EVERHOME SUITES (CUP22-18)

NOISE IMPACT ANALYSIS

CITY OF SAN BERNARDINO

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MAY 11, 2023

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
NR	Noise Reduction
Project	EVERHOME SUITES (CUP22-18)
REMEL	Reference Energy Mean Emission Level
STC	Sound Transmission Class

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to evaluate the future noise exposure of the EVERHOME SUITES (CUP22-18) ("Project"). The Project site is located at 898 E. Harriman Place (APN 028-136-127), north of Harriman Place, in the City of San Bernardino. The Project consists of the development of a 121-room hotel. This noise impact analysis was prepared to satisfy the City of San Bernardino noise level standards.

EXTERIOR NOISE LEVELS

The primary noise source affecting the Project site is traffic on Harriman Place. Based on a traffic noise analysis noise levels at the building façades will reach noise levels of up to 63.5 dBA CNEL.

INTERIOR NOISE LEVELS

Based on the analysis herein, assuming standard construction with windows in a closed position, interior noise level will range from 29 to 38.3 dBA CNEL at first-floor locations, 33.7 to 38.2 dBA CNEL at second-floor locations, 36.6 to 38.2 dBA CNEL at third-floor locations, 36.5 to 38.1 dBA CNEL at fourth-floor locations with in comply with the City of San Bernardino 45 dBA CNEL standard with windows in a closed position and mechanical ventilation, using standard construction. An interior noise analysis is provided in this noise study to demonstrate the Project satisfies the State of California and City of San Bernardino interior noise level standards (1) (2).

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1 INTRODUCTION

This noise analysis has been completed to assess noise exposure of the proposed EVERHOME SUITES (CUP22-18) ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise and vibration fundamentals, describes the applicable regulatory setting, provides the study methods and procedures for the traffic noise analysis, and evaluates the future exterior noise environment.

1.1 SITE LOCATION

The Project site is located at 898 E. Harriman Place (APN 028-136-127). The Project is located on a vacant parcel between an existing Best Buy and Residence Inn, and north of Harriman Place, in the City of San Bernardino, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The proposed Project consists of the development of 121-room hotel. The Project is shown on Exhibit 1-B.

EXHIBIT 1-A: LOCATION MAP

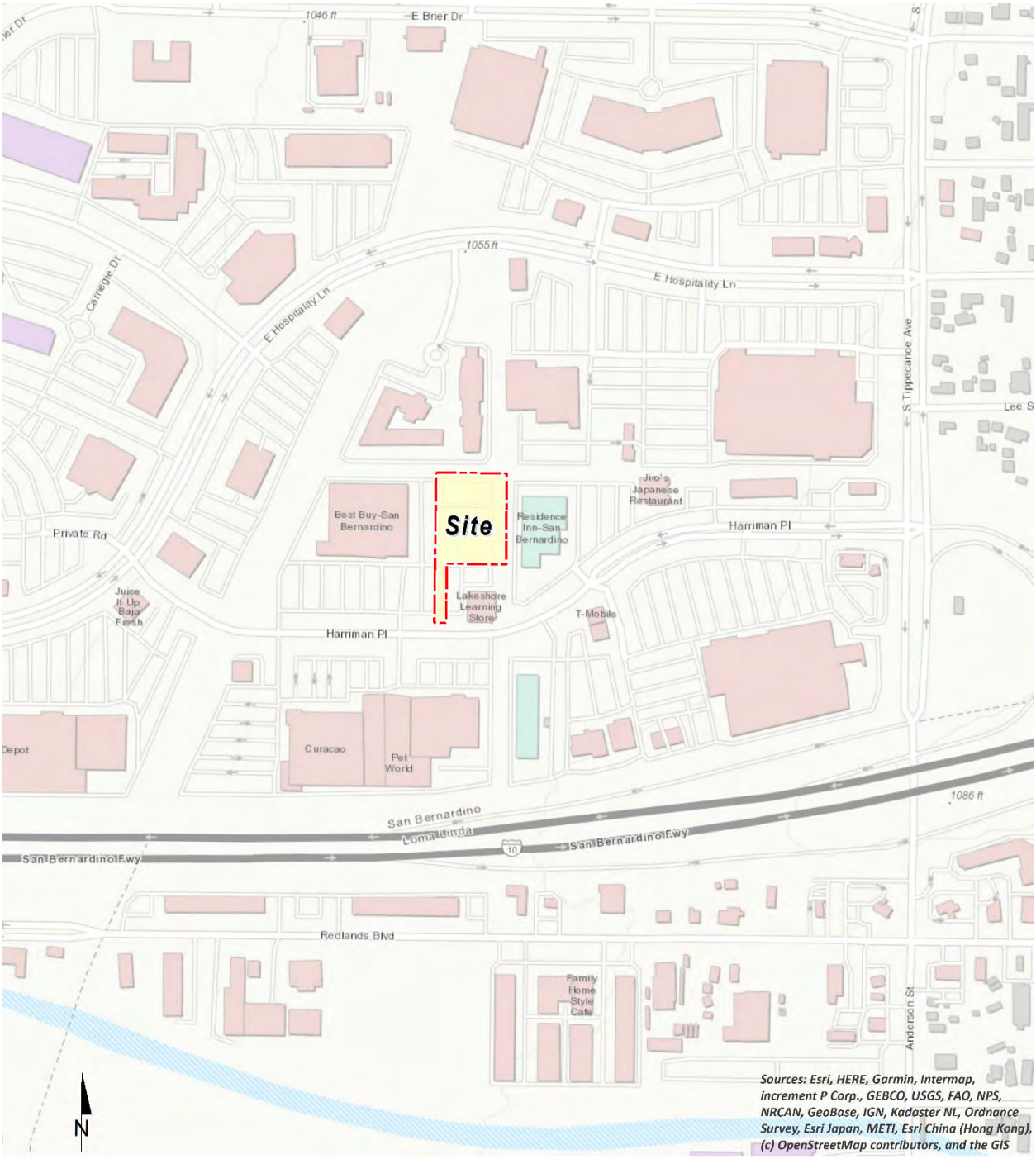
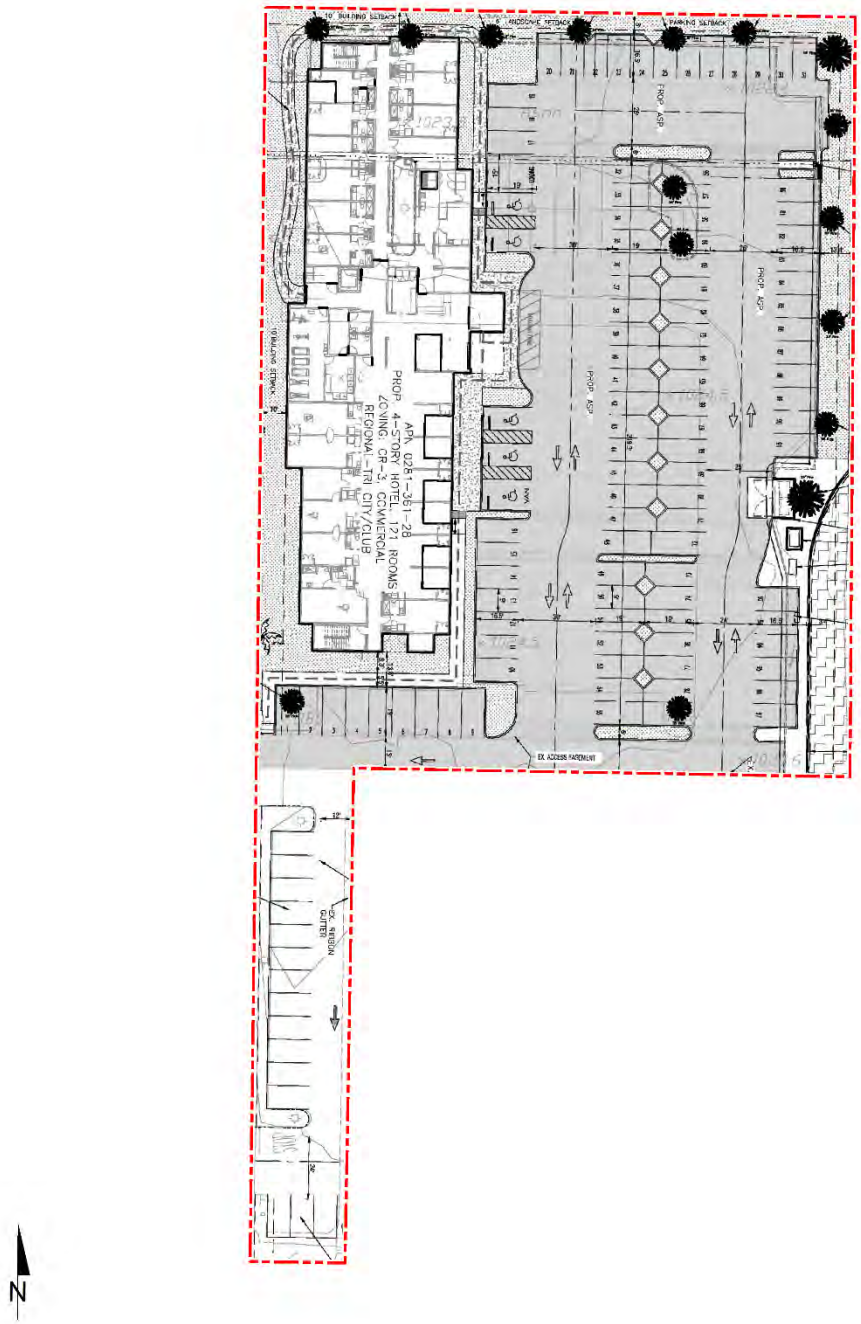


EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

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

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

2.2 NOISE DESCRIPTORS

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

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than the 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 Leq sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA Leq 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 City of San Bernardino relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (5)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a

reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source and 7.5 dB per doubling of distance from a stationary source. (6)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (5)

2.3.4 SHIELDING

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

2.4 TRAFFIC NOISE PREDICTION

Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires on the roadway. Per the *Highway Traffic Noise Analysis and Abatement Policy and Guidance,* provided by the Federal Highway Administration (FHWA), the level of traffic noise depends on three primary factors: the volume of the traffic, the speed of the traffic, and the vehicle mix within the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and a greater number of trucks. (6) A doubling of the traffic volume, assuming that the speed and vehicle mix do not change, results in a noise level increase of 3 dBA. The vehicle mix on a given roadway may also influence community noise levels. As the number of medium and heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise level impacts will increase.

