	Dist. Above	Average Height	
Vertical Panel Shift (V.P.S.)	151.5	8		1212 ft
	951.5	9		8563.5 ft
			total	9775.5 ft
			Total Elevation Distance	1103 ft
			Average Height Above	8.9 ft
			Additional setback required (25ft)	17.7 ft



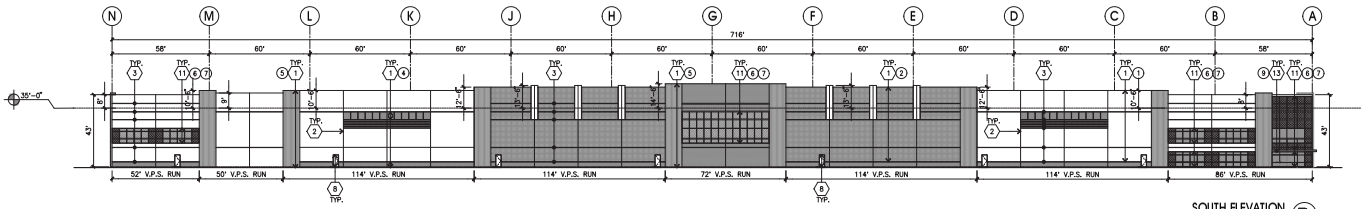
NORTH ELEVATION (A) scale: 1" = 30'-0"



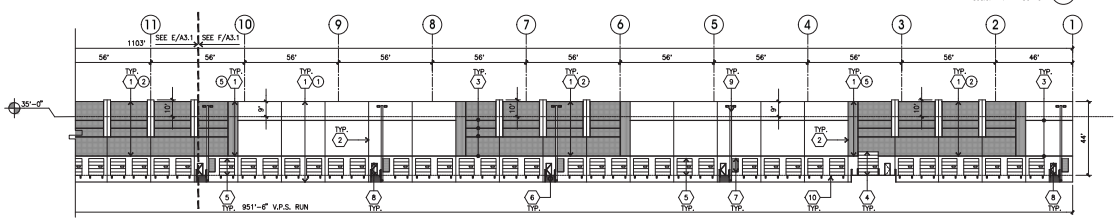
WEST ELEVATION (B) scale: 1" = 30'-0"



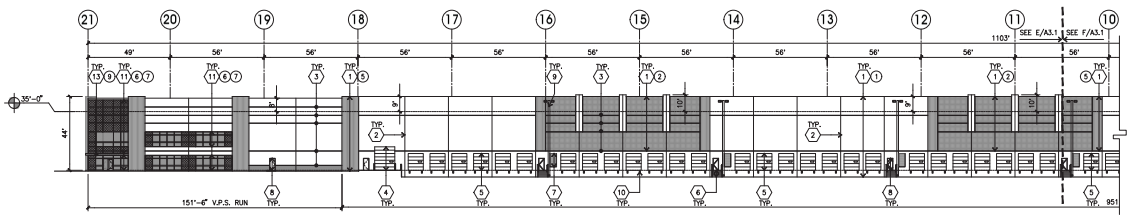
WEST ELEVATION (CONT.) (C) scale: 1" = 30'-0"



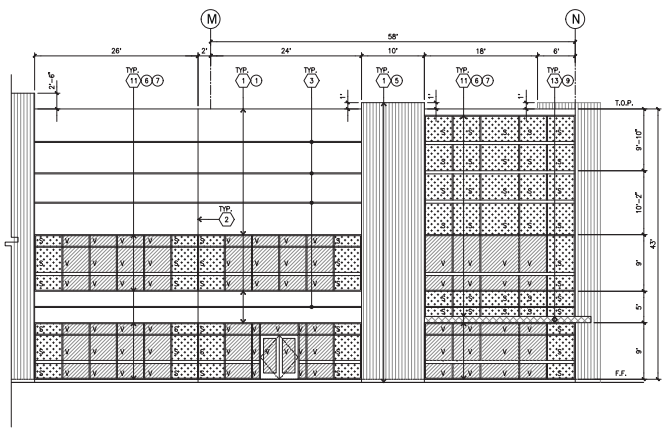
SOUTH ELEVATION (D) scale: 1" = 30'-0"



