



The Bowery

NOISE IMPACT ANALYSIS

CITY OF SANTA ANA

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
AELUP	Airport Environs Land Use Plan
ALUC	Airport Land Use Commission
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
JWA	John Wayne Airport
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
PPV	Peak Particle Velocity
Project	The Bowery
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed The Bowery (“Project”). The Project site is located at the southwest corner of Red Hill Avenue and Warner Avenue within the southeastern most portion of the City of Santa Ana. The Project is proposed to consist of mixed-use development that would include a total of 1,150 multi-family residential units and 80,000 square feet of commercial retail and restaurant space. This study has been prepared consistent with applicable City of Santa Ana noise standards, and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

OFF-SITE NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 24 roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *The Bowery Traffic Impact Analysis*. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing, Opening Year, and Horizon Year 2040 traffic conditions. The analysis shows that the unmitigated Project-related traffic noise level increases under all traffic scenarios will be *less than significant*.

ON-SITE NOISE ANALYSIS

A noise impact analysis has been completed to determine the on-site traffic noise exposure levels that would result from nearby transportation noise sources, and to identify potential noise mitigation measures that would achieve acceptable Project exterior and interior noise levels. The primary source of traffic noise affecting the Project site is anticipated to be from Warner Avenue and Red Hill Avenue. The Project will also experience some background aircraft noise impacts associated with John Wayne Airport (JWA). However, since the Project site is located outside the 55 dBA CNEL aircraft noise level contour boundaries of JWA, the aircraft noise level impacts area considered *less than significant*. However, since the Project site is located within the JWA influence area, all future residents shall be notified of potential aircraft overflight consistent with the requirements of the AELUP as follows:

The property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration or odors). Individual sensitives to those annoyances, if any are associated with the property before you complete your purchase and determine where they are acceptable to you.”

EXTERIOR NOISE LEVELS

A review of the Project site plan suggests that the multi-family residential outdoor common areas will be limited to the rooftops of Building A, Building B as well as the courtyard areas for Building C and Building D. The location and design of the multi-family residential outdoor common areas substantially limits the potential exposure of these areas to the traffic noise from Warner Avenue and Red Hill Avenue. For example, the roof-deck representing the outdoor common areas for Building A, is located on top of the 7-level parking structure and is screened from both Warner Avenue and Red Hill Avenue by the structure itself including the fitness and clubroom buildings.

The analysis shows that the future unmitigated on-site traffic noise levels are expected to satisfy the City of Santa Ana General Plan Noise Element 65 dBA CNEL noise level standard for the multi-family residential outdoor areas within the Project site with exterior noise levels approaching 57.7 dBA CNEL. As such, the future on-site traffic noise impacts at the multi-family residential outdoor common areas are considered *less than significant* impacts.

The City of Santa Ana does not identify any exterior noise level limits for the commercial retail uses. Therefore, analysis of the commercial retail land use is limited to the interior noise levels significance criteria outlined in California Green Building Standards Code Section 5.507. No exterior noise analysis is provided for the planned commercial retail plaza or outdoor patio areas.

INTERIOR NOISE LEVELS

This noise study evaluates the interior noise levels at the Project buildings based on the City of Santa Ana 45 dBA CNEL residential interior noise level standards. The Project buildings are shown to require a Noise Reduction (NR) of up to 28.2 dBA and a windows-closed condition requiring a means of mechanical ventilation (e.g. air conditioning). The interior noise level assessment for the second, third and fourth to seventh floor building façade shows that the City of Santa Ana 45 dBA CNEL multi-family residential interior noise standards can be satisfied using standard building construction with windows and doors providing a minimum STC ratings of 27 for units facing Warner Avenue and Red Hill Avenue. The analysis shows that the unmitigated interior noise levels within the mixed-use Project will be *less than significant*.

STATIONARY-SOURCE NOISE LEVELS

The Bowery mixed-use development is not expected to include any specific type of operational noise levels beyond the typical noise sources associated with residential land use in the Project study area, such as people and children, car doors slamming, garage doors, trash collection, and outdoor common areas, and is considered a noise-sensitive receiving land use. In addition, the project study area does not include any nearby noise sensitive receiver locations that may be impacted from the Project related operational noise levels. Therefore, the potential operational noise impacts associated with the mixed-use Project are considered *less than significant*.

CONSTRUCTION NOISE ANALYSIS

On-site construction noise represents a short-term increase on the ambient noise levels associated with the development of the Project on nearby receivers. Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the Project site boundary. Using sample reference noise levels to represent the planned construction activities of The Bowery site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the City of Santa Ana General Plan and Municipal Codes do not identify specific construction noise level limits, this analysis relies on the 85 dBA Leq threshold identified by the National Institute for Occupational Safety and Health (NIOSH) to quantify and determine potential construction noise level impacts. This analysis shows that the Project-related short-term construction noise levels will approach 71.4 dBA Leq and will satisfy the 85 dBA Leq threshold identified by the National Institute for Occupational Safety and Health (NIOSH). (3) and therefore, the noise level impacts at the nearby sensitive receiver locations are considered *less than significant*.

To describe the temporary Project construction noise level contributions to the existing ambient noise environment, the Project construction noise levels were combined with the existing ambient noise levels measurements at the off-site receiver locations. The difference between the combined Project-construction and ambient noise levels are used to describe the construction noise level contributions necessary to assess the level of significance associated with temporary construction noise level impacts.

Since the City of Santa Ana General Plan and Municipal Code do not identify specific construction noise level thresholds, a temporary noise level increase of 10 dBA Leq has historically been used to describe a potentially significant impact for residential noise sensitive receiver locations since it represents the perceived doubling of the existing noise level conditions. However, due to the professional and administrative office land use designation and non-residential nature of the existing Project site, all the nearby receivers are considered non-noise sensitive and the 10 dBA Leq is not applicable.

Therefore, to describe a *substantial* temporary noise level increase threshold for construction noise levels at the non-noise sensitive receivers surrounding the project site, this analysis relies on applicable State-level regulations. More specifically, Caltrans' May 2011 *Traffic Noise Analysis Protocol* identifies a 12 dBA Leq noise level increase as *substantial*, and therefore, a 12 dBA Leq temporary noise level increase threshold is used in this noise study to address CEQA Noise Guideline D. (4) While the Caltrans 12 dBA Leq threshold was not created specifically for construction noise, it is applied in the Noise Study as a reasonable threshold to assess temporary, substantial noise level increases during Project construction. (4) No nighttime construction activity is permitted in the City of Santa Ana Municipal Code, and therefore, is not analyzed in this noise study.

The Project will contribute unmitigated, worst-case construction noise level increases ranging from 0.4 to 11.2 dBA Leq during the daytime hours at the closest receiver locations, which are

non-residential non-sensitive receptors. Since the worst-case temporary noise level increase of up to 11.2 dBA Leq during Project construction satisfies the 12 dBA Leq significance threshold, the unmitigated construction noise level increases are considered *less than significant* temporary noise impacts.

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this The Bowery Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (5). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures described below.

ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise Levels	7	<i>Less Than Significant</i>	<i>n/a</i>
On-Site Exterior Traffic Noise Levels	8	<i>Less Than Significant</i>	<i>n/a</i>
On-Site Interior Traffic Noise Levels		<i>Less Than Significant</i>	<i>n/a</i>
Construction Noise Levels	10	<i>Less Than Significant</i>	<i>n/a</i>
Construction Vibration Levels		<i>Less Than Significant</i>	<i>n/a</i>

1 INTRODUCTION

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

1.1 SITE LOCATION

The proposed The Bowery Project is located at 2300, 2310, and 2320 Red Hill Avenue in the City of Santa Ana, as shown on Exhibit 1-A. The site is located at the southwest corner of Red Hill Avenue and Warner Avenue within the southeastern most portion of the City of Santa Ana. Areas across from Red Hill Avenue (to the east) are within the City of Tustin and are part of the former Tustin Marine Corps Air Station (MCAS), now known as the Tustin Legacy. Areas across from Dyer Road (0.5 mile south of the site) are in the City of Irvine, within the Irvine Business Complex (IBC).

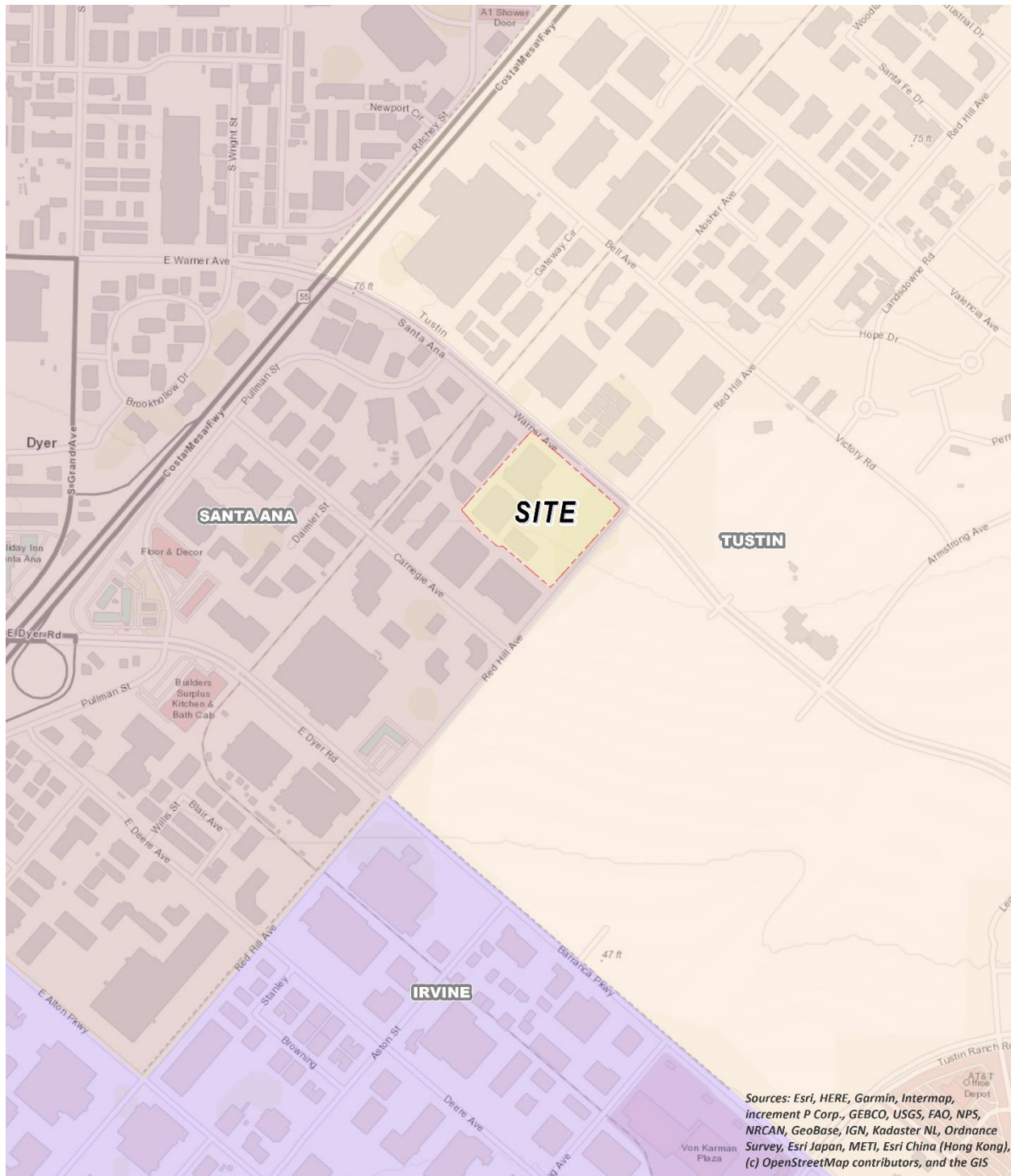
The closest airport to the Project site is John Wayne Airport which is located approximately 2.5 miles south of the Project site. The site is currently developed with three partially occupied industrial buildings, parking areas, and vehicle circulation drives.

1.2 PROJECT DESCRIPTION

The Project would redevelop the Project site for new commercial and multi-family residential uses, as shown on Exhibit 1-B. The proposed Project would demolish the three existing buildings and remove all the existing improvements, landscaping, and pavement. The Project would then construct a 4-phase mixed-use development that would include a total of 1,150 multi-family residential units and 80,000 square feet of commercial retail and restaurant space.

The proposed Project would develop four residential buildings that would be 6-stories in height. Each building would have an adjacent parking structure. Two parking structures would provide 7-levels of above ground parking and two would provide 6 levels of above ground parking. In addition, the Project would develop two one-story retail/restaurant commercial buildings and a surface parking lot.