2.5 NOISE CONTROL

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

2.6 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (6)

2.7 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)

2.8 COMMUNITY RESPONSE TO NOISE

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

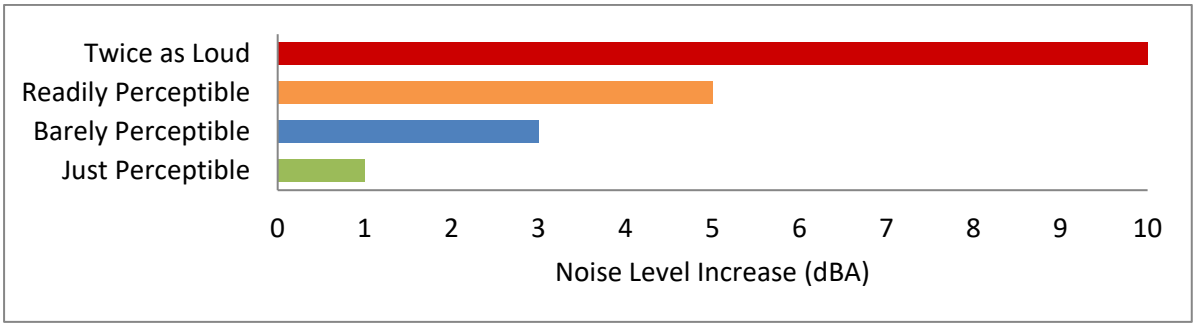
- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (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. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA is considered *barely perceptible*, and a change of 5 dBA is considered *readily perceptible*. (6)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

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

3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards for all residential units are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Chapter 12, Section 1206.4, Allowable interior noise level. These noise standards are applied to new construction that contains dwelling units or sleeping units, such as residential and hotel or motel uses, in California for controlling interior noise levels resulting from exterior noise sources. For new buildings, the acceptable interior noise limit is 45 dBA CNEL in habitable rooms (10).

3.3 CITY OF SAN BERNARDINO GENERAL PLAN NOISE ELEMENT

The City of San Bernardino General Plan Noise Element identifies several policies to minimize the impacts of excessive noise levels throughout the community. (11) The Noise Element provides policy guidance which addresses the generation, mitigation, avoidance, and the control of excessive noise. To protect City of San Bernardino residents from excessive noise levels, the Noise Element contains the following three goals:

14.1 *Ensure that residents are protected from excessive noise through careful land planning.*

14.2 *Encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations, and railroad movements.*

14.3 *Protect residents from the negative effects of "spill over" or nuisance noise.*

The noise policies specified in the City of San Bernardino Noise Element provide the guidelines necessary to satisfy these goals. To ensure that residents are not exposed to excessive noise levels (Goal 14.1), Policies 14.1.1 to 14.1.4 indicate that sensitive land uses such as housing, health care facilities, schools, libraries, and religious facilities should not experience exterior noise levels greater than 65 dBA LDN for exterior areas and 45 dBA LDN for interior areas. As discussed in Section 2.2 the more conservative CNEL descriptor is used in this analysis, and therefore, the exterior noise level criteria of 65 dBA CNEL and interior noise level criteria of 45 dBA CNEL shall apply to sensitive land uses. Policies 14.2.1 to 14.2.19 outline the transportation-related guidelines and mitigation strategies the City uses to satisfy Goal 14.2. To protect residents from sources of operational and construction noise (Goal 14.3), the Noise Element includes Policies 14.3.1 to 14.3.8 to adopt a Noise Ordinance and ensure noise issues between land uses are reduced. (11)

3.2.1 LAND USE COMPATIBILITY

The noise criteria identified in the City of San Bernardino Noise Element (Figure N-1) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The *Land Use Compatibility for Community Noise Exposure* guidelines indicate that industrial land uses, such as the Project, are considered *normally acceptable* with noise levels below 75 dBA CNEL and *conditionally acceptable* with noise levels of less than 80 dBA CNEL.

3.2.2 TRANSPORTATION NOISE STANDARDS

To encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations and railroad movements (Goal 14.2), Table N-3 of the City of San Bernardino General Plan Noise Element, shown on Exhibit 3-B, identifies a maximum allowable exterior noise level of 65 dBA CNEL and an interior noise level limit of 45 dBA CNEL for new residential developments.

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

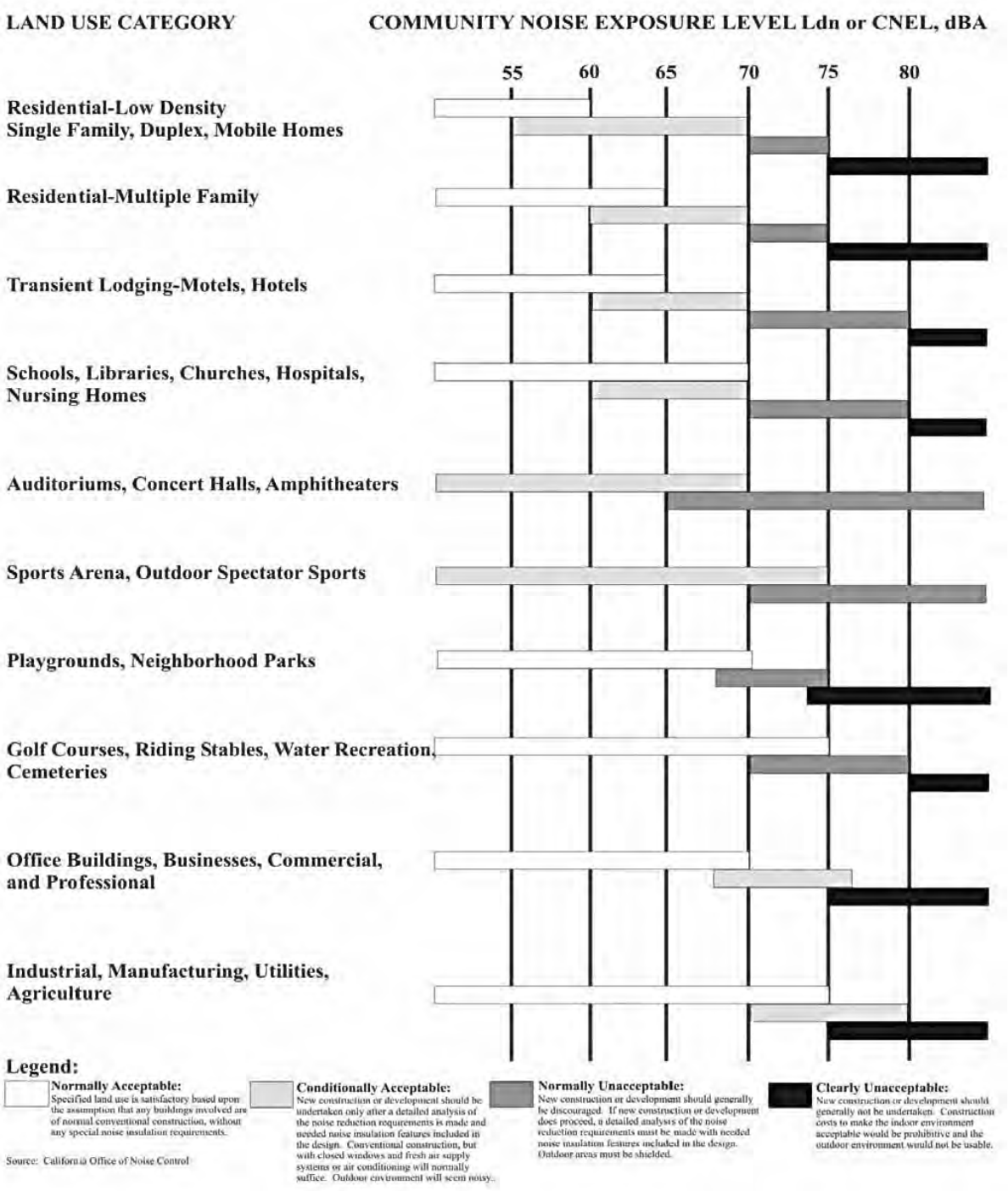


EXHIBIT 3-B: INTERIOR AND EXTERIOR NOISE STANDARDS

Land Use		*CNEL (dBA)*	
Categories	***Uses***	***Interior*** [1]	***Exterior*** [2]
Residential	Single and multi-family, duplex	45[3]	65
	Mobile homes	----	65[4]
Commercial	Hotel, motel, transient housing	45	---
	Commercial retail, bank, restaurant	55	---
	Office building, research and development, professional offices	50	---
	Amphitheater, concert hall, auditorium, movie theater	45	---
	Gymnasium (Multipurpose)	50	---
	Sports Club	55	---
	Manufacturing, warehousing, wholesale, utilities	65	---
	Movie Theaters	45	---
Institutional/ Public	Hospital, school classrooms/playgrounds	45	65
	Church, library	45	---
Open Space	Parks	---	65

[1] Indoor environment excluding: bathrooms, kitchens, toilets, closets, and corridors

[2] Outdoor environment limited to:

- Private yard of single-family dwellings
- Multi-family private patios or balconies accessed from within the dwelling (Balconies 6 feet deep or less are exempt)
- Mobile home parks
- Park picnic areas
- School playgrounds
- Hospital patios

[3] Noise level requirement with closed windows, mechanical ventilation or other means of natural ventilation shall be provided as per Chapter 12, Section 1205 of the Uniform Building Code.

[4] Exterior noise levels should be such that interior noise levels will not exceed 45 dBA CNEL.

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

3.3 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the City of San Bernardino Municipal Code has established limits to the hours of operation. Section 8.54.070 the City of San Bernardino Municipal Code, provided in Appendix 3.1, indicates that construction activity is restricted to the hours within 7:00 a.m. and 8:00 p.m. However, neither the 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*. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use (12 p. 179).