EAST ELEVATION (E) scale: 1" = 30'-0"



EAST ELEVATION (CONT.) (F) scale: 1" = 30'-0"



ENLARGED NORTH ELEVATION (G) scale: 1/8" = 1'-0"

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MECHANICAL	
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ELECTRICAL	SPLA, Inc
LANDSCAPE	
FIRE PROTECTION	
SOILS ENGINEER	

Title: ELEVATIONS

Project Number: 18460
Drawn by: AW
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URBAN CROSSROADS

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December 7, 2019

Mr. Russell Brady
Riverside County Planning Department
4080 Lemon Street, 12th Floor
Riverside, CA 92501

SUBJECT: BARKER LOGISTICS NOISE IMPACT ANALYSIS RESPONSE TO COMMENTS LETTER

Dear Mr. Russell Brady:

Urban Crossroads, Inc. is pleased to submit this Response to Comments for the Barker Logistics ("Project"), which is in the County of Riverside. This letter has been prepared in response to the November 5th, 2019 comments prepared by AECOM on the *Barker Logistics Noise Impact Analysis* ("NIA") prepared on March 15, 2019 by Urban Crossroads, Inc.

RESPONSE 1

The NIA has been revised to reflect the comment.

RESPONSE 2

The ownership restriction has been removed in the revised NIA.

RESPONSE 3

All exhibits have been updated to reflect Placentia Street.

RESPONSE 4

The reference to Exhibit 2-A has been removed.

RESPONSE 5

Section 2.5 has been modified consistent with other recent reports to read "Effective noise barriers can reduce noise levels by up to 10 to 15 dBA".

RESPONSE 6

Section 2.7 has been modified consistent with other recent reports. Reference to the 1 dBA change in sound level has been removed.

RESPONSE 7

Section 3.5 has been revised to reflect the comment.

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RESPONSE 8

Section 4.3 has been revised to reflect the comment.

RESPONSE 9

The footnotes on Table 4-2 have been updated to reflect this comment.

RESPONSE 10

A brief discussion of the Placentia Interchange was added from the Project Traffic Impact Analysis.

RESPONSE 11

Land uses adjacent to Rider Street east of Patterson Avenue have been updated to include Residential. This change has been reflected in all the subsequent tables throughout the report.

RESPONSE 12

The existing vehicle mix is generally limited to the availability of nearby vehicle classification counts. We typically try to identify a representative segment to describe the condition within the project study area. This is intended to better describe the without project conditions and requires additional work effort. Alternatively, we can start using the typical County mix data for existing conditions to describe all segments. Please advise if you feel it is better to rely on the typical County mix to describe existing without project conditions.

RESPONSE 13

Section 6.3 has been revised to reflect the comment.

RESPONSE 14

The Existing plus Project (E+P) Condition is provided for information purposes only. The first paragraph under Section 7.2 of the report indicates that while evaluation is included in the report (for consistency with the TIA) this condition will not actually occur. Therefore, no impact significance determinations are made based on E+P conditions.

RESPONSE 15

The table references in Section 7.7 were verified.

RESPONSE 16

Section 4.3 has been revised to reflect the comment.

RESPONSE 17

Entry Gate & Truck Movements have been removed from Table 9-1.

RESPONSE 18

Section 9.3 has been revised to reflect the comment.

RESPONSE 19

Comment noted.

RESPONSE 20

The operational noise analysis has been completely updated using CadnaA noise prediction software. The CadnaA noise model is better able to account for the angle of view, topography, multiple noise sources etc. In addition, the operational noise analysis has been updated to account for the planned 8-foot high parapet wall as shown on the project site plans and elevations provided in Appendix 9.2

Respectfully submitted,

URBAN CROSSROADS, INC.

Bill Lawson, P.E., INCE
Principal