EXHIBIT 1-A: LOCATION MAP



LEGEND:

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		
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	SPEECH INTERFERENCE
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		

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. (6) 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. (7) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50} , L_{25} , L_8 and L_2 , are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. The City of Santa Ana relies on the percentile noise levels to describe the stationary source noise level limits. While the L_{50} describes the noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour. Therefore, the L_{eq} noise descriptor is generally 1-2 dBA higher than the L_{50} noise level.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Santa Ana 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. (6)

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. (8)

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. (6)

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. (8)

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (8)

2.6 LAND USE COMPATIBILITY WITH NOISE

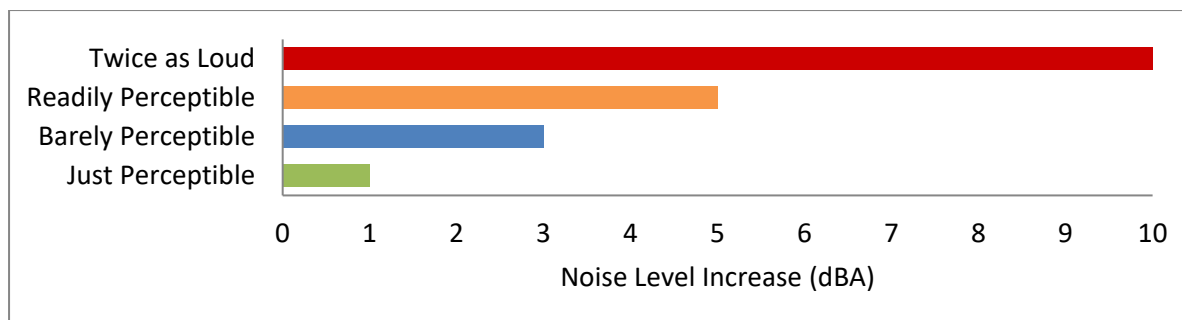
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (9)

2.7 COMMUNITY RESPONSE TO NOISE

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

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (10) 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. (10) 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 (11), a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (8)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION

2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (12)

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

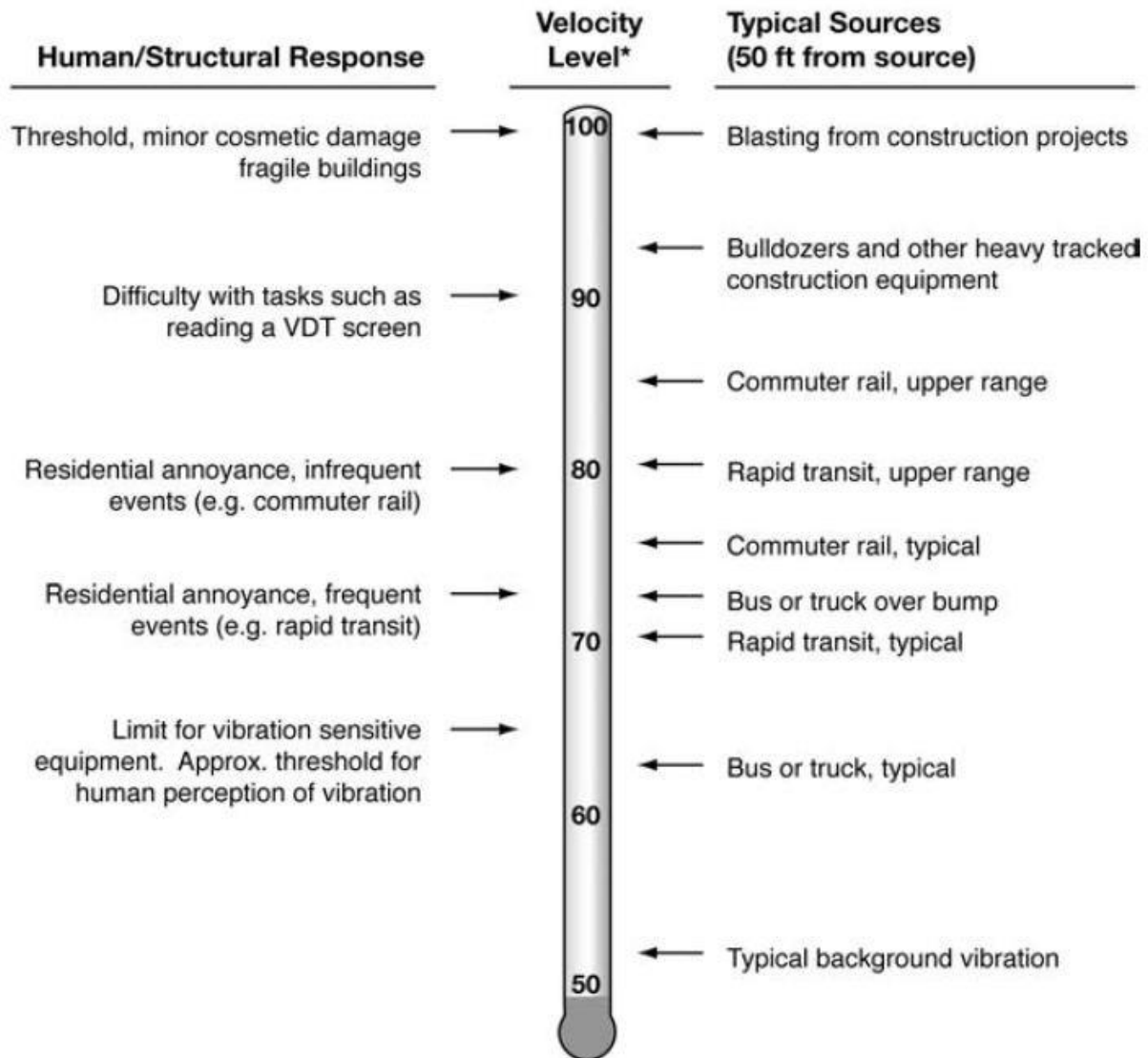
2.9 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (13), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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

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



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

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

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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research. (14) 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.

3.1.1 RESIDENTIAL CONSTRUCTION

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

3.1.2 NON-RESIDENTIAL CONSTRUCTION

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (15) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other

noise source. If the development falls within an airport or freeway 65 dBA CNEL noise contour, buildings shall be constructed to provide an interior noise level environment attributable to exterior sources that does not exceed an hourly equivalent level of 50 dBA L_{eq} in occupied areas during any hour of operation.

3.3 CITY OF SANTA ANA GENERAL PLAN

The City of Santa Ana has adopted a Noise Element of the General Plan to address existing and future noise issues throughout the City. (16) The Noise Element identifies several objectives and policies to minimize the impacts of excessive noise levels throughout the City and establishes transportation related noise level requirements for sensitive land uses.

Table 1 of the City of Santa Ana General Plan Noise Element and Airport Environs Element (16) provides standards to evaluate transportation-related noise at new developments, such as The Bowery. The interior and exterior noise standards identify maximum transportation related exterior noise standards for the traditional residential, institutional and open space land uses categories. The City of Santa Ana General Plan Noise Element does not identify any exterior noise level standards for mixed-use development representing the combination of multi-family residential and commercial retail uses. Exhibit 3-A shows the interior and exterior noise level standards identified in Table 1 of the City's General Plan Noise Element.

EXHIBIT 3-A: INTERIOR AND EXTERIOR NOISE STANDARDS

<i>Land Use Categories</i>		<i>CNEL</i>	
<i>Categories</i>	<i>Uses</i>	<i>Interior</i> ¹	<i>Exterior</i> ²
Residential	Single-family, duplex, multi-family	45 ³	65
Institutional	Hospital, school classrooms/playgrounds	45	65
	Church, library	45	–
Open Space	Parks	–	65

Notes:

¹ Interior areas (to include but are not limited to): bedrooms, bathrooms, kitchens, living rooms, dining rooms, closets, corridors/hallways, private offices, and conference rooms.

² Exterior areas shall mean: private yard of single-family homes, mobile home parks, park picnic areas, school playgrounds, and common areas. Private open space, such as atriums and balconies, shall be excluded from exterior areas provided sufficient common area is included within the project.

³ Interior noise level requirements contemplate a closed window condition. Mechanical ventilation system or other means of natural ventilation shall be provided per Chapter 12, Section 1305 of the Uniform Building Code.

For multi-family residential uses that are not part of a mixed-use development, the City of Santa Ana requires an exterior noise level standard of 65 dBA CNEL for the outdoor common areas. The outdoor common areas for multi-family residential does not include private open space such as atriums and balconies. Further, an interior noise level standard for multi-family residential uses with windows closed of 45 dBA CNEL is identified on Table 1 of the City of Santa Ana General Plan

Noise Element. (16) While the noise element identifies interior and exterior transportation related noise standards for noise sensitive multi-family residential use, the City does not identify any interior or exterior noise level limits for commercial retail uses.

3.4 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of The Bowery, noise from construction activities are typically evaluated against standards established under a City's Municipal Code. The Municipal Code noise standards for construction are described below for the City of Santa Ana to determine the potential noise impacts at nearby receiver locations.

To control noise impacts associated with the construction of the proposed Project, the City has established limits to the hours of operation. The City of Santa Ana Municipal Code, Section 18-314(e) indicates that noise sources associated with construction shall not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or any time on Sunday or a federal holiday. (17) However, the City's General Plan and Municipal Code do not establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes as the *generation of noise levels in excess of standards* or as a *substantial temporary or periodic noise increase*, the following construction noise level thresholds are used in this noise study.

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

3.5 CONSTRUCTION VIBRATION STANDARDS

The City of Santa Ana General Plan and Municipal Code do not identify specific vibration level standards. Therefore, applicable vibration standards identified by the California Department of Transportation ("Caltrans") *Transportation and Construction Vibration Guidance Manual* are used in this noise study. (18) According to the Caltrans vibration manual, large mobile equipment, and loaded trucks used during construction activities can produce vibration which

can potentially cause annoyance at sensitive land uses within the Project study area, or damage to adjacent structures. The Caltrans vibration manual establishes thresholds for determining potential vibration impacts resulting in building damage for older residential structures of 0.3 in/sec PPV, and for human annoyance of 0.04 in/sec PPV. These Caltrans thresholds are used in this analysis to assess potential impacts at the adjacent sensitive uses to the Project site.

3.6 AIRPORT LAND USE COMPATIBILITY

The Project site is located roughly 2.5 miles north of John Wayne Airport (JWA). This places the Project within the primary aircraft approach corridor and the Airport Environs Land Use Plan (AELUP) notification area for JWA. The AELUP (19) prepared by the Orange County Airport Land Use Commission (ALUC), identifies noise compatibility policies *to safeguard the general welfare of the inhabitants within the vicinity of the airport and to ensure the continued operation of the airport. Specifically, the AELUP plan seeks to protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable airspace.*

The basic function of the AELUP is to promote compatibility between the airport and the land uses that surround it. As required by State law, the AELUP provides guidance to affected local jurisdictions regarding airport land use compatibility. The main objective of the AELUP is to avoid future compatibility conflicts rather than to remedy existing incompatibilities. Also, the AELUP is aimed at addressing future land uses and development, not airport activity. The AELUP does not place any restrictions on the present and future role, configuration, or use of the airport.

The AELUP establishes aircraft noise exposure exterior noise level compatibility thresholds for new developments by land use category. According to the exterior noise thresholds outlined in the AELUP, multi-family residential development is considered *normally consistent* with exterior noise levels of less than 60 dBA CNEL, *conditionally consistent* with exterior noise levels between 60 and 65 dBA CNEL and *normally inconsistent* with exterior noise level above 65 dBA CNEL. For commercial retail land use, exterior noise levels are considered *normally consistent* with exterior noise levels of less than 65 dBA CNEL and *conditionally consistent* with exterior noise level above 65 dBA CNEL.

As shown on Exhibit 3-B, the Project site is located outside the 55 dBA CNEL aircraft noise level contour boundaries of JWA. Therefore, according to the AELUP, the Project residential and commercial retail land use is considered *normally consistent* with JWA aircraft noise exposure exterior noise level compatibility thresholds. In addition, the County of Orange has adopted the General Aviation Noise Ordinance (GANO) that prohibits commercial aircraft departures between the hours of 10:00 p.m. and 7:00 a.m. and arrivals between the hours of 11:00 p.m. and 7:00 a.m. (20) These restrictions substantially reduce the aircraft noise levels impacts during the noise sensitive nighttime hours for residential use.

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4 SIGNIFICANCE CRITERIA

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

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- B. Generation of excessive ground-borne vibration or ground-borne noise levels?
- C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

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

4.1 POTENTIAL IMPACTS NOT FURTHER ANALYZED

Based on JWA Airport Impact Zones provided in the AELUP, the Project site is located outside the 55 dBA CNEL (Exhibit 3-B) noise level contour boundary. As such, exterior noise levels due to aircraft overflight activities would be considered *normally consistent*, and Project interior noise levels would be reduced with standard building construction. Further, the Project does not propose or require facilities or actions that would contribute to or exacerbate noise generated by airport/airfield facilities and activities. Therefore, potential impacts related to the exposure of people residing or working in the Project area due to airport related noise levels is considered *less-than-significant*. Accordingly, no further analysis is warranted.

4.2 SUBSTANTIAL PERMANENT NOISE LEVEL INCREASES

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest receiver locations.

4.2.1 NOISE SENSITIVE RECEIVERS

Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant*. (21) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is

the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (22) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (i.e., CNEL) or median noise level (L_{50}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on *Gray v. County of Madera*. (21) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

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

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

Federal Interagency Committee on Noise (FICON), 1992.

4.2.2 OTHER RECEIVERS

Since the City of Santa Ana General Plan Noise Element does not identify criteria to assess the impacts associated with off-site transportation-related noise impacts at other non-noise-sensitive uses, such as the office and commercial uses in the Project study area, the Office of Planning and Research (OPR) land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix D: Noise Element Guidelines* is used to determine potential impacts at adjacent land uses. The *normally acceptable* exterior noise level for non-noise-sensitive land use, such as office and commercial uses, is 70 dBA CNEL. Noise levels greater than

70 dBA CNEL are considered *conditionally acceptable* according to the *Land Use Compatibility Criteria*. (14)

To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria are used. When the without Project noise levels at the non-noise-sensitive land uses are below the *normally acceptable* 70 dBA CNEL compatibility criteria, a *readily perceptible* 5 dBA or greater noise level increase is considered a significant impact. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the OPR land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix D: Noise Element Guidelines* *normally acceptable* 70 dBA CNEL exterior noise level criteria. The 70 dBA CNEL criteria is also consistent with the nearby City of Orange General Plan Noise Element Table N-3 standards for non-noise-sensitive uses. (14)

4.3 SUBSTANTIAL TEMPORARY OF PERIODIC NOISE LEVEL INCREASES

Due to the temporary, short-term nature of noise-generating construction activities, the temporary or periodic noise level increases over the existing ambient conditions must be considered under CEQA Guideline D, consistent with the legal case, *Friends of Riverside's Hills v. Riverside Transportation Commission, et al.* (13)

The City of Santa Ana has historically been used 10 dBA L_{eq} threshold to describe a potentially significant impact for residential noise sensitive receiver locations since it represents the perceived doubling of the existing noise level conditions. However, due to the professional and administrative office land use designation and non-residential nature of the existing Project site, all the nearby receivers are considered non-noise sensitive. Therefore, to describe a substantial temporary noise level increase threshold for construction noise levels at non-noise sensitive receivers, this analysis relies on applicable State-level regulations.

The Caltrans *Traffic Noise Analysis Protocol* 12 dBA L_{eq} *substantial* noise level increase threshold is used in this analysis to assess temporary noise level increases at all the nearby non-noise sensitive receiver locations. (4) If the Project-related construction noise levels generate a temporary noise level increase above the existing ambient noise levels of up to 12 dBA L_{eq} , then the Project construction noise level increases will be considered a potentially significant impact. Although the Caltrans recommendations were specifically developed to assess traffic noise impacts, the 12 dBA L_{eq} substantial noise level increase threshold is used in California to address noise level increases with the potential to exceed existing conditions. (4)

4.4 SIGNIFICANCE CRITERIA SUMMARY

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

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g., residential, hospital, etc.):
 - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
 - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
 - already exceed 65 dBA CNEL, and the Project creates a community noise level increase of greater than 1.5 dBA CNEL (FICON, 1992).
- When the noise levels at existing and future non-noise-sensitive land uses (e.g. office, commercial, etc.):
 - are less than the OPR General Plan Guidelines, Figure 2, *normally acceptable* 70 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
 - are greater than the OPR General Plan Guidelines, Figure 2, *normally acceptable* 70 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase.