3.4 VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration (12).

To analyze vibration impacts originating from the operation and construction of the EVERHOME SUITES (CUP22-18), vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of San Bernardino does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (13 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

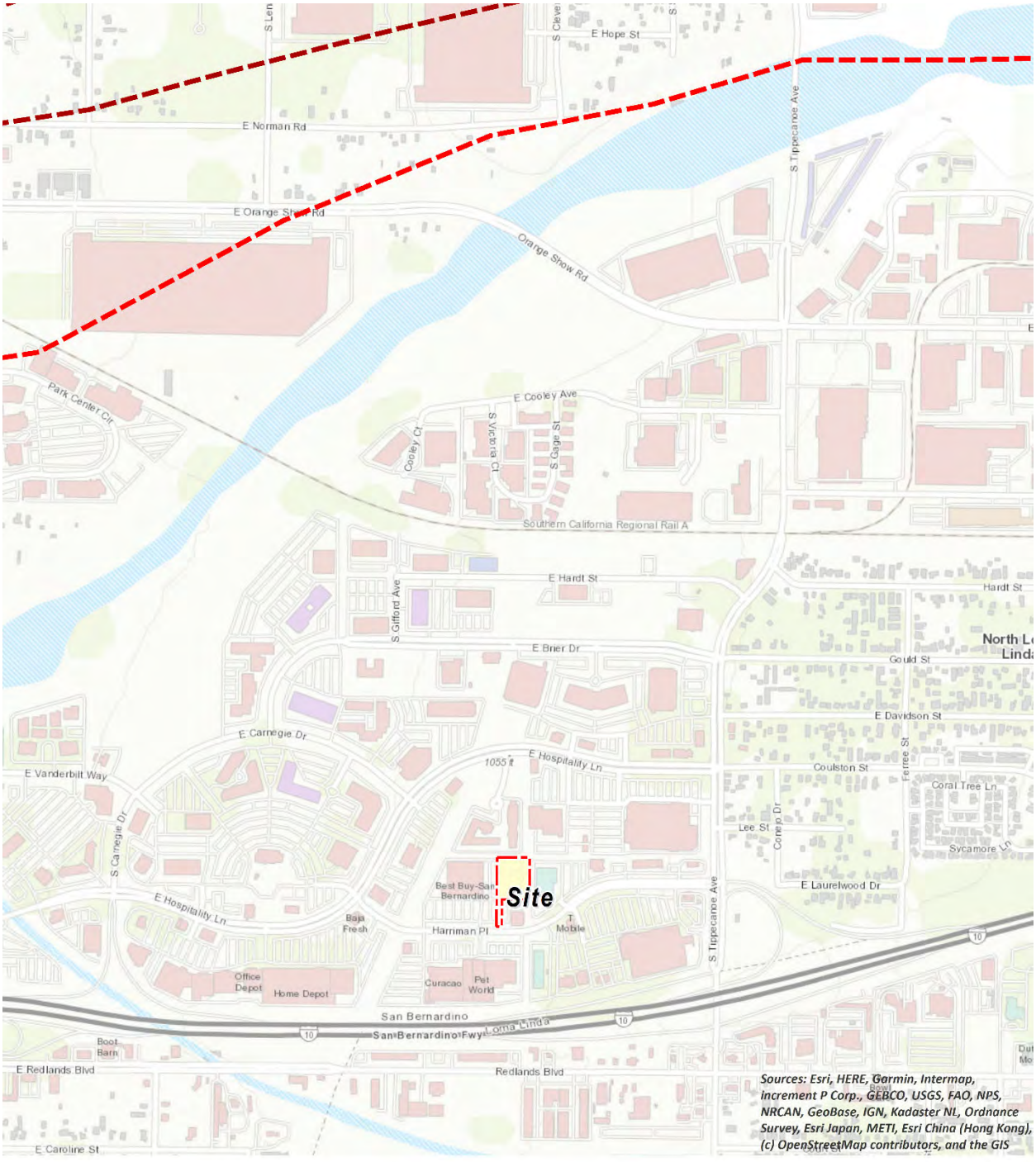
3.5 SAN BERNARDINO INTERNATIONAL AIRPORT (SBIA)

The San Bernardino International Airport (SBIA) is located approximately 1.6 miles southeast of the Project site. This places the Project site within the SBIA Influence Area. The SBIA was initially built as Norton Air Force Base by the United States Air Force (USAF). Under the Base Realignment

and Closure Act of 1990, Norton Air Force base was closed and disposed of by the USAF for a civilian aviation reuse in 1994 and transferred to the San Bernardino International Airport Authority (SBIAA). The SBIAA operates the facility as a public-use general aviation airport that accommodates aircraft ranging from piston-powered propeller aircraft to multi-engine jet aircraft including large air cargo aircraft (14). The latest aircraft noise contour boundaries for the SBIA were published by the SBIAA on July 2, 2019, as part of the Eastgate Air Cargo Facility Final Environmental Assessment (14). Figure 4-6 of the Final Environmental Assessment describes the Proposed Project CNEL Contours for the SBIA. The future SBIA noise level contours boundaries representing approximately 87,500 annual aircraft operations are shown on Exhibit 3-C.

As shown on Exhibit 3-C the Project land uses are generally located outside the 60 dBA CNEL noise level contours of the SBIA. Therefore, the Project land use is considered *normally acceptable* according to the City of San Bernardino *Community Noise and Land Use Compatibility* guidelines as shown on Exhibit 3-A.

EXHIBIT 3-C: SAN BERNARDINO INTERNATIONAL AIRPORT (SBIA) NOISE LEVEL CONTOURS



LEGEND:

65 dBA CNEL 70 dBA CNEL

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4 METHODS AND PROCEDURES

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

4.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (15) 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. (16) 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.

4.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The primary roadways of concern affecting the Project site is Harriman Place. While Interstate 10 (I-10) is south of the Project site, I-10 is over 500 feet away and is a only secondary noise source at this location. The roadway traffic noise parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 4-1. Based on the City of San Bernardino Circulation Plan, Harriman Place is classified as a 4-lane Secondary Arterial. (17) To predict the future on-site noise environment at the Project site including the daily volume thresholds were developed based on the methodologies in FHWA simplified capacity highway manual. (18) For the purposes of this analysis, soft site conditions were used to analyze the on-site traffic noise impacts for the Project. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (19)

TABLE 4-1: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification[1]	Maximum Daily Traffic Volume[2]	Posted Speed Limit (mph)[3]	Site Conditions
Harriman Pl.	4	Secondary Arterial	30,000	35	Soft

[1] Source: FHWA Simplified Capacity Highway Manual.
[2] Source: City of San Bernardino General Plan.
[3] Posted speed limit.

Table 4-2 presents the time-of-day vehicle splits by vehicle type, and Table 4-3 presents the total traffic flow distributions (vehicle mixes) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA Model based on roadway types.

TABLE 4-2: TIME OF DAY VEHICLE SPLITS

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

Source: Typical Southern California vehicle mix.

TABLE 4-3: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

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

[1] Source: Typical Southern California vehicle mix.

To predict the future noise environment within the Project site, coordinate information was collected to identify the noise transmission path between the noise source and receiver. The coordinate information is based on the site plan showing the plotting of each building in relationship to adjacent analyzed roadways, as shown in Appendix 4.1. The plans are used to identify the relationship between the roadway centerline elevation, the pad elevation and the centerline distance to the noise barrier, and the building façade. The first floor and exterior receivers were placed five feet above the existing ground elevation.

5 ON-SITE TRAFFIC NOISE IMPACTS

An on-site exterior noise impact analysis has been completed to determine the traffic noise levels and to identify if any noise abatement measures are necessary for the proposed EVERHOME SUITES (CUP22-18) Project to comply with the zoning and General Plan land use designation. The primary source of noise impacting the Project site is traffic noise from Harriman Place. Additionally, the proposed hotel use does not include an exterior uses areas, thus this analysis presents the exterior analysis to provide noise levels at the building façades for evaluating interior noise levels.

5.1 ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA Traffic Noise Model (TNM) noise model and the parameters outlined in Section 4, the expected future exterior noise levels were calculated. Table 5-1 presents a summary of future exterior noise levels. The on-site traffic noise level impacts indicate that the unmitigated exterior noise levels will range from 60.5 to 63.5 dBA CNEL. The on-site exterior traffic noise calculations are included in Appendix 5.1.

TABLE 5-1: EXTERIOR NOISE LEVELS

Room	Roadway	Unabated Exterior Noise Level (dBA CNEL)
132	Harriman Pl.	63.5
232	Harriman Pl.	63.5
219	Harriman Pl.	63.5
332	Harriman Pl.	63.5
319	Harriman Pl.	63.5
432	Harriman Pl.	63.5
419	Harriman Pl.	60.5

[1] Exterior noise level calculations are included Appendix 5.1.

According to the *Noise Levels and Land Use Compatibility Guidelines* (shown on Exhibit 3-A) in the City of San Bernardino Noise Element, the proposed Project hotel land use are normally compatible with exterior noise levels up to 65 dBA CNEL and interior noise level of 45 dBA CNEL. Based on the exterior noise levels the following analysis demonstrates the Project will comply with the City's interior noise level standard of 45 dBA CNEL.

5.2 ON-SITE INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the City of San Bernardino 45 dBA CNEL interior noise level standards, future noise levels were calculated at the first, second, third, and forth floor building façades.

5.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed" (20). However, to maintain a windows closed position, mechanical ventilation, that provides heating and cooling is necessary.

5.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Based on Table 5-1, the future unmitigated noise levels at the first-floor building façade are expected to range from 60.5 to 63.5 CNEL. The first-floor interior noise level analysis, shown in Table 5-2, demonstrates that with windows in the closed position, interior noise levels would range from 29.0 to 38.3 CNEL. The Project is capable of using the windows closed position for analysis as the units currently have mechanical ventilation with heating and cooling. Therefore, the City of San Bernardino 45 CNEL interior noise standards can be satisfied using standard windows in a closed position.

TABLE 5-2: FIRST-FLOOR INTERIOR NOISE IMPACTS

Room	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
132	63.3	18.3	25.0	No	38.3	45	No
232	63.3	18.3	25.0	No	38.3	45	No
219	60.0	15.0	25.0	No	35.0	45	No
332	63.2	18.2	25.0	No	38.2	45	No
319	56.0	11.0	25.0	No	31.0	45	No
432	63.3	18.3	25.0	No	38.3	45	No
419	54.0	9.0	25.0	No	29.0	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Minimum interior noise reduction based upon 25 dBA CNEL reduction from standard construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.

Based on Table 5-3, the future unmitigated noise levels at the second-floor building façade are expected to range from 58.7 to 63.2 CNEL. The second-floor interior noise level analysis, shown in Table 5-3, demonstrates that with windows in the closed position, interior noise levels would range from 33.7 to 38.2 CNEL. The Project is capable of using the windows closed position for analysis as the units currently have mechanical ventilation with heating and cooling. Therefore, the City of San Bernardino 45 CNEL interior noise standards can be satisfied using standard windows in a closed position.