ON-SITE TRAFFIC NOISE

- If the on-site noise levels:
 - exceed the exterior noise level standard of 65 dBA CNEL for outdoor areas (e.g., outdoor common areas); or
 - exceed an interior noise level of 45 dBA CNEL for residential uses (City of Santa Ana General Plan Noise Element, Table 1).
 - exceed an interior noise level of 50 dBA L_{eq} for non-residential buildings (CALGreen Section 5.507 Environmental Comfort).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities:
 - occur at any time between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or any time on Sunday or a federal holiday (City of Santa Ana Municipal Code, Section 18-314(e)); or
 - create noise levels which exceed the 85 dBA L_{eq} acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure); or
 - generate temporary Project construction-related noise level increases which exceed the 10 dBA L_{eq} noise level increase threshold at residential noise-sensitive receiver locations.
- If Project-related construction activities generate vibration levels which exceed the Caltrans building damage vibration level threshold for older residential structures of 0.3 in/sec PPV, or the *distinctly perceptible* human annoyance vibration level threshold of 0.04 in/sec PPV at nearby sensitive receiver locations (Caltrans Transportation and Construction Vibration Guidance Manual, Tables 19 & 20).

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic Noise	Noise-Sensitive ¹	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive ²	if ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
On-Site Traffic Noise	Residential ³	Exterior Noise Level Standard	65 dBA CNEL (common areas)	
		Interior Noise Level Standard	45 dBA CNEL	
	Commercial ⁴	Exterior Noise Level Standard	none	
		Interior Noise Level Standard	50 dBA L _{eq}	
Construction Noise & Vibration	Noise-Sensitive	Noise Level Threshold ⁵	85 dBA L _{eq}	n/a
		Vibration Level Threshold (Building Damage) ⁶	0.3 in/sec PPV	n/a
		Vibration Level Threshold (Distinctly Perceptible) ⁶	0.04 in/sec PPV	n/a

¹ Source: FICON, 1992.

² Based on the FICON increase criteria and the land use compatibility criteria for non-noise-sensitive land uses in the OPR General Plan Guidelines, Appendix D.

³ Source: City of Santa Ana General Plan Noise Element, Table 1.

⁴ Source: California Green Building Standards Code Section 5.507

⁵ NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure.

⁶ Source: Caltrans Transportation and Construction Vibration Guidance Manual, September 2013, Tables 19 & 20.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "n/a" = No nighttime construction activity is permitted, so no nighttime construction noise level limits are identified; "PPV" = peak particle velocity

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at six locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Tuesday, May 14th, 2019. Appendix 5.1 includes study area photos. Background noise levels are also influenced by the existing John Wayne Airport aircraft overflight activities.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (23)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources.* (6) Further, FTA guidance states, *that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community.* (24)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (24) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the

future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

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

- Location L1 represents the noise levels on Warner Avenue near existing business complex, across from northeast boundary of the Project site. The noise levels at this location consist primarily of traffic noise from Warner Avenue and commercial parking lot vehicle movements. The noise level measurements collected show an overall 24-hour exterior noise level of 65.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 62.9 dBA L_{eq} with an average nighttime noise level of 56.7 dBA L_{eq} .
- Location L2 represents noise levels on Warner Avenue near Tustin Legacy development, southeast of the Project site. Ambient noise levels at this location account for the daytime operations at the U.S. Armed Forces Reserve Center in addition to traffic noise from Warner Avenue. The noise level measurements collected show an overall 24-hour exterior noise level of 62.9 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 61.0 dBA L_{eq} with an average nighttime noise level of 54.2 dBA L_{eq} .
- Location L3 represents the noise levels on Red Hill Avenue near the southeast border of the project site. The noise levels at this location consist primarily of traffic noise from Red Hill Avenue and vehicle movement into business complex parking lot. The noise level measurements collected show an overall 24-hour exterior noise level of 64.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 61.6 dBA L_{eq} with an average nighttime noise level of 56.4 dBA L_{eq} .
- Location L4 represents the noise levels on Red Hill Avenue, across from southeastern boundary of the Project site, near Tustin Legacy development. The noise level measurements collected show an overall 24-hour exterior noise level of 62.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.9 dBA L_{eq} with an average nighttime noise level of 53.2 dBA L_{eq} . The noise levels at this location consist primarily of traffic noise from Red Hill Avenue.
- Location L5 represents the noise levels within Project site boundaries, adjacent to southwestern border of the Project site, near light industrial area. The 24-hour CNEL indicates that the overall exterior noise level is 58.9 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 58.0 dBA L_{eq} with an average nighttime noise level of 47.6 dBA L_{eq} . Background industrial activity represent the primary noise source at this location.

- Location L6 represents the noise levels northwest of the Project site, adjacent to existing industrial use. The 24-hour CNEL indicates that the overall exterior noise level is 63.8 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 63.7 dBA L_{eq} with an average nighttime noise level of 51.9 dBA L_{eq} . Parking lot vehicle movements and background industrial activity represents the primary source of noise at this location.

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

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with Warner Avenue and Red Hill Avenue. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 5-1.

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

Location ¹	Description	Energy Average Noise Level (dBA L_{eq}) ²		CNEL
		Daytime	Nighttime	
L1	Located on Warner Avenue near existing business complex, across from northeast boundary of the Project site.	62.9	56.7	65.1
L2	Located on Warner Avenue near in progress Tustin Legacy development, southeast of the Project site.	61.0	54.2	62.9
L3	Located on Red Hill Avenue near the southeast border of the project site.	61.6	56.4	64.3
L4	Located on Red Hill Avenue, across from southeastern boundary of the Project site, near in progress Tustin Legacy development.	60.9	53.2	62.3
L5	Located within Project site boundaries, adjacent to southwestern border of the Project site, near light industrial area and railroad tracks.	58.0	47.6	58.9
L6	Located northwest of the Project site, adjacent to existing business commercial area.	63.7	51.9	63.8

¹ See Exhibit 5-A for the noise level measurement locations.

² Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



6 METHODS AND PROCEDURES

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

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The 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. (25) 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. (26) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.1.1 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 24 study area roadway segments, the distance from the centerline to adjacent land use based on the roadway facility type, and the posted vehicle speeds. For this analysis, soft site conditions are used to analyze the off-site traffic noise impacts within the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Caltrans' research has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model as used in this off-site traffic noise analysis. (27)

The Existing, Opening Year, and Year 2040 average daily traffic volumes derived from the peak hour turning movements used for this study are presented on Table 6-2 and are provided by *The Bowery Traffic Impact Analysis*. (2) Table 6-3 presents the time of day vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	City	Roadway Facility Type	Distance From Centerline To Nearest Adjacent Land Use (Feet) ¹	Vehicle Speed (mph) ²
1	Grand Ave.	s/o Warner Ave.	Santa Ana	6-Lane Divided	60'	45
2	Newport Ave.	n/o Valencia Ave.	Tustin	6-Lane Divided	60'	40
3	Red Hill Ave.	n/o Walnut Ave.	Tustin	6-Lane Divided	60'	40
4	Red Hill Ave.	s/o Walnut Ave.	Tustin	6-Lane Divided	60'	40
5	Red Hill Ave.	n/o Valencia Ave.	Tustin	6-Lane Divided	60'	45
6	Red Hill Ave.	s/o Valencia Ave.	Tustin	6-Lane Divided	60'	50
7	Red Hill Ave.	s/o Warner Ave.	Tustin	6-Lane Divided	60'	50
8	Red Hill Ave.	n/o Carnegie Ave.	Tustin	6-Lane Divided	60'	50
9	Red Hill Ave.	s/o Carnegie Ave.	Tustin	6-Lane Divided	60'	50
10	Red Hill Ave.	n/o Barranca Pkwy.	Tustin	8-Lane Divided	70'	50
11	Red Hill Ave.	s/o Barranca Pkwy.	Irvine	8-Lane Divided	70'	50
12	Red Hill Ave.	n/o MacArthur Blvd.	Irvine	6-Lane Divided	60'	50
13	Red Hill Ave.	s/o MacArthur Blvd.	Irvine	4-Lane Divided	40'	50
14	Valencia Ave.	w/o Red Hill Ave.	Tustin	4-Lane Divided	40'	45
15	Valencia Ave.	e/o Red Hill Ave.	Tustin	4-Lane Divided	40'	45
16	Warner Ave.	w/o Grand Ave.	Santa Ana	4-Lane Divided	40'	45
17	Warner Ave.	e/o Grand Ave.	Santa Ana	4-Lane Divided	40'	45
18	Warner Ave.	w/o Red Hill Ave.	Santa Ana	6-Lane Divided	60'	45
19	Warner Ave.	e/o Red Hill Ave.	Tustin	6-Lane Divided	60'	50
20	Dyer Rd.	w/o Red Hill Ave.	Santa Ana	6-Lane Divided	60'	40
21	Barranca Pkwy.	e/o Red Hill Ave.	Tustin	8-Lane Divided	70'	50
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	Tustin	8-Lane Divided	70'	50
23	MacArthur Blvd.	w/o Red Hill Ave.	Irvine	8-Lane Divided	70'	50
24	MacArthur Blvd.	e/o Red Hill Ave.	Irvine	8-Lane Divided	70'	50

¹ Distance to adjacent land use is based upon the right-of-way distances for each roadway facility type

² Source: The Bowery Traffic Impact Analysis, November 2019

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic (1,000's) ¹					
			Existing		Opening Year		Year 2040	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Grand Ave.	s/o Warner Ave.	20.5	20.6	21.6	21.7	20.0	20.1
2	Newport Ave.	n/o Valencia Ave.	10.6	10.8	11.9	12.2	20.8	21.0
3	Red Hill Ave.	n/o Walnut Ave.	23.9	24.0	26.0	26.1	29.5	29.6
4	Red Hill Ave.	s/o Walnut Ave.	24.9	25.0	27.0	27.1	31.2	31.3
5	Red Hill Ave.	n/o Valencia Ave.	23.9	24.1	26.1	26.3	32.0	32.2
6	Red Hill Ave.	s/o Valencia Ave.	27.4	27.9	28.6	29.2	30.9	31.5
7	Red Hill Ave.	s/o Warner Ave.	33.0	34.8	34.4	36.1	38.5	40.2
8	Red Hill Ave.	n/o Carnegie Ave.	32.8	35.7	34.1	37.0	37.2	40.1
9	Red Hill Ave.	s/o Carnegie Ave.	31.9	34.9	33.2	36.2	37.5	40.5
10	Red Hill Ave.	n/o Barranca Pkwy.	32.6	35.6	36.7	39.6	40.7	43.6
11	Red Hill Ave.	s/o Barranca Pkwy.	32.8	34.3	37.1	38.7	41.1	42.7
12	Red Hill Ave.	n/o MacArthur Blvd.	47.3	48.1	52.1	52.9	58.5	59.3
13	Red Hill Ave.	s/o MacArthur Blvd.	21.5	21.9	22.2	22.5	24.3	24.7
14	Valencia Ave.	w/o Red Hill Ave.	7.7	8.0	9.0	9.3	15.3	15.6
15	Valencia Ave.	e/o Red Hill Ave.	9.6	9.7	12.0	12.1	21.6	21.7
16	Warner Ave.	w/o Grand Ave.	24.3	24.4	25.8	26.0	27.6	27.7
17	Warner Ave.	e/o Grand Ave.	22.9	23.6	24.2	24.9	32.1	32.9
18	Warner Ave.	w/o Red Hill Ave.	23.0	26.0	24.3	27.3	36.8	39.8
19	Warner Ave.	e/o Red Hill Ave.	15.1	16.6	16.3	17.7	31.2	32.6
20	Dyer Rd.	w/o Red Hill Ave.	25.5	26.0	29.3	29.8	34.9	35.4
21	Barranca Pkwy.	e/o Red Hill Ave.	30.1	31.0	35.9	36.8	39.3	40.3
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	33.7	34.4	38.2	39.0	41.8	42.5
23	MacArthur Blvd.	w/o Red Hill Ave.	31.5	31.5	33.2	33.3	38.7	38.8
24	MacArthur Blvd.	e/o Red Hill Ave.	25.5	25.8	29.1	29.4	31.2	31.6

¹ Source: Derived from the PM peak hour volumes from The Bowery Traffic Impact Analysis, November 2019.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits ¹			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

¹ Source: Typical Southern California vehicle mix & County of Orange Land Use/Noise Compatibility Manual, December 1993.

"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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

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

¹ Source: County of Orange Land Use/Noise Compatibility Manual, December 1993.

6.1.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 6-5. Future traffic volumes on Warner Avenue and Red Hill Avenue are based on *The Bowery Traffic Impact Analysis* Horizon Year 2040 with Project volumes. (2) Hard site conditions are used to account for the sound propagation loss over reflective surfaces between the source and receiver. As previously described, Table 6-3 presents the time of day vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-5: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Facility Type	Future ADT Volume ¹	Posted Speed Limits (mph)	Site Conditions
Warner Ave.	6	Divided	39,800	45	Hard
Red Hill Ave.	6	Divided	40,200	50	Hard

¹ Derived from the Horizon Year 2040 with Project PM peak hour volumes from The Bowery Traffic Impact Analysis, November 2019.

"ADT" = Average Daily Traffic

6.2 CONSTRUCTION VIBRATION ASSESSMENT METHODOLOGY

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

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

TABLE 6-6: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

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

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7 OFF-SITE TRANSPORTATION NOISE IMPACTS

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

- Existing Conditions Without Project: This scenario refers to the existing present-day noise conditions without the proposed Project.
 - Existing With Project: This scenario refers to the existing present-day noise conditions with the proposed Project.
- Opening Year Without the Project: This scenario refers to Opening Year noise conditions without the proposed Project.
 - Opening Year With Project: This scenario includes all cumulative projects identified in the *Traffic Impact Analysis*.
- Horizon Year 2040 Without Project: This scenario refers to the background noise conditions at Horizon Year 2040 without the proposed Project.
 - Horizon Year 2040 With Project: This scenario corresponds to Horizon Year 2040 conditions, and includes all cumulative projects identified in the *Traffic Impact Analysis*.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 and 7-6 present a summary of the exterior traffic noise levels, without barrier attenuation, for the 24 study area roadway segments analyzed from the without Project to the with Project conditions for Existing, Opening Year, and Horizon Year 2040 conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Nearest Adjacent Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	70.9	69	149	320
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	66.7	RW	78	169
3	Red Hill Ave.	n/o Walnut Ave.	Residential	70.3	63	135	291
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	70.5	65	139	300
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	71.6	76	164	354
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.3	100	215	462
7	Red Hill Ave.	s/o Warner Ave.	TLSP	74.1	113	243	524
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	74.1	112	242	521
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	74.0	110	238	513
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	73.3	117	251	541
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	73.3	117	252	543
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	75.7	143	309	666
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.1	65	139	300
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	67.5	RW	59	127
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	68.4	RW	68	146
16	Warner Ave.	w/o Grand Ave.	Industrial	72.5	59	126	272
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	72.2	56	122	262
18	Warner Ave.	w/o Red Hill Ave.	Office	71.4	74	160	345
19	Warner Ave.	e/o Red Hill Ave.	TLSP	70.7	67	145	311
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	70.6	66	141	304
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	73.0	111	238	513
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	73.5	119	257	553
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	73.2	114	245	528
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	72.3	99	213	459

¹ Sources: City of Santa Ana Land Use Element (Exhibit 2) & City of Tustin General Plan & City of Irvine Land Use Figure A-3

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

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

"TLSP" = Tustin Legacy Specific Plan

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Nearest Adjacent Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	70.9	69	149	321
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	66.8	RW	80	171
3	Red Hill Ave.	n/o Walnut Ave.	Residential	70.3	63	136	292
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	70.5	65	139	300
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	71.6	77	165	356
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.4	101	218	469
7	Red Hill Ave.	s/o Warner Ave.	TLSP	74.3	117	252	542
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	74.5	119	256	552
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	74.4	117	252	544
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	73.7	123	266	573
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	73.5	121	260	560
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	75.8	145	313	673
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.2	65	141	303
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	67.7	RW	60	130
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	68.5	RW	68	147
16	Warner Ave.	w/o Grand Ave.	Industrial	72.5	59	127	273
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	72.4	58	124	267
18	Warner Ave.	w/o Red Hill Ave.	Office	71.9	81	174	375
19	Warner Ave.	e/o Red Hill Ave.	TLSP	71.1	71	154	331
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	70.7	66	143	308
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	73.1	113	243	523
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	73.6	121	260	561
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	73.2	114	246	529
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	72.3	100	215	463

¹ Sources: City of Santa Ana Land Use Element (Exhibit 2) & City of Tustin General Plan & City of Irvine Land Use Figure A-3

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

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

"TLSP" = Tustin Legacy Specific Plan

TABLE 7-3: OPENING YEAR WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Nearest Adjacent Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	71.1	71	154	331
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	67.3	RW	85	183
3	Red Hill Ave.	n/o Walnut Ave.	Residential	70.7	66	143	308
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	70.8	68	147	316
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	72.0	81	174	376
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.5	103	221	476
7	Red Hill Ave.	s/o Warner Ave.	TLSP	74.3	116	250	538
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	74.3	115	248	535
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	74.1	113	244	526
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	73.8	126	272	585
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	73.9	127	274	590
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	76.1	153	330	710
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.2	66	142	306
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	68.2	RW	65	140
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	69.4	RW	79	171
16	Warner Ave.	w/o Grand Ave.	Industrial	72.8	61	132	284
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	72.5	59	126	272
18	Warner Ave.	w/o Red Hill Ave.	Office	71.6	77	166	358
19	Warner Ave.	e/o Red Hill Ave.	TLSP	71.0	70	152	327
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	71.2	72	155	334
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	73.7	124	268	577
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	74.0	130	279	602
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	73.4	118	254	548
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	72.8	108	233	501

¹ Sources: City of Santa Ana Land Use Element (Exhibit 2) & City of Tustin General Plan & City of Irvine Land Use Figure A-3

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

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

"TLSP" = Tustin Legacy Specific Plan

TABLE 7-4: OPENING YEAR WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Nearest Adjacent Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	71.1	71	154	332
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	67.4	RW	86	186
3	Red Hill Ave.	n/o Walnut Ave.	Residential	70.7	67	143	309
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	70.8	68	147	317
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	72.0	81	175	378
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.6	104	224	482
7	Red Hill Ave.	s/o Warner Ave.	TLSP	74.5	120	258	556
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	74.6	122	263	566
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	74.5	120	258	557
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	74.2	133	286	616
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	74.1	131	282	607
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	76.2	155	333	718
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.3	67	143	309
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	68.3	RW	67	144
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	69.5	RW	80	171
16	Warner Ave.	w/o Grand Ave.	Industrial	72.8	61	132	285
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	72.6	60	129	277
18	Warner Ave.	w/o Red Hill Ave.	Office	72.1	83	180	387
19	Warner Ave.	e/o Red Hill Ave.	TLSP	71.4	75	161	346
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	71.2	73	156	337
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	73.9	126	272	587
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	74.1	131	283	609
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	73.4	118	255	548
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	72.9	109	235	505

¹ Sources: City of Santa Ana Land Use Element (Exhibit 2) & City of Tustin General Plan & City of Irvine Land Use Figure A-3

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

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

"TLSP" = Tustin Legacy Specific Plan

TABLE 7-5: HORIZON YEAR 2040 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Nearest Adjacent Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	70.8	68	146	315
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	69.7	RW	123	265
3	Red Hill Ave.	n/o Walnut Ave.	Residential	71.2	72	155	335
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	71.5	75	162	348
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	72.8	93	200	430
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.8	108	233	502
7	Red Hill Ave.	s/o Warner Ave.	TLSP	74.8	125	269	580
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	74.6	122	263	567
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	74.7	123	265	571
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	74.3	135	291	627
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	74.3	136	293	632
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	76.6	165	356	767
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.6	70	151	325
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	70.5	43	93	200
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	72.0	54	117	252
16	Warner Ave.	w/o Grand Ave.	Industrial	73.0	64	138	296
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	73.7	71	152	328
18	Warner Ave.	w/o Red Hill Ave.	Office	73.4	102	219	472
19	Warner Ave.	e/o Red Hill Ave.	TLSP	73.9	109	234	504
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	71.9	81	174	375
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	74.1	132	285	613
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	74.4	138	296	639
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	74.1	131	282	607
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	73.1	113	244	526

¹ Sources: City of Santa Ana Land Use Element (Exhibit 2) & City of Tustin General Plan & City of Irvine Land Use Figure A-3

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

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

"TLSP" = Tustin Legacy Specific Plan

TABLE 7-6: HORIZON YEAR 2040 WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Nearest Adjacent Land Use (dBA) ²	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	70.8	68	146	315
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	69.7	RW	124	267
3	Red Hill Ave.	n/o Walnut Ave.	Residential	71.2	72	156	336
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	71.5	75	162	349
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	72.9	93	200	432
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.9	109	236	508
7	Red Hill Ave.	s/o Warner Ave.	TLSP	75.0	129	277	597
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	75.0	128	277	596
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	75.0	129	279	600
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	74.6	142	305	657
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	74.5	140	301	648
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	76.7	167	359	774
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.7	71	152	328
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	70.6	44	94	203
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	72.0	54	117	252
16	Warner Ave.	w/o Grand Ave.	Industrial	73.1	64	138	297
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	73.8	72	155	333
18	Warner Ave.	w/o Red Hill Ave.	Office	73.8	107	231	498
19	Warner Ave.	e/o Red Hill Ave.	TLSP	74.1	112	241	520
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	72.0	81	176	378
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	74.2	134	289	623
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	74.5	139	300	646
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	74.1	131	282	608
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	73.2	114	246	530

¹ Sources: City of Santa Ana Land Use Element (Exhibit 2) & City of Tustin General Plan & City of Irvine Land Use Figure A-3

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

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

"TLSP" = Tustin Legacy Specific Plan

7.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report. However, the analysis of existing traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until opening year conditions. Table 7-1 presents the Existing without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 66.7 to 75.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-2 shows the Existing with Project conditions will range from 66.8 to 75.8 dBA CNEL. As shown on Table 7-7 the Project will generate a noise level increase of up to 0.5 dBA CNEL on the study area roadway segments.

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

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Adjacent Land Use (dBA) ¹			Noise-Sensitive Land Use?	Off-Site Traffic Noise Threshold ³	Threshold Exceeded? ³
				No Project	With Project	Project Addition			
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	70.9	70.9	0.0	No	3.0	No
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	66.7	66.8	0.1	No	5.0	No
3	Red Hill Ave.	n/o Walnut Ave.	Residential	70.3	70.3	0.0	Yes	1.5	No
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	70.5	70.5	0.0	Yes	1.5	No
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	71.6	71.6	0.0	No	3.0	No
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.3	73.4	0.1	No	3.0	No
7	Red Hill Ave.	s/o Warner Ave.	TLSP	74.1	74.3	0.2	No	3.0	No
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	74.1	74.5	0.4	No	3.0	No
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	74.0	74.4	0.4	No	3.0	No
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	73.3	73.7	0.4	No	3.0	No
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	73.3	73.5	0.2	No	3.0	No
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	75.7	75.8	0.1	No	3.0	No
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.1	73.2	0.1	No	3.0	No
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	67.5	67.7	0.2	No	5.0	No
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	68.4	68.5	0.1	No	5.0	No
16	Warner Ave.	w/o Grand Ave.	Industrial	72.5	72.5	0.0	No	3.0	No
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	72.2	72.4	0.2	No	3.0	No
18	Warner Ave.	w/o Red Hill Ave.	Office	71.4	71.9	0.5	No	3.0	No
19	Warner Ave.	e/o Red Hill Ave.	TLSP	70.7	71.1	0.4	No	3.0	No
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	70.6	70.7	0.1	No	3.0	No
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	73.0	73.1	0.1	No	3.0	No
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	73.5	73.6	0.1	No	3.0	No
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	73.2	73.2	0.0	No	3.0	No
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	72.3	72.3	0.0	No	3.0	No

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

² Significance Criteria (Section 4).

7.3 OPENING YEAR 2022 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-3 presents the Opening Year without Project conditions CNEL noise levels which are expected to range from 67.3 to 76.1 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-4 shows the Opening Year with Project conditions will range from 67.4 to 76.2 dBA CNEL. As shown on Table 7-8 the Project will generate a noise level increase of up to 0.5 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Opening Year with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-8: OPENING YEAR OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Adjacent Land Use (dBA) ¹			Noise-Sensitive Land Use?	Off-Site Traffic Noise Threshold ³	Threshold Exceeded? ³
				No Project	With Project	Project Addition			
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	71.1	71.1	0.0	No	3.0	No
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	67.3	67.4	0.1	No	5.0	No
3	Red Hill Ave.	n/o Walnut Ave.	Residential	70.7	70.7	0.0	Yes	1.5	No
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	70.8	70.8	0.0	Yes	1.5	No
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	72.0	72.0	0.0	No	3.0	No
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.5	73.6	0.1	No	3.0	No
7	Red Hill Ave.	s/o Warner Ave.	TLSP	74.3	74.5	0.2	No	3.0	No
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	74.3	74.6	0.3	No	3.0	No
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	74.1	74.5	0.4	No	3.0	No
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	73.8	74.2	0.4	No	3.0	No
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	73.9	74.1	0.2	No	3.0	No
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	76.1	76.2	0.1	No	3.0	No
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.2	73.3	0.1	No	3.0	No
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	68.2	68.3	0.1	No	5.0	No
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	69.4	69.5	0.1	No	5.0	No
16	Warner Ave.	w/o Grand Ave.	Industrial	72.8	72.8	0.0	No	3.0	No
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	72.5	72.6	0.1	No	3.0	No
18	Warner Ave.	w/o Red Hill Ave.	Office	71.6	72.1	0.5	No	3.0	No
19	Warner Ave.	e/o Red Hill Ave.	TLSP	71.0	71.4	0.4	No	3.0	No
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	71.2	71.2	0.0	No	3.0	No
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	73.7	73.9	0.2	No	3.0	No
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	74.0	74.1	0.1	No	3.0	No
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	73.4	73.4	0.0	No	3.0	No
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	72.8	72.9	0.1	No	3.0	No

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

² Significance Criteria (Section 4).

7.4 HORIZON YEAR 2040 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-5 presents the Horizon Year 2040 without Project conditions CNEL noise levels are expected to range from 69.7 to 76.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-6 shows the Horizon Year 2040 with Project conditions will range from 69.7 to 76.7 dBA CNEL. As shown on Table 7-9 the Project will generate a noise level increase of up to 0.4 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Horizon Year 2040 with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-9: HORIZON YEAR 2040 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Adjacent Land Use ¹	CNEL at Adjacent Land Use (dBA) ¹			Noise-Sensitive Land Use?	Off-Site Traffic Noise Threshold ³	Threshold Exceeded? ³
				No Project	With Project	Project Addition			
1	Grand Ave.	s/o Warner Ave.	Industrial and Office	70.8	70.8	0.0	No	3.0	No
2	Newport Ave.	n/o Valencia Ave.	Commercial/Business	69.7	69.7	0.0	No	5.0	No
3	Red Hill Ave.	n/o Walnut Ave.	Residential	71.2	71.2	0.0	Yes	1.5	No
4	Red Hill Ave.	s/o Walnut Ave.	Residential/Institutional	71.5	71.5	0.0	Yes	1.5	No
5	Red Hill Ave.	n/o Valencia Ave.	Commercial/Business/TLSP	72.8	72.9	0.1	No	3.0	No
6	Red Hill Ave.	s/o Valencia Ave.	Commercial/Business/TLSP	73.8	73.9	0.1	No	3.0	No
7	Red Hill Ave.	s/o Warner Ave.	TLSP	74.8	75.0	0.2	No	3.0	No
8	Red Hill Ave.	n/o Carnegie Ave.	TLSP	74.6	75.0	0.4	No	3.0	No
9	Red Hill Ave.	s/o Carnegie Ave.	TLSP	74.7	75.0	0.3	No	3.0	No
10	Red Hill Ave.	n/o Barranca Pkwy.	TLSP	74.3	74.6	0.3	No	3.0	No
11	Red Hill Ave.	s/o Barranca Pkwy.	Urban and Industrial	74.3	74.5	0.2	No	3.0	No
12	Red Hill Ave.	n/o MacArthur Blvd.	Urban and Industrial	76.6	76.7	0.1	No	3.0	No
13	Red Hill Ave.	s/o MacArthur Blvd.	Urban and Industrial	73.6	73.7	0.1	No	3.0	No
14	Valencia Ave.	w/o Red Hill Ave.	Commercial/Business	70.5	70.6	0.1	No	3.0	No
15	Valencia Ave.	e/o Red Hill Ave.	TLSP	72.0	72.0	0.0	No	3.0	No
16	Warner Ave.	w/o Grand Ave.	Industrial	73.0	73.1	0.1	No	3.0	No
17	Warner Ave.	e/o Grand Ave.	Industrial and Office	73.7	73.8	0.1	No	3.0	No
18	Warner Ave.	w/o Red Hill Ave.	Office	73.4	73.8	0.4	No	3.0	No
19	Warner Ave.	e/o Red Hill Ave.	TLSP	73.9	74.1	0.2	No	3.0	No
20	Dyer Rd.	w/o Red Hill Ave.	Office and District Center	71.9	72.0	0.1	No	3.0	No
21	Barranca Pkwy.	e/o Red Hill Ave.	TLSP	74.1	74.2	0.1	No	3.0	No
22	Barranca Pkwy.	w/o Tustin Ranch Rd.	TLSP	74.4	74.5	0.1	No	3.0	No
23	MacArthur Blvd.	w/o Red Hill Ave.	Urban and Industrial	74.1	74.1	0.0	No	3.0	No
24	MacArthur Blvd.	e/o Red Hill Ave.	Urban and Industrial	73.1	73.2	0.1	No	3.0	No

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

² Significance Criteria (Section 4).