TABLE 5-3: SECOND-FLOOR INTERIOR NOISE IMPACTS

Room	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
132	63.2	18.2	25.0	No	38.2	45	No
232	63.2	18.2	25.0	No	38.2	45	No
219	61.7	16.7	25.0	No	36.7	45	No
332	63.2	18.2	25.0	No	38.2	45	No
319	61.7	16.7	25.0	No	36.7	45	No
432	63.2	18.2	25.0	No	38.2	45	No
419	58.7	13.7	25.0	No	33.7	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Minimum interior noise reduction based upon 25 dBA CNEL reduction from standard construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.

Based on Table 5-4, the future unmitigated noise levels at the third-floor building façade are expected to range from 61.6 to 63.2 CNEL. The third-floor interior noise level analysis, shown in Table 5-4, demonstrates that with windows in the closed position, interior noise levels would range from 36.6 to 38.2 CNEL. The Project is capable of using the windows closed position for analysis as the units currently have mechanical ventilation with heating and cooling. Therefore, the City of San Bernardino 45 CNEL interior noise standards can be satisfied using standard windows in a closed position.

TABLE 5-4: THIRD-FLOOR INTERIOR NOISE IMPACTS

Room	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
132	63.2	18.2	25.0	No	38.2	45	No
232	63.2	18.2	25.0	No	38.2	45	No
219	61.7	16.7	25.0	No	36.7	45	No
332	63.1	18.1	25.0	No	38.1	45	No
319	61.6	16.6	25.0	No	36.6	45	No
432	63.2	18.2	25.0	No	38.2	45	No
419	61.6	16.6	25.0	No	36.6	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Minimum interior noise reduction based upon 25 dBA CNEL reduction from standard construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.

Based on Table 5-5, the future unmitigated noise levels at the fourth-floor building façade are expected to range from 61.5 to 63.1 CNEL. The fourth-floor interior noise level analysis, shown in Table 5-4, demonstrates that with windows in the closed position, interior noise levels would range from 36.5 to 38.1 CNEL. The Project is capable of using the windows closed position for analysis as the units currently have mechanical ventilation with heating and cooling. Therefore, the City of San Bernardino 45 CNEL interior noise standards can be satisfied using standard windows in a closed position.

TABLE 5-5: FOURTH-FLOOR INTERIOR NOISE IMPACTS

Room	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
132	63.1	18.1	25.0	No	38.1	45	No
232	63.1	18.1	25.0	No	38.1	45	No
219	61.6	16.6	25.0	No	36.6	45	No
332	63.0	18.0	25.0	No	38.0	45	No
319	61.6	16.6	25.0	No	36.6	45	No
432	63.1	18.1	25.0	No	38.1	45	No
419	61.5	16.5	25.0	No	36.5	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standards.
[3] Minimum interior noise reduction based upon 25 dBA CNEL reduction from standard construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.

6 REFERENCES

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2. **County of San Bernardino.** *Noise Ordinance 83.01.080.*
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19. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

20. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.

7 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed EVERHOME SUITES (CUP22-18) Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (619) 778-1971.

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EDUCATION

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

CITY OF SAN BERNARDINO NOISE ORDINANCE

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Chapter 8.54
NOISE CONTROL

Sections:

8.54.010 Purpose and Intent

A. It is the purpose and intent of these regulations to establish community-wide noise standards. It is further the purpose of these regulations to recognize that the existence of excessive noise within the City is a condition which is detrimental to the health, safety, welfare, and quality of life of the citizens and shall be regulated in the public interest.

B. In furtherance of the foregoing purpose, it is found and declared as follows:

1. The making, creation, or maintenance of such loud, unnecessary, unnatural, or unusual noises that are prolonged, unusual, annoying, disturbing and unnatural in their time, place, and use are a detriment to public health, comfort, convenience, safety, general welfare, and the peace and quiet of the City and its inhabitants; and

2. The public interest and necessity of the provisions and prohibitions hereinafter contained and enacted is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of, and for thepurpose of, securing and promoting the public health, comfort, convenience, safety, general welfare and property, and the peace and quiet of the City and its inhabitants.

(Ord. MC-1246, 5-23-07; Ord. 1925, 11-06-51)

8.54.020 Prohibited Acts

It shall be unlawful for any person to engage in the following activities:

A. Sounding any horn or signal device on any automobile, motorcycle, bus, or other motor vehicle in any other manner or circumstances or for any other purpose than required or permitted by the California Vehicle Code, or other laws, for an unnecessary or unreasonable period of time;

B. Racing the engine of any motor vehicle while the vehicle is not in motion, except when necessary to do so in the course of repairing, adjusting, or testing the same.

C. Operating or permitting the use of any motor vehicle on any public right-of-way or public place or on private property within a residential zone for which the exhaust muffler, intake muffler, or any other noise abatement device has been modified or changed in a manner such that the noise emitted by the motor vehicle is increased above that emitted by the vehicle as originally manufactured.

D. Using, operating, or permitting to be played, used or operated any radio receiving set, musical instrument, phonograph, or other sound amplification or production equipment for producing or reproducing sound in such a manner as to disturb the peace, quiet, or comfort of neighboring persons, or at any time with louder volume than is necessary for the convenient hearing of the person or persons who are in the room, vehicle, or other enclosure in which such machine or device is operated, and who are voluntary listeners thereto and that is:

    1. Plainly audible across property boundaries;

    2. Plainly audible through partitions common to two residences within a building;

    3. Plainly audible at a distance of 50 feet in any direction from the source of the music or sound between the hours of 8:00 a.m. and 10:00 p.m.; or

    4. Plainly audible at a distance of 25 feet in any direction from the source of the music or sound between the hours of 10:00 p.m. and 8:00 a.m.

E. The intentional sounding or permitting the sounding outdoors of any fire, burglar, or civil defense alarm, siren, whistle, or any motor vehicle burglar alarm, except for emergency purposes or for testing, unless such alarm is terminated within fifteen minutes of activation.

F. Yelling, shouting, whistling, or singing in a loud and boisterous manner on the public streets so as to disturb the quiet, comfort, or repose of persons in any office, dwelling, hotel, or other type of residence, or neighborhood.

G. The keeping of any animal, fowl, or bird which by causing frequent or long continued noise disturbs the comfort, quiet, or repose of any person or neighborhood.

H. The unnecessary or excessive blowing of whistles, sounding of horns, ringing of bells, or use of signaling devices by operators of trains, motor trucks, and other transportation equipment.

I. The creation of loud and excessive noise in connection with the loading or unloading of motor trucks and other vehicles.

J. The shouting and crying of peddlers, hawkers, and vendors which disturbs the peace and quiet of any considerable number of persons or neighborhood.

K. The doing of automobile, automotive body or fender repair work, or other work on metal objects and metal parts in a residential district so as to cause loud and excessive noise which disturbs the peace, quiet, and repose of any person occupying adjoining or closely situated property or neighborhood.

L. The operation or use between the hours of 10:00 p.m. and 8:00 a.m. of any pile driver, steam shovel, pneumatic hammers, derrick, steam or electric hoist, power driven saw, or any other tool or apparatus, the use of which is attended by loud and excessive noise, except with the approval of the City.

M. Creating excessive noise adjacent to any school, church, court, or library while the same is in use, or adjacent to any hospital or care facility, which unreasonably interferes with the workings of such institution, or which disturbs or unduly annoys patients in the hospital, provided conspicuous signs are displayed in such streets indicating the presence of a school, institution of learning, church, court, or hospital.

N. Making or knowingly and unreasonably permitting to be made any unreasonably loud, unnecessary, or unusual noise that disturbs the comfort, repose, health, peace and quiet, or which causes discomfort or annoyance to any reasonable person of normal sensitivity. The characteristics and conditions that may be considered in determining whether this section has been violated include, but are not limited to, the following:

1. The level of noise;

2. The level of background noise;

3. The proximity of the noise to sleeping facilities;

4. The nature and zoning of the areas within which the noise emanates;

5. The density of the inhabitation of the area within which the noise emanates;

6. The time of day or night the noise occurs;

7. The duration of the noise;

8. Whether the noise is recurrent, intermittent, or constant; and

9. Whether the noise is produced by a commercial or noncommercial activity.

(Ord. MC-1246, 5-23-07; Ord. 2102, 4-03-56; Ord. 1925, 11-06-51)

8.54.030 Issuance of Written Notice and Impoundment

A. Any officer who encounters a violation of this section may issue a written notice to the Responsible Person demanding immediate abatement of the violation. The written notice shall inform the recipient that a second violation of the same provision within a seventy two (72) hour period may result in the issuance of a criminal citation, the imposition of criminal and civil penalties, and confiscation and impoundment, as evidence, of the components that are amplifying or transmitting the prohibited noise.

1. Responsible Person means (a) any person who owns, leases, or is lawfully in charge of the property or motor vehicle where the noise violation takes place, or (b) any person who owns or controls the source of the noise or violation. If the Responsible Person is a minor, then the parent or guardian who has custody of the child at the time of the violation shall be the Responsible Person who is liable under this chapter.

B. Any officer who encounters a second violation of this chapter within a seventy two (72) hour period following the issuance of a written notice is empowered to confiscate and impound, as evidence, any or all of the components amplifying or transmitting the sound. The immediate confiscation of a motor vehicle to which a component is attached may be made if the same may not be removed without causing harm to the vehicle or component.

C. Any person claiming legal ownership of the items confiscated and impounded under this chapter may request the return of the item by filing a written request with the police department within seven (7) calendar days of the confiscation. Such requests shall be processed in accordance with the procedures adopted by the department.

(Ord. MC-1246, 5-23-07; Ord. MC-649, 1-04-89; Ord. 1925, 11-06-51)

8.54.040 Cost Recovery for Second Response

A. Whenever any officer issues a written notice to a responsible person to discontinue a noise violation, the Responsible Person shall be liable for the actual cost of each subsequent response required to abate the violation within seventy two (72) hours of the issuance of the written warning.

B. The bill for the response charge shall be served upon the Responsible Person within thirty (30) days after the violation. If the Responsible Person has no last known business or residence address, the location of the violation shall be deemed to be the proper address for service. The bill shall include a notice of the right of the person being charged to request a hearing to dispute the imposition of the response charge or the amount of the charge.