8 ON-SITE NOISE IMPACTS

A noise impact analysis has been completed to determine the noise exposure levels that would result from off-site transportation noise sources, and to identify potential noise mitigation measures that would achieve acceptable Project exterior and interior noise levels. The primary source of traffic noise affecting the Project site is anticipated to be from Warner Avenue and Red Hill Avenue. The Project will also experience some background aircraft noise impacts associated with JWA. However, since the Project site is located outside the 55 dBA CNEL aircraft noise level contour boundaries of JWA, the aircraft noise level impacts area considered *less than significant*. In addition, the County of Orange has adopted the General Aviation Noise Ordinance (GANO) that prohibits commercial aircraft departures between the hours of 10:00 p.m. and 7:00 a.m. and arrivals between the hours of 11:00 p.m. and 7:00 a.m. (20) These restrictions substantially reduce the aircraft noise levels impacts during the noise sensitive nighttime hours for residential use.

8.1 EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model, and the parameters outlined in Section 6, the expected future exterior noise levels were calculated at the multi-family outdoor common areas the residential building façades and at the retail building façades for the planned commercial retail land uses.

8.1.1 OUTDOOR COMMON AREAS

A review of the Project site plan suggests that the multi-family residential outdoor common areas will be limited to the rooftops of Building A, Building B as well as the courtyard areas for Building C and Building D. The location and design of the multi-family residential outdoor common areas substantially limits the potential exposure of these areas to the traffic noise from Warner Avenue and Red Hill Avenue. For example, the roof-deck representing the outdoor common areas for Building A, is located on top of the 7-level parking structure and is screened from both Warner Avenue and Red Hill Avenue by the structure itself including the fitness and clubroom buildings.

Table 8-1 presents a summary of future exterior noise levels at the outdoor common areas. The on-site transportation analysis indicates that the unmitigated exterior noise levels multi-family outdoor common areas will range from 45.1 to 57.7 dBA CNEL. The outdoor common area exterior traffic noise analysis calculations are provided in Appendix 8.1. As shown on Table 8-1, future unmitigated on-site traffic noise levels are expected to satisfy the City of Santa Ana General Plan Noise Element 65 dBA CNEL exterior noise level standard for outdoor common areas within the Project site with exterior noise levels approaching 57.7 dBA CNEL. As such, the future on-site traffic noise impacts at the multi-family residential outdoor common areas are considered *less than significant* impacts.

The City of Santa Ana does not identify any exterior noise level limits for the commercial retail uses. Therefore, analysis of the commercial retail land use is limited to the interior noise levels significance criteria outlined in California Green Building Standards Code Section 5.507. No exterior noise analysis is provided for the planned commercial retail plaza or outdoor patio areas.

TABLE 8-1: OUTDOOR COMMON AREA EXTERIOR TRAFFIC NOISE LEVELS

Outdoor Common Area	Floor	Roadway	Exterior Noise Level (dBA CNEL) ¹	Threshold (dBA CNEL) ²	Threshold Exceeded?
Bldg. A	7	Warner Ave.	49.7	65	No
Bldg. B	7	Red Hill Ave.	46.1	65	No
Bldg. C	1	Red Hill Ave.	45.1	65	No
Bldg. D	1	Warner Ave.	57.7	65	No

¹ Unmitigated exterior noise level within the outdoor common area.

² See Section 4.

8.1.2 BUILDING FACADE

Table 8-2 presents a summary of future exterior noise levels at the 1st, 2nd, 3rd and 4th-6th floor building facades where residential units would be located. The on-site transportation analysis indicates that the unmitigated exterior noise levels will range from 68.5 to 73.2 dBA CNEL at the building façades. The on-site traffic noise analysis calculations at the building facades are provided in Appendix 8.2.

TABLE 8-2: EXTERIOR TRAFFIC NOISE LEVELS AT THE RESIDENTIAL BUILDING FACADES

On-Site Receiver Location	Roadway	Exterior Noise Level at Façade (dBA CNEL)			
		1st Floor	2nd Floor	3rd Floor	4th-6th Floors
Bldg. A	Warner Ave.	73.2	73.1	72.9	72.6
	Red Hill Ave.	— ¹	70.7	70.7	70.6
Bldg. B	Red Hill Ave.	— ¹	68.6	68.6	68.5
Bldg. C	Red Hill Ave.	— ¹	72.2	72.1	72.0
Bldg. D	Warner Ave.	73.2	73.1	72.9	72.6
Retail	Warner Ave.	73.1	— ²	— ²	— ²
	Red Hill Ave.	72.7	— ²	— ²	— ²

¹ No residential use at this level.

² No commercial retail land use at this level.

Future on-site traffic noise levels at the residential building façades are shown to approach 73.2 dBA CNEL, which, based on Figure 2 of the OPR's *General Plan Guidelines, Appendix D: Noise Element Guidelines*, represents *normally unacceptable* land use. New construction within this

land use compatibility category is required to demonstrate compliance with interior noise level standards by identifying any necessary noise reduction measures. (14) Therefore, based on the future exterior traffic noise levels, Project interior noise levels are analyzed herein to identify the necessary interior noise reduction measures to satisfy the City of Santa Ana General Plan Noise Element 45 dBA CNEL interior noise level standard for multi-family residential land use and the California Green Building Standard of 50 dBA L_{eq} for the commercial retail land use.

8.2 INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the interior noise level standards, future exterior noise levels were calculated at the 1st, 2nd, 3rd and 4th-6th floor building facades where residential units would be located.

8.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building facade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (28; 29) However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: [1] weather-stripped solid core exterior doors; [2] upgraded dual glazed windows; [3] mechanical ventilation/air conditioning; and [4] exterior wall/roof assemblies free of cut outs or openings.

8.2.2 INTERIOR NOISE REDUCTION CALCULATIONS

The noise reduction characteristics of a building are determined by combining the transmission loss of each of the building components that make up the building. Each unique component has a transmission loss value. For residential units, the critical building components include the roof, walls, windows, doors, and attic configuration and insulation characteristics. The total noise reduction is dependent upon the transmission loss of each element and the surface area of that element in relation to the total surface area of the room. To account for the acoustic energy absorbed within a room, the absorption coefficients for individual surface areas such as drywall and carpet are used to calculate the interior room effects. The calculated building noise reduction includes both the transmission loss associated with the exterior wall assembly and the room absorption characteristics.

Noise reduction calculations are based on the architectural floor plans prepared by Architects Orange. (30) The floor plans for the interior rooms with exterior walls of The Bowery Project were used to estimate the "windows closed" interior noise levels. To satisfy the City of Santa Ana NR requirements for exterior noise levels, the calculations were completed using standard windows with a minimum Sound Transmission Class (STC) of 27 As shown on Table 8-3, the calculated interior noise reduction with standard windows (STC 27) will range from 29.7 to 31.3 dBA CNEL. The interior noise reduction calculations are included in Appendix 8.3 for each floor plan indicated on Table 8-2.

TABLE 8-3: INTERIOR NOISE REDUCTION CALCULATIONS

Floor Plans Adjacent to Roadways	Room	Calculated NR (STC 27) ¹
A1	Bedroom	30.7
A3	Bedroom	30.6
B2	Bedroom	31.3
B5	Bedroom	30.5
S1	Bedroom	30.4
S2	Living	29.7
Commercial Retail ²		25.0

¹ Interior noise reduction calculations included in Appendix 8.3.

² Standard building construction typically provides up to 25 dBA of attenuation.

"NR" = Noise Reduction

8.2.3 INTERIOR NOISE LEVEL ASSESSMENT

Tables 8-4 to 8-7 show that the multi-family residential units within the Project building will require a windows-closed condition and a means of mechanical ventilation (e.g. air conditioning). Table 8-4 shows that the future exterior noise levels at the first-floor building façades facing Warner Avenue are expected at 73.2 dBA CNEL. The first-floor interior noise level analysis shows that the City of Santa Ana 45 dBA CNEL multi-family residential interior noise standards can be satisfied using standard windows and doors with minimum STC ratings of 27 for units facing to Warner Avenue. In addition, the first-floor interior noise level analysis shows that the CALGreen 50 dBA L_{eq} non-residential interior noise standards can be satisfied using standard building construction.

Tables 8-5 to 8-7 provide the interior noise level assessment for the second, third and fourth to sixth floor building facades. Table 8-5 to 8-7 also indicate that the City of Santa Ana 45 dBA CNEL multi-family residential interior noise standards can be satisfied using standard windows and doors with minimum STC ratings of 27 for units facing Warner Avenue and Red Hill Avenue. The interior noise level assessment shows that interior noise levels will be *less than significant*.

TABLE 8-4: FIRST-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Receiver Location	Unit Plan	Noise Level at Façade ¹	Required Interior NR ²	Minimum Calculated Interior NR ³	Upgraded Windows ⁴	Interior Noise Level ⁵	Threshold	Threshold Exceeded?
Bldg. A Warner Ave.	A1	73.2	28.2	30.7	No	42.5	45	No
	A3	73.2	28.2	30.6	No	42.6	45	No
	B2	73.2	28.2	31.3	No	41.9	45	No
	B5	73.2	28.2	30.5	No	42.7	45	No
	S1	73.2	28.2	30.4	No	42.8	45	No
	S2	73.2	28.2	29.7	No	43.5	45	No
Bldg. D Warner Ave.	A1	73.2	28.2	30.7	No	42.5	45	No
	A3	73.2	28.2	30.6	No	42.6	45	No
	B2	73.2	28.2	31.3	No	41.9	45	No
	B5	73.2	28.2	30.5	No	42.7	45	No
	S1	73.2	28.2	30.4	No	42.8	45	No
	S2	73.2	28.2	29.7	No	43.5	45	No
Retail-Warner Ave.		73.1	23.1	25.0	No	48.1	50	No
Retail-Red Hill Ave.		72.7	22.7	25.0	No	47.7	50	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 City of Santa Ana General Plan, Table 1, 45 dBA CNEL interior noise standard for residential uses.

³ Minimum calculated interior noise reduction from all rooms for each unit plan as shown on Table 8-2.

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.

"NR" = Noise Reduction

TABLE 8-5: SECOND-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Receiver Location	Unit Plan	Noise Level at Façade ¹	Required Interior NR ²	Minimum Calculated Interior NR ³	Upgraded Windows ⁴	Interior Noise Level ⁵	Threshold	Threshold Exceeded?
Bldg. A Warner Ave.	A1	73.1	28.1	30.7	No	42.4	45	No
	A3	73.1	28.1	30.6	No	42.5	45	No
	B2	73.1	28.1	31.3	No	41.8	45	No
	B5	73.1	28.1	30.5	No	42.6	45	No
	S1	73.1	28.1	30.4	No	42.7	45	No
	S2	73.1	28.1	29.7	No	43.4	45	No
Bldg. A Red Hill Ave.	A1	70.7	25.7	30.7	No	40.0	45	No
	A3	70.7	25.7	30.6	No	40.1	45	No
	B2	70.7	25.7	31.3	No	39.4	45	No
	B5	70.7	25.7	30.5	No	40.2	45	No
	S1	70.7	25.7	30.4	No	40.3	45	No
	S2	70.7	25.7	29.7	No	41.0	45	No
Bldg. B Red Hill Ave.	A1	68.6	23.6	30.7	No	37.9	45	No
	A3	68.6	23.6	30.6	No	38.0	45	No
	B2	68.6	23.6	31.3	No	37.3	45	No
	B5	68.6	23.6	30.5	No	38.1	45	No
	S1	68.6	23.6	30.4	No	38.2	45	No
	S2	68.6	23.6	29.7	No	38.9	45	No
Bldg. C Red Hill Ave.	A1	72.2	27.2	30.7	No	41.5	45	No
	A3	72.2	27.2	30.6	No	41.6	45	No
	B2	72.2	27.2	31.3	No	40.9	45	No
	B5	72.2	27.2	30.5	No	41.7	45	No
	S1	72.2	27.2	30.4	No	41.8	45	No
	S2	72.2	27.2	29.7	No	42.5	45	No
Bldg. D Warner Ave.	A1	73.1	28.1	30.7	No	42.4	45	No
	A3	73.1	28.1	30.6	No	42.5	45	No
	B2	73.1	28.1	31.3	No	41.8	45	No
	B5	73.1	28.1	30.5	No	42.6	45	No
	S1	73.1	28.1	30.4	No	42.7	45	No
	S2	73.1	28.1	29.7	No	43.4	45	No

¹ Exterior noise level at the façade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).

² Noise reduction required to satisfy the City of Santa Ana General Plan, Table 1, 45 dBA CNEL interior noise standard for residential uses.

³ Minimum calculated interior noise reduction from all rooms for each unit plan as shown on Table 8-2.

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.

"NR" = Noise Reduction

TABLE 8-6: THIRD-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Receiver Location	Unit Plan	Noise Level at Façade ¹	Required Interior NR ²	Minimum Calculated Interior NR ³	Upgraded Windows ⁴	Interior Noise Level ⁵	Threshold	Threshold Exceeded?
Bldg. A Warner Ave.	A1	72.9	27.9	30.7	No	42.2	45	No
	A3	72.9	27.9	30.6	No	42.3	45	No
	B2	72.9	27.9	31.3	No	41.6	45	No
	B5	72.9	27.9	30.5	No	42.4	45	No
	S1	72.9	27.9	30.4	No	42.5	45	No
	S2	72.9	27.9	29.7	No	43.2	45	No
Bldg. A Red Hill Ave.	A1	70.7	25.7	30.7	No	40.0	45	No
	A3	70.7	25.7	30.6	No	40.1	45	No
	B2	70.7	25.7	31.3	No	39.4	45	No
	B5	70.7	25.7	30.5	No	40.2	45	No
	S1	70.7	25.7	30.4	No	40.3	45	No
	S2	70.7	25.7	29.7	No	41.0	45	No
Bldg. B Red Hill Ave.	A1	68.6	23.6	30.7	No	37.9	45	No
	A3	68.6	23.6	30.6	No	38.0	45	No
	B2	68.6	23.6	31.3	No	37.3	45	No
	B5	68.6	23.6	30.5	No	38.1	45	No
	S1	68.6	23.6	30.4	No	38.2	45	No
	S2	68.6	23.6	29.7	No	38.9	45	No
Bldg. C Red Hill Ave.	A1	72.1	27.1	30.7	No	41.4	45	No
	A3	72.1	27.1	30.6	No	41.5	45	No
	B2	72.1	27.1	31.3	No	40.8	45	No
	B5	72.1	27.1	30.5	No	41.6	45	No
	S1	72.1	27.1	30.4	No	41.7	45	No
	S2	72.1	27.1	29.7	No	42.4	45	No
Bldg. D Warner Ave.	A1	72.9	27.9	30.7	No	42.2	45	No
	A3	72.9	27.9	30.6	No	42.3	45	No
	B2	72.9	27.9	31.3	No	41.6	45	No
	B5	72.9	27.9	30.5	No	42.4	45	No
	S1	72.9	27.9	30.4	No	42.5	45	No
	S2	72.9	27.9	29.7	No	43.2	45	No

¹ Exterior noise level at the façade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).

² Noise reduction required to satisfy the City of Santa Ana General Plan, Table 1, 45 dBA CNEL interior noise standard for residential uses.

³ Minimum calculated interior noise reduction from all rooms for each unit plan as shown on Table 8-2.

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.

"NR" = Noise Reduction

TABLE 8-7: FOURTH TO SIXTH-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Receiver Location	Unit Plan	Noise Level at Façade ¹	Required Interior NR ²	Minimum Calculated Interior NR ³	Upgraded Windows ⁴	Interior Noise Level ⁵	Threshold	Threshold Exceeded?
Bldg. A Warner Ave.	A1	72.6	27.6	30.7	No	41.9	45	No
	A3	72.6	27.6	30.6	No	42.0	45	No
	B2	72.6	27.6	31.3	No	41.3	45	No
	B5	72.6	27.6	30.5	No	42.1	45	No
	S1	72.6	27.6	30.4	No	42.2	45	No
	S2	72.6	27.6	29.7	No	42.9	45	No
Bldg. A Red Hill Ave.	A1	70.6	25.6	30.7	No	39.9	45	No
	A3	70.6	25.6	30.6	No	40.0	45	No
	B2	70.6	25.6	31.3	No	39.3	45	No
	B5	70.6	25.6	30.5	No	40.1	45	No
	S1	70.6	25.6	30.4	No	40.2	45	No
	S2	70.6	25.6	29.7	No	40.9	45	No
Bldg. B Red Hill Ave.	A1	68.5	23.5	30.7	No	37.8	45	No
	A3	68.5	23.5	30.6	No	37.9	45	No
	B2	68.5	23.5	31.3	No	37.2	45	No
	B5	68.5	23.5	30.5	No	38.0	45	No
	S1	68.5	23.5	30.4	No	38.1	45	No
	S2	68.5	23.5	29.7	No	38.8	45	No
Bldg. C Red Hill Ave.	A1	72.0	27.0	30.7	No	41.3	45	No
	A3	72.0	27.0	30.6	No	41.4	45	No
	B2	72.0	27.0	31.3	No	40.7	45	No
	B5	72.0	27.0	30.5	No	41.5	45	No
	S1	72.0	27.0	30.4	No	41.6	45	No
	S2	72.0	27.0	29.7	No	42.3	45	No
Bldg. D Warner Ave.	A1	72.6	27.6	30.7	No	41.9	45	No
	A3	72.6	27.6	30.6	No	42.0	45	No
	B2	72.6	27.6	31.3	No	41.3	45	No
	B5	72.6	27.6	30.5	No	42.1	45	No
	S1	72.6	27.6	30.4	No	42.2	45	No
	S2	72.6	27.6	29.7	No	42.9	45	No

¹ Exterior noise level at the façade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).

² Noise reduction required to satisfy the City of Santa Ana General Plan, Table 1, 45 dBA CNEL interior noise standard for residential uses.

³ Minimum calculated interior noise reduction from all rooms for each unit plan as shown on Table 8-2.

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.

"NR" = Noise Reduction

9 RECEIVER LOCATIONS

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

Receiver locations are generally located in outdoor living areas (e.g., backyards) or areas of frequent use at a distance of 10 feet from any existing or proposed barriers or at the building façade, whichever is closer to the Project site, based on FHWA guidance, and consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2.

Due to the professional and administrative office land use designation and non-residential nature of the existing Project site, all the nearby receivers are considered as non-noise sensitive. Other sensitive land uses in the Project study area that are located at greater distances than the receivers listed below will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

- R1: Located about 220 feet northeast of the Project site, R1 represents Harvest Time Ministries north of Warner Avenue. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R2: Location R2 represents the U.S. Armed Forces Reserve Center on the north side of Warner Avenue at approximately 667 feet east of the Project site. A 24-hour noise measurement near this location, L2, is used to describe the existing ambient noise environment.
- R3: Location R3 represents existing offices for OnTrac and Brasstech northeast of Carnegie Avenue at approximately 85 feet from the Project site. A 24-hour noise measurement near this location, L5, is used to describe the existing ambient noise environment.
- R4: Location R4 represents existing offices for in Carnegie Square Business Park north of Carnegie Avenue at approximately 118 feet from the Project site. A 24-hour noise measurement near this location, L5, is used to describe the existing ambient noise environment.
- R5: Location R5 represents offices in Sirco Irvine Business Park at approximately 64 feet from the Project site. A 24-hour noise measurement near this location, L6, is used to describe the existing ambient noise environment.

EXHIBIT 9-A: RECEIVER LOCATIONS



LEGEND:

-  Receiver Locations
-  Distance from receiver to Project site boundary (in feet)

10 CONSTRUCTION IMPACTS

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

10.1 CONSTRUCTION NOISE LEVELS

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

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the data used to support the construction emissions in *The Bowery Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (31)

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

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

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L _{eq})	Reference Noise Levels @ 50 Feet (dBA L _{eq}) ⁵
1	Truck Pass-Bys & Dozer Activity ¹	30'	63.6	59.2
2	Dozer Activity ¹	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities ²	30'	71.9	67.5
4	Foundation Trenching ²	30'	72.6	68.2
5	Rough Grading Activities ²	30'	77.9	73.5
6	Framing ³	30'	66.7	62.3
7	Concrete Mixer Truck Movements ⁴	50'	71.2	71.2
8	Concrete Paver Activities ⁴	30'	70.0	65.6
9	Concrete Mixer Pour & Paving Activities ⁴	30'	70.3	65.9
10	Concrete Mixer Backup Alarms & Air Brakes ⁴	50'	71.6	71.6
11	Concrete Mixer Pour Activities ⁴	50'	67.7	67.7

¹ As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.

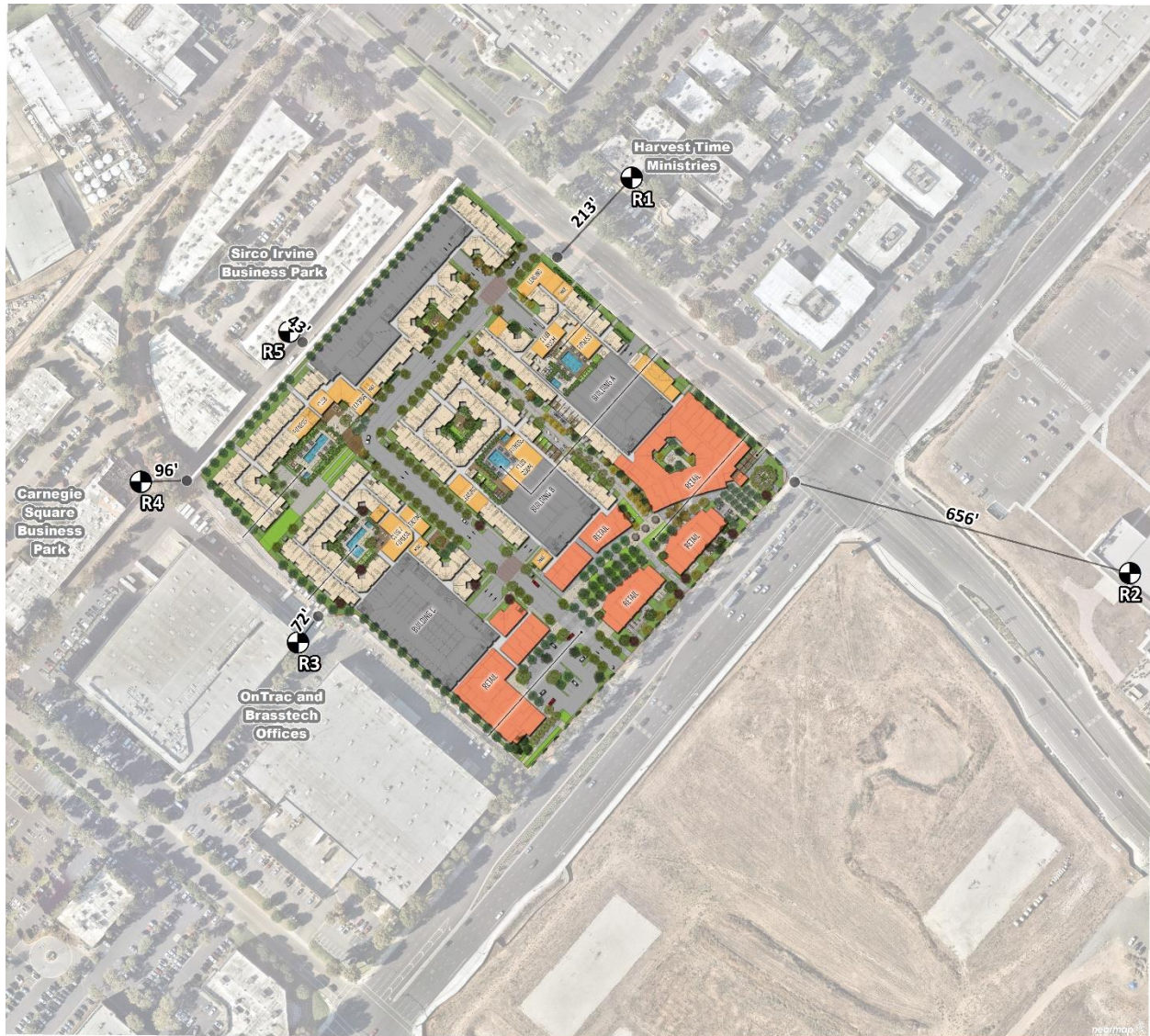
² As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.

³ As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.

⁴ Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.

⁵ Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

EXHIBIT 10-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS



LEGEND:



● Receiver Locations

— Distance from receiver to Project site boundary (in feet)

10.3 CONSTRUCTION NOISE ANALYSIS

Tables 10-2 to 10-6 show the Project construction stages and the reference construction noise levels used for each stage. Table 10-7 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations. Based on the reference construction noise levels, the Project-related construction noise levels when the highest reference noise level is operating at the edge of primary construction activity nearest each sensitive receiver location will range from 51.0 to 71.4 dBA L_{eq} at the sensitive receiver locations, as shown on Table 10-7.

TABLE 10-2: DEMOLITION ACTIVITY NOISE LEVELS

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

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L_{eq}) ³	Calculated Noise Barrier Attenuation (dBA L_{eq})	Construction Noise Level (dBA L_{eq})
R1	220'	-12.9	0.0	51.3
R2	667'	-22.5	0.0	41.7
R3	85'	-4.6	0.0	59.6
R4	118'	-7.5	0.0	56.7
R5	64'	-2.1	0.0	62.1

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

TABLE 10-3: GRADING ACTIVITY NOISE LEVELS

Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Highest Reference Noise Level at 50 Feet (dBA L _{eq}):	73.5

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq})	Construction Noise Level (dBA L _{eq})
R1	220'	-12.9	0.0	60.6
R2	667'	-22.5	0.0	51.0
R3	85'	-4.6	0.0	68.9
R4	118'	-7.5	0.0	66.0
R5	64'	-2.1	0.0	71.4

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

TABLE 10-4: BUILDING CONSTRUCTION ACTIVITY NOISE LEVELS

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

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq})	Construction Noise Level (dBA L _{eq})
R1	220'	-12.9	0.0	55.3
R2	667'	-22.5	0.0	45.7
R3	85'	-4.6	0.0	63.6
R4	118'	-7.5	0.0	60.7
R5	64'	-2.1	0.0	66.1

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

TABLE 10-5: ARCHITECTURAL COATING ACTIVITY NOISE LEVELS

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

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq})	Construction Noise Level (dBA L _{eq})
R1	220'	-12.9	0.0	55.3
R2	667'	-22.5	0.0	45.7
R3	85'	-4.6	0.0	63.6
R4	118'	-7.5	0.0	60.7
R5	64'	-2.1	0.0	66.1

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

TABLE 10-6: PAVING ACTIVITY NOISE LEVELS

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

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Calculated Noise Barrier Attenuation (dBA L _{eq})	Construction Noise Level (dBA L _{eq})
R1	220'	-12.9	0.0	58.7
R2	667'	-22.5	0.0	49.1
R3	85'	-4.6	0.0	67.0
R4	118'	-7.5	0.0	64.1
R5	64'	-2.1	0.0	69.5

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the edge of primary construction activity to each of the nearby receiver locations. As shown on Table 10-7, the unmitigated construction noise levels are expected to range from 51.0 to 71.4 dBA L_{eq} at the nearby receiver locations.

TABLE 10-7: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location ¹	Construction Noise Levels by Stage (dBA L _{eq})					
	Demolition	Grading	Building Construction	Architectural Coating	Paving	Highest Construction Noise Level ²
R1	51.3	60.6	55.3	55.3	58.7	60.6
R2	41.7	51.0	45.7	45.7	49.1	51.0
R3	59.6	68.9	63.6	63.6	67.0	68.9
R4	56.7	66.0	60.7	60.7	64.1	66.0
R5	62.1	71.4	66.1	66.1	69.5	71.4

¹ Construction activity and receiver locations are shown on Exhibit 10-A.

² Estimated construction noise levels during peak operating conditions.

Table 10-8 summarizes daytime Project construction-source noise levels at potentially affected receivers. The Project-related short-term construction noise levels are expected to approach 74.8 dBA L_{eq} and would not exceed the 85 dBA L_{eq} daytime construction noise level threshold at nearby receiver locations. Therefore, based on the results of this analysis, all receiver locations (R1 to R5) will experience *less than significant* impacts due to daytime Project site construction noise levels, as shown on Table 10-8.

TABLE 10-8: CONSTRUCTION-SOURCE NOISE LEVEL COMPLIANCE

Receiver Location ¹	Land Use	Highest Unmitigated Construction Noise Levels (dBA L _{eq}) ²	Threshold (dBA L _{eq}) ³	Threshold Exceeded? ⁴
R1	Non-Residential	60.6	85	No
R2	Non-Residential	51.0	85	No
R3	Non-Residential	68.9	85	No
R4	Non-Residential	66.0	85	No
R5	Non-Residential	71.4	85	No

¹ Noise receiver locations are shown on Exhibit 10-A.

² Estimated highest construction noise levels, as shown on Table 10-7.

³ Construction noise standard as shown on Table 4-2.