C. The response charge shall be deemed to be a civil debt to the City.

(Ord. MC-1246, 5-23-07; Ord. MC-460, 5-15-85; Ord. 1925, 11-06-51)

8.54.050 Controlled Hours of Operation

It shall be unlawful for any person to engage in the following activities other than between the hours of 8:00 a.m. and 8:00 p.m. in residential zones and other than between the hours of 7:00 a.m. and 8:00 p.m. in all other zones:

A. Operate or permit the use of powered model vehicles and planes.

B. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous, or unnecessary noise within one thousand (1,000) feet of a residence.

C. Operate or permit the use of domestic power tools, or machinery or any other equipment or tool in any garage, workshop, house, or any other structure.

D. Operate or permit the use of gasoline or electric powered leaf blowers, such as commonly used by gardeners and other persons for cleaning lawns, yards, driveways, gutters, and other property.

E. Operate or permit the use of privately operated street/parking lot sweepers or vacuums, except that emergency work and/or work necessitated by unusual conditions may be performed with the written consent of the City Manager.

F. Operate or permit the use of electrically operated compressor, fan, and other similar devices.

G. Operate or permit the use of any motor vehicle with a gross vehicle weight rating in excess of ten thousand (10,000) pounds, or of any auxiliary equipment attached to such a vehicle, including, but not limited to, refrigerated truck compressors for a period longer than fifteen (15) minutes in any hour while the vehicle is stationary and on a public right-of-way or public space except when movement of said vehicle is restricted by other traffic.

H. Repair, rebuild, reconstruct, or dismantle any motor vehicle or other mechanical equipment or devices in a manner so as to be plainly audible across property lines.

(Ord. MC-1246, 5-23-07)

8.54.060 Exemptions

The following activities and noise sources shall be exempt from the provisions of this chapter:

A. The use of horns, sirens, or other signaling or warning devices by persons vested with legal authority to use the same, and in pursuit of their lawful duties, such as on ambulances, fire, police, or other governmental or official equipment.

B. Such noises as are an accompaniment and effect of a lawful business, commercial or industrial enterprise carried on in an area zoned for that purpose, except where there is evidence that such noise is a nuisance and that such a nuisance is a result of the employment of unnecessary and injurious methods of operation.

C. Activities conducted on the grounds of any public or private school during regular hours of operation.

D. Outdoor gatherings, public dances, shows, and sporting and entertainment events provided said events are authorized by the City.

E. Activities conducted at public spaces during regular hours of operation.

F. Any mechanical devices, apparatus, or equipment used, related to, or connected with emergency machinery, vehicle, or work.

G. Construction, repair, or excavation necessary for the immediate preservation of life or property.

H. Construction, operation, maintenance, and repairs of equipment, apparatus, or facilities of park and recreation departments, public work projects, or essential public services and facilities, including, but not limited to, trash collection and those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission.

I. Construction, repair, or excavation work performed pursuant to a valid written agreement with the City, or any of its political subdivisions, which provides for noise mitigation measures.

J. Any activity to the extent that regulation thereof has been preempted by State or Federal law.

K. Sounds generated in connection with speech or communication protected by the United States Constitution or the California Constitution, except to the extent such sounds are subject to permissible time, place, and manner restrictions.

(Ord. MC-1246, 5-23-07)

8.54.070 Disturbances from Construction Activity

No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours of 7:00 a.m. and 8:00 p.m.

(Ord. MC-1246, 5-23-07)

8.54.080 Violation - Penalty

Any person violating any of the provisions of this Chapter is guilty of an infraction or a misdemeanor, which upon conviction thereof is punishable in accordance with the provisions of Section 1.12.010 of this code.

(Ord. MC-1246, 5-23-07)

8.54.090 Severability

The provisions of this Chapter are severable, and, if any sentence, section or other part of this Chapter should be found to be invalid, such invalidity shall not affect the remaining provisions, and the remaining provisions shall continue in full force and effect.

(Ord. MC-1246, 5-23-07)

[Return to Municipal Code Contents]

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APPENDIX 4.1:

SITE PLAN

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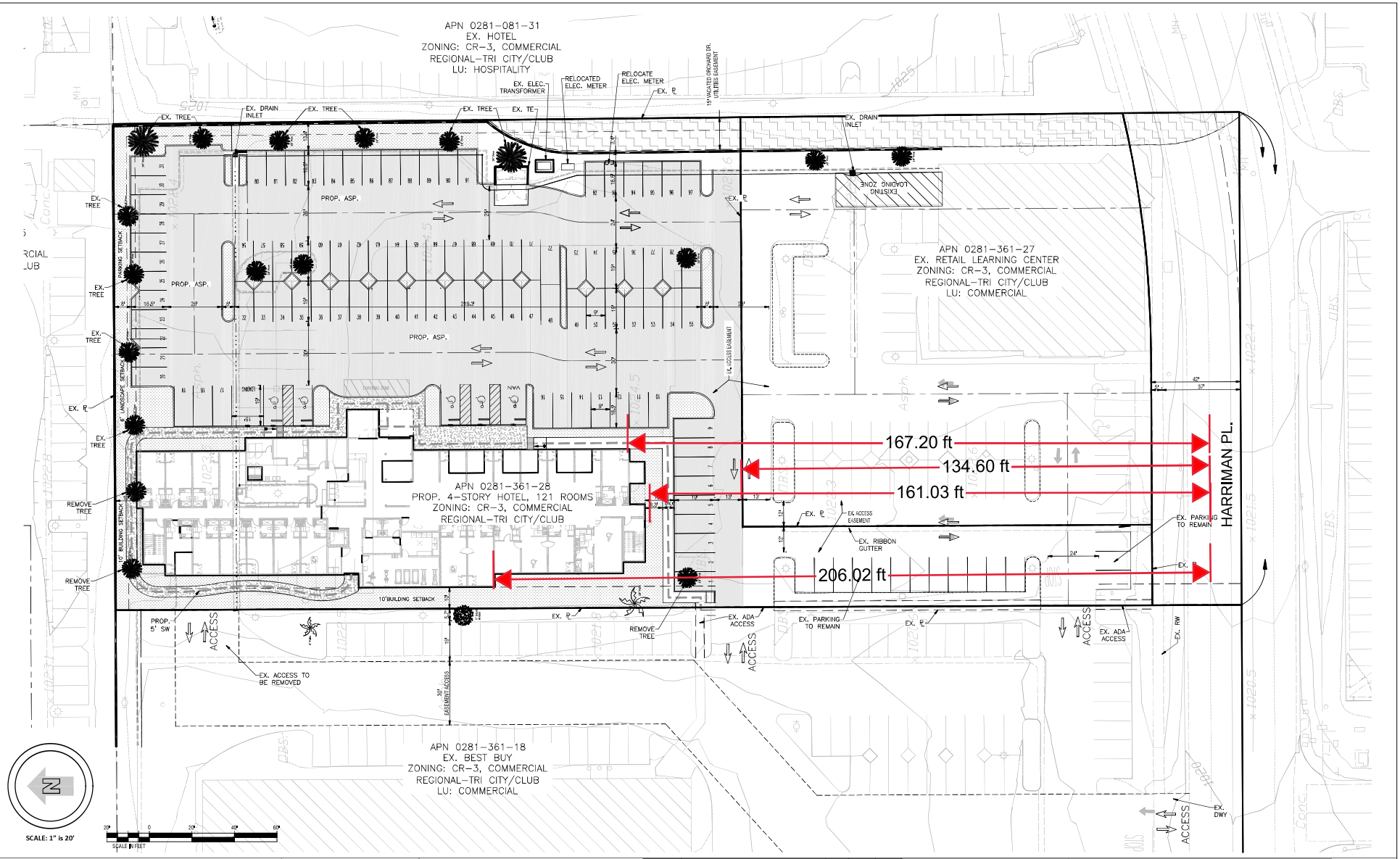

ON-SITE ENGINEER SEAL

ON-SITE ENGINEER INFORMATION

KWC ENGINEERS
CIVIL ENGINEERS ● PLANNERS ● SURVEYORS
1880 COMPTON AVENUE, SUITE 100 ● CORONA, CA 92881-3378 ● 951-734-2130

SIGNATURE | 79048 C.E. NO. | DATE

MARK	REVISIONS	BY	APPR.	DATE

BENCHMARK:
BENCH MARK NO. V 524 (PID=DJ0105); ELEVATION: 1046.70 MSL VERTICAL DATUM: NAVD 88; A 2-1/2" BRASS DISK STAMPED "V 524" "1995" DESCRIBED AS FOLLOWS: FROM THE INTERSECTION OF WATERMAN AVENUE, THENCE 0.35 MILE NORTHERLY ALONG A GRAVELED ROAD, AT THE TRI-CITY AIRPORT, 0.35 MILE NORTHERLY OF THE OFFICE BUILDING, 0.1 MILE NORTHERLY OF THE EAST END OF THE EAST-WEST DIRT RUNWAY, AT THE RIVERSIDE WATER DISTRICTS PUMP HOUSE 29-1, AT DOUBLE POWER LINE POLES 4008836, SUPPORTING TWO TRANSFORMERS, 11 1/2 FEET WEST OF THE CENTERLINE OF THE ROAD, 7.2 FEET NORTHEAST OF THE NORTHEAST CORNER OF A CORRUGATED METAL BUILDING HOUSING A PUMP, 1 1/2 FEET SOUTH OF THE NORTH ONE OF THE TWO POWER LINE POLES, 1.6 FEET NORTH OF A WITNESS POST, ABOUT LEVEL WITH THE ROAD, AND SET IN THE TOP OF A CONCRETE POST PROJECTING 0.3 FOOT ABOVE THE GROUND.