⁴ Do the estimated Project construction noise levels satisfy the construction noise level threshold?

"n/a" = No construction noise level threshold is identified for the given use, however, construction noise levels are presented for informational purposes.

10.5 CONSTRUCTION-SOURCE NOISE LEVEL CONTRIBUTIONS

To describe the temporary Project construction noise level contributions to the existing ambient noise environment, the Project construction noise levels were combined with the existing ambient noise levels measurements at the off-site receiver locations. The difference between the combined Project-construction and ambient noise levels are used to describe the construction noise level contributions. Temporary noise level increases that would be experienced at receiver locations when Project construction-source noise is added to the ambient daytime conditions are presented on Table 10-9.

Caltrans' May 2011 *Traffic Noise Analysis Protocol* identifies a 12 dBA Leq noise level increase as *substantial*, and therefore, a 12 dBA Leq temporary noise level increase threshold is used in this noise study to address CEQA Noise Guideline A. (4) While the Caltrans 12 dBA Leq threshold was not created specifically for construction noise, it is applied in the Noise Study as a reasonable threshold to assess temporary, substantial noise level increases during Project construction at all the nearby non-noise sensitive receiver locations. (4) No nighttime construction activity is permitted in the City of Santa Ana Municipal Code, and therefore, is not analyzed in this noise study.

The Project will contribute unmitigated, worst-case construction noise level increases ranging from 0.4 to 11.2 dBA Leq during the daytime hours at the closest sensitive receiver locations. Since the worst-case temporary noise level increase during Project construction satisfies the 12 dBA Leq significance threshold, the unmitigated construction noise level increases are considered *less than significant* temporary noise impacts.

TABLE 10-9: UNMITIGATED CONSTRUCTION-RELATED TEMPORARY NOISE LEVEL INCREASES

Receiver Location ¹	Project Construction Noise Level ²	Measurement Location ³	Reference Ambient Noise Levels ⁴	Combined Project and Ambient ⁵	Temporary Worst-Case Project Contribution ⁶	Threshold Exceeded? ⁷
R1	60.6	L1	62.9	64.9	2.0	No
R2	51.0	L2	61.0	61.4	0.4	No
R3	68.9	L5	58.0	69.2	11.2	No
R4	66.0	L5	58.0	66.6	8.6	No
R5	71.4	L6	63.7	72.0	8.3	No

¹ Noise receiver locations are shown on Exhibit 8-A.

² Peak unmitigated Project construction noise levels as shown on Table 10-8.

³ Ambient noise level measurement locations as shown on Exhibit 5-A.

⁴ Observed daytime ambient noise levels as shown on Table 5-1.

⁵ Represents the combined ambient conditions plus the Project construction activities.

⁶ The temporary noise level increase expected with the addition of the proposed Project activities.

⁷ Based on the 12 dBA temporary increase significance criteria as defined in Section 4.

10.6 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

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

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include mobile equipment activities and pile driving, among others. Using the vibration source level of construction equipment provided on Table 6-6 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-10 presents the expected Project related vibration levels at distances ranging from 85 to 667 feet from construction activity.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec PPV at 25 feet. At distances ranging from 85 to 667 feet from the Project site, construction vibration velocity levels are expected to range from 0.001 to 0.014 in/sec PPV. Table 10-10 shows that the Project construction vibration levels will remain below the Caltrans building damage threshold of 0.3 in/sec PPV and vibration standard of 0.04 in/sec PPV for human annoyance at all receiver locations. The analysis shows that the Project-related construction vibration impacts will be *less than significant* at all receiver locations.

TABLE 10-10: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver ¹	Distance to Const. Activity (Feet)	Receiver Levels (in/sec) PPV ²					Thresholds (in/sec) PPV		Threshold Exceeded? ³	
		Small Bulldozer (< 80k lbs)	Jack-hammer	Loaded Trucks	Large Bulldozer (> 80k lbs)	Highest Vibration Level	Human Annoyance	Building Damage	Human Annoyance	Building Damage
R1	220'	0.000	0.001	0.003	0.003	0.003	0.04	0.3	No	No
R2	667'	0.000	0.000	0.001	0.001	0.001	0.04	0.3	No	No
R3	85'	0.000	0.006	0.012	0.014	0.014	0.04	0.3	No	No
R4	118'	0.000	0.003	0.007	0.009	0.009	0.04	0.3	No	No
R5	64'	0.001	0.009	0.019	0.022	0.022	0.04	0.3	No	No

¹ Receiver locations are shown on Exhibit 10-A.² Based on the Vibration Source Levels of Construction Equipment included on Table 6-6.³ Does the peak vibration exceed the acceptable vibration thresholds?

"PPV" = Peak Particle Velocity

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G & Amendments and Additions to the State CEQA Guidelines.* 2019.
2. **EPD Solutions, Inc.** *The Bowery Traffic Impact Analysis.* November 2019.
3. **National Institute for Occupational Safety and Health.** *Criteria for Recommended Standard: Occupational Noise Exposure.* June 1998.
4. **California Department of Transportation.** *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.* May 2011.
5. **State of California.** *California Environmental Quality Act, Appendix G.* 2016.
6. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
7. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
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11. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
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13. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
14. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2017.
15. **State of California.** *2019 California Green Building Standards Code.* January 2020.
16. **City of Santa Ana.** *General Plan Noise Element.* January 2010.
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18. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* September 2013.
19. **Orange County Airport Land Use Commission.** *Land Use Plan for John Wayne Airport.* April 2008.
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23. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
24. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* May 2006. FTA-VA-90-1003-06.
25. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
26. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calven REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
27. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
28. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* June, 1995.
29. **California Department of Transportation.** *Traffic Noise Analysis Protocol.* May 2011.
30. **Architects Orange.** *The Bowery Conceptual Unit Plans.* September 30, 2019.
31. **Urban Crossroads, Inc.** *The Bowery Air Quality Impact Analysis.* November 2019.

12 CERTIFICATION

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

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EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 12282 Study Area Photos



L1 Northwest
33, 42' 43.760000", 117, 50' 18.380000"



L1 Southeast
33, 42' 43.800000", 117, 50' 18.380000"



L1 Southwest
33, 42' 43.780000", 117, 50' 18.380000"



L2 Northeast
33, 42' 38.520000", 117, 50' 11.790000"



L2 Northwest
33, 42' 38.700000", 117, 50' 12.070000"



L2 Southeast
33, 42' 38.520000", 117, 50' 11.850000"

JN: 12282 Study Area Photos



L2 Southwest
33, 42' 38.550000", 117, 50' 11.930000"



L3 Northeast
33, 42' 36.920000", 117, 50' 20.420000"



L3 Northwest
33, 42' 36.890000", 117, 50' 20.440000"



L3 Southeast
33, 42' 36.940000", 117, 50' 20.420000"



L3 Southwest
33, 42' 36.880000", 117, 50' 20.440000"



L4 Northeast
33, 42' 33.150000", 117, 50' 21.710000"

JN: 12282 Study Area Photos



L4 Northwest
33, 42' 33.150000", 117, 50' 21.730000"



L4 Southeast
33, 42' 33.150000", 117, 50' 21.710000"



L4 Southwest
33, 42' 33.140000", 117, 50' 21.710000"



L5 Northeast
33, 42' 39.470000", 117, 50' 28.930000"



L5 Northwest
33, 42' 39.840000", 117, 50' 29.010000"



L5 Southeast
33, 42' 39.590000", 117, 50' 28.880000"

JN: 12282 Study Area Photos



L5 Southwest
33, 42' 39.610000", 117, 50' 28.880000"



L6 Northeast
33, 42' 42.040000", 117, 50' 28.440000"



L6 Northwest
33, 42' 42.010000", 117, 50' 28.440000"



L6 Southeast
33, 42' 42.030000", 117, 50' 28.460000"



L6 Southwest
33, 42' 42.010000", 117, 50' 28.440000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

Date: Tuesday, May 14, 2019

Location:

L1 - Located on Warner Avenue near existing business complex, across from northeast boundary of the Project site.

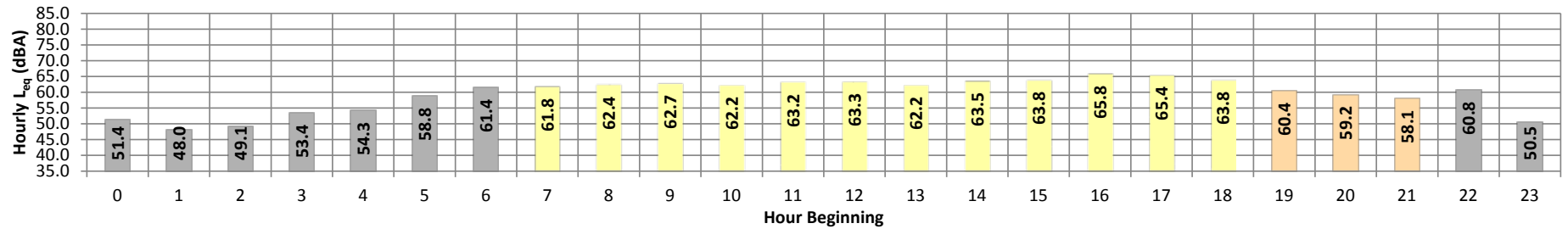
Meter: Piccolo I

JN: 12282

Project: The Bowery - Warner & Redhill Mixed Use Development

Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
Night	0	51.4	72.2	40.7	62.0	60.0	59.0	55.0	46.0	43.0	42.0	42.0	41.0	51.4	10.0	61.4
	1	48.0	70.4	39.4	60.0	57.0	52.0	49.0	43.0	41.0	40.0	39.0	39.0	48.0	10.0	58.0
	2	49.1	74.1	40.2	58.0	56.0	52.0	50.0	47.0	44.0	42.0	41.0	41.0	49.1	10.0	59.1
	3	53.4	71.1	40.5	62.0	60.0	60.0	59.0	51.0	45.0	42.0	42.0	41.0	53.4	10.0	63.4
	4	54.3	76.1	40.8	65.0	61.0	57.0	56.0	53.0	49.0	44.0	43.0	41.0	54.3	10.0	64.3
	5	58.8	81.3	45.6	69.0	66.0	62.0	60.0	57.0	54.0	49.0	48.0	46.0	58.8	10.0	68.8
	6	61.4	82.5	45.6	71.0	69.0	66.0	65.0	60.0	57.0	51.0	49.0	48.0	61.4	10.0	71.4
Day	7	61.8	80.4	46.1	70.0	68.0	66.0	65.0	61.0	58.0	52.0	51.0	48.0	61.8	0.0	61.8
	8	62.4	85.1	46.5	72.0	70.0	67.0	65.0	61.0	58.0	53.0	51.0	48.0	62.4	0.0	62.4
	9	62.7	83.5	47.2	72.0	70.0	67.0	66.0	62.0	58.0	52.0	51.0	49.0	62.7	0.0	62.7
	10	62.2	83.5	46.7	71.0	69.0	67.0	66.0	61.0	58.0	52.0	51.0	48.0	62.2	0.0	62.2
	11	63.2	83.0	48.4	73.0	70.0	68.0	66.0	62.0	58.0	53.0	52.0	50.0	63.2	0.0	63.2
	12	63.3	81.7	48.2	74.0	71.0	68.0	66.0	61.0	58.0	53.0	52.0	50.0	63.3	0.0	63.3
	13	62.2	84.4	47.3	71.0	69.0	67.0	65.0	61.0	58.0	53.0	52.0	50.0	62.2	0.0	62.2
	14	63.5	82.5	49.8	72.0	70.0	68.0	67.0	63.0	59.0	54.0	52.0	51.0	63.5	0.0	63.5
	15	63.8	81.2	51.1	74.0	71.0	68.0	67.0	63.0	60.0	55.0	54.0	52.0	63.8	0.0	63.8
	16	65.8	92.3	51.4	74.0	72.0	69.0	67.0	63.0	60.0	55.0	54.0	52.0	65.8	0.0	65.8
Evening	17	65.4	91.2	50.6	74.0	72.0	68.0	67.0	63.0	60.0	55.0	54.0	52.0	65.4	0.0	65.4
	18	63.8	89.3	49.5	74.0	71.0	67.0	65.0	61.0	57.0	52.0	51.0	50.0	63.8	0.0	63.8
	19	60.4	77.1	48.3	70.0	68.0	66.0	64.0	59.0	56.0	51.0	50.0	49.0	60.4	5.0	65.4
Night	20	59.2	79.5	46.3	69.0	67.0	64.0	63.0	58.0	54.0	49.0	48.0	47.0	59.2	5.0	64.2
	21	58.1	74.6	45.0	67.0	66.0	64.0	62.0	57.0	53.0	48.0	47.0	45.0	58.1	5.0	63.1
Night	22	60.8	76.8	42.2	72.0	71.0	68.0	65.0	58.0	52.0	44.0	43.0	42.0	60.8	10.0	70.8
	23	50.5	73.2	41.3	60.0	58.0	55.0	53.0	48.0	44.0	42.0	41.0	41.0	50.5	10.0	60.5
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	61.8	80.4	46.1	70.0	68.0	66.0	65.0	61.0	57.0	52.0	51.0	48.0	24-Hour	Daytime	Nighttime
	Max	65.8	92.3	51.4	74.0	72.0	69.0	67.0	63.0	60.0	55.0	54.0	52.0			
Energy Average		63.5	Average:		72.6	70.3	67.5	66.0	61.8	58.5	53.3	52.1	50.0	61.5	62.9	56.7
Evening	Min	58.1	74.6	45.0	67.0	66.0	64.0	62.0	57.0	53.0	48.0	47.0	45.0			
	Max	60.4	79.5	48.3	70.0	68.0	66.0	64.0	59.0	56.0	51.0	50.0	49.0	24-Hour CNEL (dBA)		
Energy Average		59.3	Average:		68.7	67.0	64.7	63.0	58.0	54.3	49.3	48.3	47.0	65.1		
Night	Min	48.0	70.4	39.4	58.0	56.0	52.0	49.0	43.0	41.0	40.0	39.0	39.0			
	Max	61.4	82.5	45.6	72.0	71.0	68.0	65.0	60.0	57.0	51.0	49.0	48.0			
Energy Average		56.7	Average:		64.3	62.0	59.0	56.9	51.4	47.7	44.0	43.1	42.2			

24-Hour Noise Level Measurement Summary

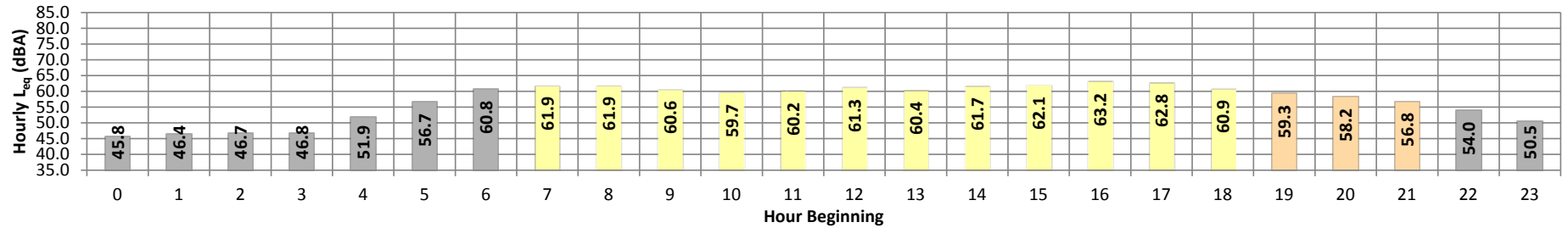
Date: Tuesday, May 14, 2019
Project: The Bowery - Warner & Redhill Mixed Use Development

Location: L2 - Located on Warner Avenue near in progress Tustin
Legacy development, southeast of the Project site.