APPROVED _____ 2022
CITY ENGINEER _____
REGISTERED CIVIL ENGINEER NO. _____
DRAWN BY:
CHECKED BY:
RECORDED BY:

CITY OF SAN BERNARDINO
Public Works Department

ON-SITE SITE IMPROVEMENT
FOR
ADDRESS

ACTIVITY #
SHEET 2
OF 2

R:\22\2241\PRELIM\SITE_PLAN\2241 SITE PLAN.dwg 10/24/22

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APPENDIX 5.1:

ON-SITE TRAFFIC NOISE CALCULATIONS

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

Scenario: Backyard No Wall
Road Name: Harriman Pl.
Lot No: 132

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,024.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,024.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	144.284
Medium Trucks:	144.191
Heavy Trucks:	144.118

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.01	-1.20	*-0.32*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.00	-1.20	*-0.39*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.00	-1.20	*-0.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.1	56.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.1	56.4

Wednesday, March 29, 2023

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

Scenario: Backyard No Wall
Road Name: Harriman Pl.
Lot No: 232

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,029.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,029.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	144.613
Medium Trucks:	144.441
Heavy Trucks:	144.170

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.02	-1.20	*-0.18*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.01	-1.20	*-0.24*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.00	-1.20	*-0.42*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.3	44.3	52.7	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.0	56.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.3	44.3	52.7	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.0	56.4

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

Scenario: Backyard No Wall
Road Name: Harriman Pl.
Lot No: 219

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,029.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,029.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	144.745
Medium Trucks:	144.549
Heavy Trucks:	144.219

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.03	-1.20	*-0.15*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.02	-1.20	*-0.20*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.00	-1.20	*-0.37*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.6	50.3	44.3	52.7	53.4
Medium Trucks:	46.1	42.2	34.7	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	48.9	56.0	56.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.6	50.3	44.3	52.7	53.4
Medium Trucks:	46.1	42.2	34.7	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	48.9	56.0	56.4

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

Scenario: Backyard No Wall
Road Name: Harriman Pl.
Lot No: 332

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,038.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,038.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	145.637
Medium Trucks:	145.323
Heavy Trucks:	144.699

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.07	-1.20	*-0.03*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.05	-1.20	*-0.06*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.03	-1.20	*-0.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	46.1	42.2	34.7	43.5	49.6	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.1	52.6	50.8	48.9	56.0	56.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	46.1	42.2	34.7	43.5	49.6	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.1	52.6	50.8	48.9	56.0	56.3

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

Scenario: Backyard No Wall
Road Name: Harriman Pl.
Lot No: 319

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,038.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,038.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	145.860
Medium Trucks:	145.524
Heavy Trucks:	144.842

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.08	-1.20	*-0.02*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.06	-1.20	*-0.04*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.03	-1.20	*-0.13*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	46.1	42.2	34.7	43.5	49.6	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.1	52.6	50.8	48.9	56.0	56.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	46.1	42.2	34.7	43.5	49.6	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.1	52.6	50.8	48.9	56.0	56.3

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

Scenario: Backyard No Wall
Road Name: Harriman Pl.
Lot No: 432

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,047.0 feet
Road Elevation:	1,045.0 feet
Barrier Elevation:	1,047.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,045.00		
Medium Trucks:	1,047.30		
Heavy Trucks:	1,053.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	144.284
Medium Trucks:	144.191
Heavy Trucks:	144.118

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.01	-1.20	*-0.32*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.00	-1.20	*-0.39*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.00	-1.20	*-0.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.1	56.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.1	56.4

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

Scenario: Backyard No Wall
Road Name: Harriman Pl.
Lot No: 419

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,047.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,047.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	147.337
Medium Trucks:	146.854
Heavy Trucks:	146.017

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.14	-1.20	*0.01*	-5.100	-8.100
Medium Trucks:	74.83	-20.46	-7.12	-1.20	*0.00*	-4.900	-7.900
Heavy Trucks:	80.05	-24.42	-7.08	-1.20	*-0.01*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.5	51.5	50.2	44.2	52.6	53.3
Medium Trucks:	46.0	42.1	34.6	43.4	49.6	49.6
Heavy Trucks:	47.3	43.3	39.9	44.5	50.7	50.8
Vehicle Noise:	55.1	52.6	50.7	48.8	55.9	56.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.4	46.4	45.1	39.1	47.5	48.2
Medium Trucks:	41.1	37.2	29.7	38.5	44.7	44.7
Heavy Trucks:	47.3	43.3	39.9	44.5	50.7	50.8
Vehicle Noise:	51.4	48.5	46.4	46.4	53.1	53.4

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

Scenario: Backyard With Wall
Road Name: Harriman Pl.
Lot No: 132

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,024.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,024.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	144.284
Medium Trucks:	144.191
Heavy Trucks:	144.118

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.01	-1.20	*-0.32*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.00	-1.20	*-0.39*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.00	-1.20	*-0.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.1	56.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.1	56.4

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

Scenario: Backyard With Wall
Road Name: Harriman Pl.
Lot No: 232

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,029.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,029.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	144.613
Medium Trucks:	144.441
Heavy Trucks:	144.170

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.02	-1.20	*-0.18*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.01	-1.20	*-0.24*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.00	-1.20	*-0.42*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.3	44.3	52.7	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.0	56.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.3	44.3	52.7	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.0	56.4

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

Scenario: Backyard With Wall
Road Name: Harriman Pl.
Lot No: 219

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,029.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,029.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	144.745
Medium Trucks:	144.549
Heavy Trucks:	144.219

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.03	-1.20	*-0.15*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.02	-1.20	*-0.20*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.00	-1.20	*-0.37*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.6	50.3	44.3	52.7	53.4
Medium Trucks:	46.1	42.2	34.7	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	48.9	56.0	56.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.6	50.3	44.3	52.7	53.4
Medium Trucks:	46.1	42.2	34.7	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	48.9	56.0	56.4

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

Scenario: Backyard With Wall
Road Name: Harriman Pl.
Lot No: 332

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,038.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,038.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	145.637
Medium Trucks:	145.323
Heavy Trucks:	144.699

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.07	-1.20	*-0.03*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.05	-1.20	*-0.06*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.03	-1.20	*-0.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	46.1	42.2	34.7	43.5	49.6	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.1	52.6	50.8	48.9	56.0	56.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	46.1	42.2	34.7	43.5	49.6	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.1	52.6	50.8	48.9	56.0	56.3

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

Scenario: Backyard With Wall
Road Name: Harriman Pl.
Lot No: 319

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,038.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,038.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	145.860
Medium Trucks:	145.524
Heavy Trucks:	144.842

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.08	-1.20	*-0.02*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.06	-1.20	*-0.04*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.03	-1.20	*-0.13*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	46.1	42.2	34.7	43.5	49.6	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.1	52.6	50.8	48.9	56.0	56.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.6	50.3	44.3	52.7	53.3
Medium Trucks:	46.1	42.2	34.7	43.5	49.6	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.1	52.6	50.8	48.9	56.0	56.3

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

Scenario: Backyard With Wall
Road Name: Harriman Pl.
Lot No: 432

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,047.0 feet
Road Elevation:	1,045.0 feet
Barrier Elevation:	1,047.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,045.00		
Medium Trucks:	1,047.30		
Heavy Trucks:	1,053.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	144.284
Medium Trucks:	144.191
Heavy Trucks:	144.118

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.01	-1.20	*-0.32*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.00	-1.20	*-0.39*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.00	-1.20	*-0.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.1	56.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.7	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	46.2	42.3	34.8	43.5	49.7	49.7
Heavy Trucks:	47.4	43.4	40.0	44.6	50.8	50.9
Vehicle Noise:	55.2	52.7	50.8	49.0	56.1	56.4

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

Scenario: Backyard With Wall
Road Name: Harriman Pl.
Lot No: 419

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	161.0 feet
Barrier Distance to Observer:	26.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,047.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,047.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	147.337
Medium Trucks:	146.854
Heavy Trucks:	146.017

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.14	-1.20	*0.01*	-5.100	-8.100
Medium Trucks:	74.83	-20.46	-7.12	-1.20	*0.00*	-4.900	-7.900
Heavy Trucks:	80.05	-24.42	-7.08	-1.20	*-0.01*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.5	51.5	50.2	44.2	52.6	53.3
Medium Trucks:	46.0	42.1	34.6	43.4	49.6	49.6
Heavy Trucks:	47.3	43.3	39.9	44.5	50.7	50.8
Vehicle Noise:	55.1	52.6	50.7	48.8	55.9	56.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.4	46.4	45.1	39.1	47.5	48.2
Medium Trucks:	41.1	37.2	29.7	38.5	44.7	44.7
Heavy Trucks:	47.3	43.3	39.9	44.5	50.7	50.8
Vehicle Noise:	51.4	48.5	46.4	46.4	53.1	53.4

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

Scenario: First Floor With Wall
Road Name: Harriman Pl.
Lot No: 132

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,024.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,024.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	150.313
Medium Trucks:	150.224
Heavy Trucks:	150.153

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.27	-1.20	*-0.24*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.27	-1.20	*-0.31*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.27	-1.20	*-0.52*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.1	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.5
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.1	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.5
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

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

Scenario: First Floor With Wall
Road Name: Harriman Pl.
Lot No: 232

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,029.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,029.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	150.629
Medium Trucks:	150.463
Heavy Trucks:	150.203

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.29	-1.20	*-0.12*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.28	-1.20	*-0.17*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.27	-1.20	*-0.33*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.1	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.4
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.1	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.4
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

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

Scenario: First Floor With Wall
Road Name: Harriman Pl.
Lot No: 219

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,029.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,029.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	189.401
Medium Trucks:	189.656
Heavy Trucks:	189.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.78	-1.20	*0.00*	-4.900	-7.900
Medium Trucks:	74.83	-20.46	-8.79	-1.20	*-0.01*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-8.78	-1.20	*-0.10*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.9	49.9	48.6	42.6	51.0	51.6
Medium Trucks:	44.4	40.5	33.0	41.7	47.9	47.9
Heavy Trucks:	45.6	41.6	38.2	42.9	49.1	49.1
Vehicle Noise:	53.4	50.9	49.1	47.2	54.3	54.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	47.0	45.0	43.7	37.7	46.1	46.7
Medium Trucks:	44.4	40.5	33.0	41.7	47.9	47.9
Heavy Trucks:	45.6	41.6	38.2	42.9	49.1	49.1
Vehicle Noise:	50.6	47.6	45.0	46.0	52.6	52.8

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

Scenario: First Floor With Wall
Road Name: Harriman Pl.
Lot No: 332

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,038.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,038.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	151.611
Medium Trucks:	151.310
Heavy Trucks:	150.711

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.33	-1.20	*-0.01*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.32	-1.20	*-0.02*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.29	-1.20	*-0.10*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.3	50.0	44.0	52.4	53.1
Medium Trucks:	45.8	42.0	34.4	43.2	49.4	49.4
Heavy Trucks:	47.1	43.1	39.7	44.3	50.5	50.6
Vehicle Noise:	54.9	52.4	50.5	48.7	55.7	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.3	50.0	44.0	52.4	53.1
Medium Trucks:	45.8	42.0	34.4	43.2	49.4	49.4
Heavy Trucks:	47.1	43.1	39.7	44.3	50.5	50.6
Vehicle Noise:	54.9	52.4	50.5	48.7	55.7	56.1

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

Scenario: First Floor With Wall
Road Name: Harriman Pl.
Lot No: 319

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,038.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,038.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	190.387
Medium Trucks:	190.071
Heavy Trucks:	189.477

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.81	-1.20	*0.13*	-6.240	-9.240
Medium Trucks:	74.83	-20.46	-8.80	-1.20	*0.07*	-5.700	-8.700
Heavy Trucks:	80.05	-24.42	-8.78	-1.20	*0.00*	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.9	49.9	48.5	42.5	51.0	51.6
Medium Trucks:	44.4	40.5	33.0	41.7	47.9	47.9
Heavy Trucks:	45.6	41.6	38.2	42.9	49.0	49.1
Vehicle Noise:	53.4	50.9	49.0	47.2	54.3	54.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	45.6	43.6	42.3	36.3	44.7	45.3
Medium Trucks:	38.7	34.8	27.3	36.0	42.2	42.2
Heavy Trucks:	40.7	36.7	33.3	38.0	44.1	44.2
Vehicle Noise:	47.5	44.9	42.9	41.6	48.6	48.9

Wednesday, March 29, 2023

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

Scenario: First Floor With Wall
Road Name: Harriman Pl.
Lot No: 432

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,047.0 feet
Road Elevation:	1,045.0 feet
Barrier Elevation:	1,047.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,045.00		
Medium Trucks:	1,047.30		
Heavy Trucks:	1,053.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	150.313
Medium Trucks:	150.224
Heavy Trucks:	150.153

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.27	-1.20	*-0.24*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.27	-1.20	*-0.31*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.27	-1.20	*-0.52*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.1	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.5
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.1	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.5
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

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

Scenario: First Floor With Wall
Road Name: Harriman Pl.
Lot No: 419

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,047.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,047.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	192.036
Medium Trucks:	191.554
Heavy Trucks:	190.537

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.87	-1.20	*0.49*	-8.450	-11.450
Medium Trucks:	74.83	-20.46	-8.85	-1.20	*0.37*	-7.850	-10.850
Heavy Trucks:	80.05	-24.42	-8.82	-1.20	*0.15*	-6.400	-9.400

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.5	42.5	50.9	51.5
Medium Trucks:	44.3	40.4	32.9	41.7	47.8	47.9
Heavy Trucks:	45.6	41.6	38.2	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	49.0	47.1	54.2	54.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	43.4	41.4	40.0	34.0	42.4	43.1
Medium Trucks:	36.5	32.6	25.1	33.8	40.0	40.0
Heavy Trucks:	39.2	35.2	31.8	36.4	42.6	42.7
Vehicle Noise:	45.4	42.7	40.8	39.7	46.6	46.9

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

Scenario: Fourth Floor With Wall
Road Name: Harriman Pl.
Lot No: 132

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,024.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,024.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	153.951
Medium Trucks:	153.460
Heavy Trucks:	152.383

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.43	-1.20	*-9.29*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.41	-1.20	*-9.75*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.36	-1.20	*-10.94*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.2	49.9	43.9	52.3	53.0
Medium Trucks:	45.8	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	47.1	43.0	39.6	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.4	48.6	55.7	56.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.2	49.9	43.9	52.3	53.0
Medium Trucks:	45.8	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	47.1	43.0	39.6	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.4	48.6	55.7	56.0

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

Scenario: Fourth Floor With Wall
Road Name: Harriman Pl.
Lot No: 232

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,029.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,029.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	155.132
Medium Trucks:	154.571
Heavy Trucks:	153.315

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.48	-1.20	*-8.32*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.46	-1.20	*-8.76*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.40	-1.20	*-9.89*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.2	51.2	49.9	43.9	52.3	52.9
Medium Trucks:	45.7	41.8	34.3	43.1	49.2	49.3
Heavy Trucks:	47.0	43.0	39.6	44.2	50.4	50.5
Vehicle Noise:	54.7	52.2	50.4	48.5	55.6	55.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.2	51.2	49.9	43.9	52.3	52.9
Medium Trucks:	45.7	41.8	34.3	43.1	49.2	49.3
Heavy Trucks:	47.0	43.0	39.6	44.2	50.4	50.5
Vehicle Noise:	54.7	52.2	50.4	48.5	55.6	55.9

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

Scenario: Fourth Floor With Wall
Road Name: Harriman Pl.
Lot No: 219

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,029.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,029.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	193.608
Medium Trucks:	193.141
Heavy Trucks:	192.093

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.92	-1.20	*-2.85*	0.000	0.000
Medium Trucks:	74.83	-20.46	-8.91	-1.20	*-3.17*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-8.87	-1.20	*-4.03*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.4	42.4	50.8	51.5
Medium Trucks:	44.3	40.4	32.9	41.6	47.8	47.8
Heavy Trucks:	45.6	41.5	38.1	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	48.9	47.1	54.2	54.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.4	42.4	50.8	51.5
Medium Trucks:	44.3	40.4	32.9	41.6	47.8	47.8
Heavy Trucks:	45.6	41.5	38.1	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	48.9	47.1	54.2	54.5

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

Scenario: Fourth Floor With Wall
Road Name: Harriman Pl.
Lot No: 332

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,038.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,038.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	157.636
Medium Trucks:	156.951
Heavy Trucks:	155.385

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.58	-1.20	*-6.73*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.56	-1.20	*-7.12*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.49	-1.20	*-8.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.1	51.1	49.8	43.8	52.2	52.8
Medium Trucks:	45.6	41.7	34.2	43.0	49.1	49.2
Heavy Trucks:	46.9	42.9	39.5	44.1	50.3	50.4
Vehicle Noise:	54.6	52.1	50.3	48.4	55.5	55.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.1	51.1	49.8	43.8	52.2	52.8
Medium Trucks:	45.6	41.7	34.2	43.0	49.1	49.2
Heavy Trucks:	46.9	42.9	39.5	44.1	50.3	50.4
Vehicle Noise:	54.6	52.1	50.3	48.4	55.5	55.8

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

Scenario: Fourth Floor With Wall
Road Name: Harriman Pl.
Lot No: 319

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,038.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,038.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	195.689
Medium Trucks:	195.121
Heavy Trucks:	193.819

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.99	-1.20	*-1.78*	0.000	0.000
Medium Trucks:	74.83	-20.46	-8.97	-1.20	*-2.02*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-8.93	-1.20	*-2.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.7	49.7	48.4	42.4	50.8	51.4
Medium Trucks:	44.2	40.3	32.8	41.5	47.7	47.8
Heavy Trucks:	45.5	41.5	38.1	42.7	48.9	49.0
Vehicle Noise:	53.2	50.7	48.9	47.0	54.1	54.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.7	49.7	48.4	42.4	50.8	51.4
Medium Trucks:	44.2	40.3	32.8	41.5	47.7	47.8
Heavy Trucks:	45.5	41.5	38.1	42.7	48.9	49.0
Vehicle Noise:	53.2	50.7	48.9	47.0	54.1	54.4

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

Scenario: Fourth Floor With Wall
Road Name: Harriman Pl.
Lot No: 432

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,047.0 feet
Road Elevation:	1,045.0 feet
Barrier Elevation:	1,047.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,045.00		
Medium Trucks:	1,047.30		
Heavy Trucks:	1,053.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	153.951
Medium Trucks:	153.460
Heavy Trucks:	152.383

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.43	-1.20	*-9.29*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.41	-1.20	*-9.75*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.36	-1.20	*-10.94*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.2	49.9	43.9	52.3	53.0
Medium Trucks:	45.8	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	47.1	43.0	39.6	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.4	48.6	55.7	56.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.2	49.9	43.9	52.3	53.0
Medium Trucks:	45.8	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	47.1	43.0	39.6	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.4	48.6	55.7	56.0

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

Scenario: Fourth Floor With Wall
Road Name: Harriman Pl.
Lot No: 419

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,047.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,047.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	198.157
Medium Trucks:	197.491
Heavy Trucks:	195.943

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-9.07	-1.20	*-0.97*	0.000	0.000
Medium Trucks:	74.83	-20.46	-9.05	-1.20	*-1.15*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-9.00	-1.20	*-1.67*	0.000	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	49.6	48.3	42.3	50.7	51.3
Medium Trucks:	44.1	40.2	32.7	41.5	47.6	47.7
Heavy Trucks:	45.4	41.4	38.0	42.6	48.8	48.9
Vehicle Noise:	53.1	50.6	48.8	46.9	54.0	54.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.6	49.6	48.3	42.3	50.7	51.3
Medium Trucks:	44.1	40.2	32.7	41.5	47.6	47.7
Heavy Trucks:	45.4	41.4	38.0	42.6	48.8	48.9
Vehicle Noise:	53.1	50.6	48.8	46.9	54.0	54.3

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

Scenario: Second Floor With Wall
Road Name: Harriman Pl.
Lot No: 132

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,024.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,024.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	151.000
Medium Trucks:	150.774
Heavy Trucks:	150.363

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.30	-1.20	*-2.05*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.29	-1.20	*-2.26*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.28	-1.20	*-2.81*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.0	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.4
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.0	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.4
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

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

Scenario: Second Floor With Wall
Road Name: Harriman Pl.
Lot No: 232

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,029.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,029.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	151.611
Medium Trucks:	151.310
Heavy Trucks:	150.711

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.33	-1.20	*-1.64*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.32	-1.20	*-1.83*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.29	-1.20	*-2.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.3	50.0	44.0	52.4	53.1
Medium Trucks:	45.8	42.0	34.4	43.2	49.4	49.4
Heavy Trucks:	47.1	43.1	39.7	44.3	50.5	50.6
Vehicle Noise:	54.9	52.4	50.5	48.7	55.7	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.3	50.0	44.0	52.4	53.1
Medium Trucks:	45.8	42.0	34.4	43.2	49.4	49.4
Heavy Trucks:	47.1	43.1	39.7	44.3	50.5	50.6
Vehicle Noise:	54.9	52.4	50.5	48.7	55.7	56.1

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

Scenario: Second Floor With Wall
Road Name: Harriman Pl.
Lot No: 219

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,029.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,029.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	190.657
Medium Trucks:	190.400
Heavy Trucks:	189.879

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.82	-1.20	*-0.34*	0.000	0.000
Medium Trucks:	74.83	-20.46	-8.81	-1.20	*-0.45*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-8.80	-1.20	*-0.80*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.9	49.9	48.5	42.5	50.9	51.6
Medium Trucks:	44.4	40.5	33.0	41.7	47.9	47.9
Heavy Trucks:	45.6	41.6	38.2	42.8	49.0	49.1
Vehicle Noise:	53.4	50.9	49.0	47.2	54.2	54.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.9	49.9	48.5	42.5	50.9	51.6
Medium Trucks:	44.4	40.5	33.0	41.7	47.9	47.9
Heavy Trucks:	45.6	41.6	38.2	42.8	49.0	49.1
Vehicle Noise:	53.4	50.9	49.0	47.2	54.2	54.6

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

Scenario: Second Floor With Wall
Road Name: Harriman Pl.
Lot No: 332

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,038.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,038.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	153.118
Medium Trucks:	152.684
Heavy Trucks:	151.752

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.39	-1.20	*-1.03*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.38	-1.20	*-1.17*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.34	-1.20	*-1.57*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.3	50.0	44.0	52.4	53.0
Medium Trucks:	45.8	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	47.1	43.0	39.7	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.5	48.6	55.7	56.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.3	50.0	44.0	52.4	53.0
Medium Trucks:	45.8	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	47.1	43.0	39.7	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.5	48.6	55.7	56.0

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

Scenario: Second Floor With Wall
Road Name: Harriman Pl.
Lot No: 319

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,038.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,038.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	191.928
Medium Trucks:	191.564
Heavy Trucks:	190.777

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.87	-1.20	*-0.05*	0.000	0.000
Medium Trucks:	74.83	-20.46	-8.85	-1.20	*-0.10*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-8.83	-1.20	*-0.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.5	42.5	50.9	51.5
Medium Trucks:	44.3	40.4	32.9	41.7	47.8	47.9
Heavy Trucks:	45.6	41.6	38.2	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	49.0	47.1	54.2	54.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.5	42.5	50.9	51.5
Medium Trucks:	44.3	40.4	32.9	41.7	47.8	47.9
Heavy Trucks:	45.6	41.6	38.2	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	49.0	47.1	54.2	54.5

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

Scenario: Second Floor With Wall
Road Name: Harriman Pl.
Lot No: 432

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,047.0 feet
Road Elevation:	1,045.0 feet
Barrier Elevation:	1,047.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,045.00		
Medium Trucks:	1,047.30		
Heavy Trucks:	1,053.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	151.000
Medium Trucks:	150.774
Heavy Trucks:	150.363

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.30	-1.20	*-2.05*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.29	-1.20	*-2.26*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.28	-1.20	*-2.81*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.0	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.4
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.4	50.1	44.0	52.5	53.1
Medium Trucks:	45.9	42.0	34.5	43.2	49.4	49.4
Heavy Trucks:	47.2	43.1	39.7	44.4	50.6	50.7
Vehicle Noise:	54.9	52.4	50.6	48.7	55.8	56.1

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

Scenario: Second Floor With Wall
Road Name: Harriman Pl.
Lot No: 419

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,047.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,047.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	193.228
Medium Trucks:	192.745
Heavy Trucks:	192.093

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.91	-1.20	*0.01*	-5.100	-8.100
Medium Trucks:	74.83	-20.46	-8.89	-1.20	*0.00*	-4.900	-7.900
Heavy Trucks:	80.05	-24.42	-8.87	-1.20	*-0.04*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.5	42.4	50.9	51.5
Medium Trucks:	44.3	40.4	32.9	41.6	47.8	47.8
Heavy Trucks:	45.6	41.5	38.1	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	48.9	47.1	54.2	54.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	46.7	44.7	43.4	37.3	45.8	46.4
Medium Trucks:	39.4	35.5	28.0	36.7	42.9	42.9
Heavy Trucks:	45.6	41.5	38.1	42.8	49.0	49.1
Vehicle Noise:	49.6	46.7	44.6	44.6	51.3	51.6

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

Scenario: Third Floor With Wall
Road Name: Harriman Pl.
Lot No: 132

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,024.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,024.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	152.217
Medium Trucks:	151.857
Heavy Trucks:	151.109

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.36	-1.20	*-5.25*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.34	-1.20	*-5.59*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.31	-1.20	*-6.46*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.3	50.0	44.0	52.4	53.0
Medium Trucks:	45.8	41.9	34.4	43.2	49.3	49.4
Heavy Trucks:	47.1	43.1	39.7	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.5	48.6	55.7	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.3	50.0	44.0	52.4	53.0
Medium Trucks:	45.8	41.9	34.4	43.2	49.3	49.4
Heavy Trucks:	47.1	43.1	39.7	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.5	48.6	55.7	56.1

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

Scenario: Third Floor With Wall
Road Name: Harriman Pl.
Lot No: 232

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,029.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,029.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	153.118
Medium Trucks:	152.684
Heavy Trucks:	151.752

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.39	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.38	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.34	-1.20	*-5.69*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.3	50.0	44.0	52.4	53.0
Medium Trucks:	45.8	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	47.1	43.0	39.7	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.5	48.6	55.7	56.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.3	50.0	44.0	52.4	53.0
Medium Trucks:	45.8	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	47.1	43.0	39.7	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.5	48.6	55.7	56.0

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

Scenario: Third Floor With Wall
Road Name: Harriman Pl.
Lot No: 219

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,029.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,029.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	191.928
Medium Trucks:	191.564
Heavy Trucks:	190.777

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.87	-1.20	*-1.31*	0.000	0.000
Medium Trucks:	74.83	-20.46	-8.85	-1.20	*-1.53*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-8.83	-1.20	*-2.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.5	42.5	50.9	51.5
Medium Trucks:	44.3	40.4	32.9	41.7	47.8	47.9
Heavy Trucks:	45.6	41.6	38.2	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	49.0	47.1	54.2	54.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.5	42.5	50.9	51.5
Medium Trucks:	44.3	40.4	32.9	41.7	47.8	47.9
Heavy Trucks:	45.6	41.6	38.2	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	49.0	47.1	54.2	54.5

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

Scenario: Third Floor With Wall
Road Name: Harriman Pl.
Lot No: 332

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,038.0 feet
Road Elevation:	1,022.0 feet
Barrier Elevation:	1,038.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,022.00		
Medium Trucks:	1,024.30		
Heavy Trucks:	1,030.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	155.132
Medium Trucks:	154.571
Heavy Trucks:	153.315

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.48	-1.20	*-3.45*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.46	-1.20	*-3.72*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.40	-1.20	*-4.43*	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:	53.2	51.2	49.9	43.9	52.3	52.9
Medium Trucks:	45.7	41.8	34.3	43.1	49.2	49.3
Heavy Trucks:	47.0	43.0	39.6	44.2	50.4	50.5
Vehicle Noise:	54.7	52.2	50.4	48.5	55.6	55.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.2	51.2	49.9	43.9	52.3	52.9
Medium Trucks:	45.7	41.8	34.3	43.1	49.2	49.3
Heavy Trucks:	47.0	43.0	39.6	44.2	50.4	50.5
Vehicle Noise:	54.7	52.2	50.4	48.5	55.6	55.9

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

Scenario: Third Floor With Wall
Road Name: Harriman Pl.
Lot No: 319

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,038.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,038.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	193.608
Medium Trucks:	193.141
Heavy Trucks:	192.093

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.92	-1.20	*-0.63*	0.000	0.000
Medium Trucks:	74.83	-20.46	-8.91	-1.20	*-0.78*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-8.87	-1.20	*-1.22*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.4	42.4	50.8	51.5
Medium Trucks:	44.3	40.4	32.9	41.6	47.8	47.8
Heavy Trucks:	45.6	41.5	38.1	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	48.9	47.1	54.2	54.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.8	48.4	42.4	50.8	51.5
Medium Trucks:	44.3	40.4	32.9	41.6	47.8	47.8
Heavy Trucks:	45.6	41.5	38.1	42.8	49.0	49.1
Vehicle Noise:	53.3	50.8	48.9	47.1	54.2	54.5

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

Scenario: Third Floor With Wall
Road Name: Harriman Pl.
Lot No: 432

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	167.0 feet
Barrier Distance to Observer:	32.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,047.0 feet
Road Elevation:	1,045.0 feet
Barrier Elevation:	1,047.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,045.00		
Medium Trucks:	1,047.30		
Heavy Trucks:	1,053.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	152.217
Medium Trucks:	151.857
Heavy Trucks:	151.109

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-7.36	-1.20	*-5.25*	0.000	0.000
Medium Trucks:	74.83	-20.46	-7.34	-1.20	*-5.59*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-7.31	-1.20	*-6.46*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.3	50.0	44.0	52.4	53.0
Medium Trucks:	45.8	41.9	34.4	43.2	49.3	49.4
Heavy Trucks:	47.1	43.1	39.7	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.5	48.6	55.7	56.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.3	50.0	44.0	52.4	53.0
Medium Trucks:	45.8	41.9	34.4	43.2	49.3	49.4
Heavy Trucks:	47.1	43.1	39.7	44.3	50.5	50.6
Vehicle Noise:	54.8	52.3	50.5	48.6	55.7	56.1

Wednesday, March 29, 2023

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

Scenario: Third Floor With Wall
Road Name: Harriman Pl.
Lot No: 419

Project Name: Everhome Suites
Job Number: 15215
Analyst: A.Shami

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	32 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	135.0 feet
Centerline Dist. to Observer:	206.0 feet
Barrier Distance to Observer:	71.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,047.5 feet
Road Elevation:	1,021.0 feet
Barrier Elevation:	1,047.5 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	1,021.00		
Medium Trucks:	1,023.30		
Heavy Trucks:	1,029.01	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	195.689
Medium Trucks:	195.121
Heavy Trucks:	193.819

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-3.23	-8.99	-1.20	*-0.20*	0.000	0.000
Medium Trucks:	74.83	-20.46	-8.97	-1.20	*-0.29*	0.000	0.000
Heavy Trucks:	80.05	-24.42	-8.93	-1.20	*-0.57*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.7	49.7	48.4	42.4	50.8	51.4
Medium Trucks:	44.2	40.3	32.8	41.5	47.7	47.8
Heavy Trucks:	45.5	41.5	38.1	42.7	48.9	49.0
Vehicle Noise:	53.2	50.7	48.9	47.0	54.1	54.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.7	49.7	48.4	42.4	50.8	51.4
Medium Trucks:	44.2	40.3	32.8	41.5	47.7	47.8
Heavy Trucks:	45.5	41.5	38.1	42.7	48.9	49.0
Vehicle Noise:	53.2	50.7	48.9	47.0	54.1	54.4