Meter: Piccolo I

JN: 12282
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
Night	0	45.8	67.8	37.8	58.0	55.0	50.0	46.0	41.0	39.0	38.0	38.0	38.0	45.8	10.0	55.8
	1	46.4	68.7	35.0	59.0	57.0	51.0	47.0	39.0	38.0	37.0	37.0	35.0	46.4	10.0	56.4
	2	46.7	73.1	35.0	59.0	55.0	47.0	42.0	38.0	38.0	37.0	37.0	35.0	46.7	10.0	56.7
	3	46.8	69.3	37.8	59.0	56.0	52.0	49.0	42.0	39.0	38.0	38.0	37.0	46.8	10.0	56.8
	4	51.9	72.9	37.9	63.0	61.0	58.0	55.0	48.0	45.0	39.0	39.0	38.0	51.9	10.0	61.9
	5	56.7	79.4	42.3	67.0	66.0	63.0	61.0	54.0	49.0	45.0	44.0	43.0	56.7	10.0	66.7
	6	60.8	81.6	44.6	71.0	69.0	66.0	65.0	59.0	54.0	47.0	47.0	45.0	60.8	10.0	70.8
Day	7	61.9	76.6	45.6	71.0	70.0	67.0	66.0	62.0	58.0	50.0	48.0	47.0	61.9	0.0	61.9
	8	61.9	80.9	44.9	71.0	70.0	67.0	65.0	61.0	57.0	50.0	48.0	46.0	61.9	0.0	61.9
	9	60.6	77.9	45.4	70.0	68.0	66.0	64.0	60.0	56.0	49.0	48.0	47.0	60.6	0.0	60.6
	10	59.7	81.3	44.0	69.0	67.0	65.0	63.0	59.0	54.0	48.0	47.0	46.0	59.7	0.0	59.7
	11	60.2	76.4	44.9	70.0	68.0	65.0	64.0	60.0	56.0	50.0	48.0	47.0	60.2	0.0	60.2
	12	61.3	84.8	45.9	71.0	68.0	65.0	64.0	59.0	55.0	49.0	48.0	47.0	61.3	0.0	61.3
	13	60.4	76.5	46.4	70.0	68.0	66.0	64.0	60.0	56.0	49.0	48.0	47.0	60.4	0.0	60.4
	14	61.7	82.6	47.4	72.0	70.0	67.0	65.0	60.0	57.0	50.0	49.0	48.0	61.7	0.0	61.7
	15	62.1	82.9	49.2	72.0	70.0	67.0	65.0	61.0	58.0	52.0	51.0	50.0	62.1	0.0	62.1
	16	63.2	80.8	48.1	73.0	71.0	68.0	66.0	63.0	59.0	53.0	51.0	50.0	63.2	0.0	63.2
Evening	17	62.8	86.0	49.3	72.0	70.0	67.0	66.0	62.0	59.0	54.0	52.0	50.0	62.8	0.0	62.8
	18	60.9	80.2	46.7	70.0	69.0	66.0	65.0	60.0	56.0	50.0	49.0	48.0	60.9	0.0	60.9
	19	59.3	75.6	46.2	68.0	66.0	65.0	63.0	59.0	54.0	49.0	48.0	47.0	59.3	5.0	64.3
Night	20	58.2	80.6	45.4	67.0	65.0	63.0	62.0	57.0	52.0	48.0	47.0	46.0	58.2	5.0	63.2
	21	56.8	73.9	44.0	66.0	64.0	62.0	61.0	56.0	51.0	46.0	46.0	44.0	56.8	5.0	61.8
	22	54.0	76.1	40.8	65.0	62.0	60.0	58.0	50.0	46.0	42.0	42.0	41.0	54.0	10.0	64.0
	23	50.5	72.1	39.6	62.0	60.0	56.0	53.0	45.0	42.0	41.0	40.0	40.0	50.5	10.0	60.5
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	59.7	76.4	44.0	69.0	67.0	65.0	63.0	59.0	54.0	48.0	47.0	46.0	24-Hour	Daytime	Nighttime
	Max	63.2	86.0	49.3	73.0	71.0	68.0	66.0	63.0	59.0	54.0	52.0	50.0			
Energy Average		61.5	Average:		70.9	69.1	66.3	64.8	60.6	56.8	50.3	48.9	47.8	59.5	61.0	54.2
Evening	Min	56.8	73.9	44.0	66.0	64.0	62.0	61.0	56.0	51.0	46.0	46.0	44.0			
	Max	59.3	80.6	46.2	68.0	66.0	65.0	63.0	59.0	54.0	49.0	48.0	47.0	24-Hour CNEL (dBA)		
Energy Average		58.2	Average:		67.0	65.0	63.3	62.0	57.3	52.3	47.7	47.0	45.7	62.9		
Night	Min	45.8	67.8	35.0	58.0	55.0	47.0	42.0	38.0	38.0	37.0	37.0	35.0			
	Max	60.8	81.6	44.6	71.0	69.0	66.0	65.0	59.0	54.0	47.0	47.0	45.0			
Energy Average		54.2	Average:		62.6	60.1	55.9	52.9	46.2	43.3	40.4	40.2	39.1			

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 14, 2019

Location:

L3 - Located on Red Hill Avenue near the southeast border of the project site.

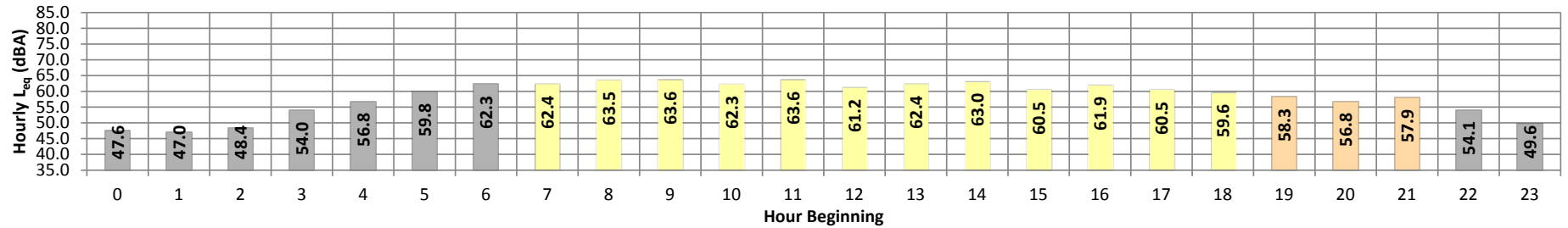
Meter: Piccolo I

JN: 12282

Project: The Bowery - Warner & Redhill Mixed Use Development

Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
Night	0	47.6	69.2	41.5	58.0	56.0	51.0	49.0	44.0	43.0	42.0	42.0	41.0	47.6	10.0	57.6
	1	47.0	71.0	40.5	58.0	55.0	50.0	47.0	42.0	42.0	41.0	41.0	40.0	47.0	10.0	57.0
	2	48.4	73.6	40.6	58.0	55.0	50.0	47.0	43.0	42.0	41.0	41.0	40.0	48.4	10.0	58.4
	3	54.0	82.6	40.6	63.0	60.0	56.0	54.0	46.0	42.0	41.0	41.0	41.0	54.0	10.0	64.0
	4	56.8	78.7	41.2	68.0	65.0	61.0	59.0	54.0	48.0	42.0	42.0	41.0	56.8	10.0	66.8
	5	59.8	81.2	42.8	70.0	67.0	63.0	62.0	58.0	54.0	45.0	44.0	43.0	59.8	10.0	69.8
	6	62.3	85.6	41.8	73.0	70.0	66.0	64.0	59.0	54.0	46.0	45.0	43.0	62.3	10.0	72.3
Day	7	62.4	83.7	44.2	72.0	69.0	67.0	65.0	62.0	58.0	49.0	47.0	45.0	62.4	0.0	62.4
	8	63.5	92.1	43.5	71.0	69.0	66.0	65.0	61.0	57.0	49.0	47.0	45.0	63.5	0.0	63.5
	9	63.6	88.2	42.9	74.0	71.0	68.0	66.0	61.0	56.0	47.0	45.0	44.0	63.6	0.0	63.6
	10	62.3	85.1	43.6	73.0	70.0	67.0	66.0	61.0	56.0	48.0	47.0	45.0	62.3	0.0	62.3
	11	63.6	88.4	45.0	73.0	70.0	67.0	66.0	61.0	56.0	50.0	48.0	46.0	63.6	0.0	63.6
	12	61.2	84.7	44.7	70.0	68.0	66.0	65.0	60.0	56.0	49.0	47.0	46.0	61.2	0.0	61.2
	13	62.4	86.1	44.6	72.0	70.0	67.0	65.0	61.0	57.0	50.0	48.0	46.0	62.4	0.0	62.4
	14	63.0	89.6	46.4	72.0	70.0	66.0	65.0	60.0	56.0	50.0	49.0	48.0	63.0	0.0	63.0
	15	60.5	76.0	46.7	69.0	68.0	66.0	64.0	60.0	57.0	51.0	49.0	48.0	60.5	0.0	60.5
	16	61.9	85.9	46.9	70.0	68.0	65.0	64.0	60.0	57.0	51.0	50.0	49.0	61.9	0.0	61.9
	17	60.5	76.4	47.9	69.0	67.0	66.0	64.0	60.0	57.0	51.0	50.0	49.0	60.5	0.0	60.5
	18	59.6	85.4	46.0	68.0	67.0	64.0	62.0	58.0	54.0	49.0	48.0	47.0	59.6	0.0	59.6
Evening	19	58.3	78.4	45.7	67.0	66.0	64.0	62.0	57.0	52.0	48.0	47.0	46.0	58.3	5.0	63.3
	20	56.8	72.2	45.0	67.0	66.0	62.0	61.0	55.0	51.0	47.0	46.0	45.0	56.8	5.0	61.8
	21	57.9	81.1	44.5	67.0	66.0	64.0	62.0	55.0	50.0	46.0	46.0	45.0	57.9	5.0	62.9
Night	22	54.1	78.0	42.3	64.0	62.0	58.0	56.0	50.2	46.0	43.0	43.0	42.0	54.1	10.0	64.1
	23	49.6	72.4	42.2	60.0	58.0	54.0	51.0	47.0	44.0	43.0	43.0	42.0	49.6	10.0	59.6
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	59.6	76.0	42.9	68.0	67.0	64.0	62.0	58.0	54.0	47.0	45.0	44.0	24-Hour	Daytime	Nighttime
	Max	63.6	92.1	47.9	74.0	71.0	68.0	66.0	62.0	58.0	51.0	50.0	49.0			
Energy Average		62.2	Average:		71.1	68.9	66.3	64.8	60.4	56.4	49.5	47.9	46.5	60.3	61.6	56.4
Evening	Min	56.8	72.2	44.5	67.0	66.0	62.0	61.0	55.0	50.0	46.0	46.0	45.0			
	Max	58.3	81.1	45.7	67.0	66.0	64.0	62.0	57.0	52.0	48.0	47.0	46.0	24-Hour CNEL (dBA)		
Energy Average		57.7	Average:		67.0	66.0	63.3	61.7	55.7	51.0	47.0	46.3	45.3	64.3		
Night	Min	47.0	69.2	40.5	58.0	55.0	50.0	47.0	42.0	42.0	41.0	41.0	40.0			
	Max	62.3	85.6	42.8	73.0	70.0	66.0	64.0	59.0	54.0	46.0	45.0	43.0			
Energy Average		56.4	Average:		63.6	60.9	56.6	54.3	49.2	46.1	42.7	42.4	41.4			

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 14, 2019

Location:

L4 - Located on Red Hill Avenue, across from southeastern boundary of the Project site, near in progress Tustin Legacy development.

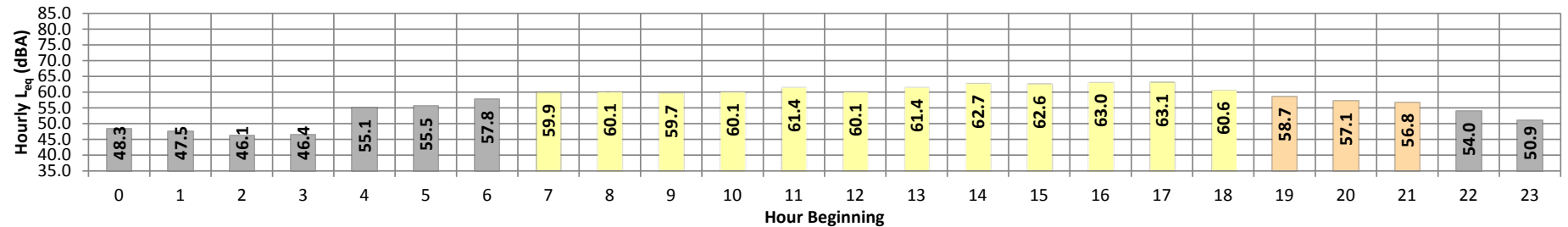
Meter: Piccolo I

JN: 12282

Project: The Bowery - Warner & Redhill Mixed Use Development

Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}		
Night	0	48.3	69.7	36.6	60.0	58.0	54.0	51.0	44.0	41.0	39.0	39.0	38.0	48.3	10.0	58.3		
	1	47.5	67.1	36.0	59.0	57.0	52.0	48.0	43.0	41.0	38.0	37.0	36.0	47.5	10.0	57.5		
	2	46.1	67.5	36.0	58.0	55.0	49.0	47.0	42.0	40.0	37.0	36.0	36.0	46.1	10.0	56.1		
	3	46.4	61.8	36.0	57.0	55.0	52.0	50.0	45.0	42.0	39.0	38.0	38.0	46.4	10.0	56.4		
	4	55.1	83.0	38.9	64.0	61.0	58.0	57.0	51.0	47.0	43.0	42.0	39.0	55.1	10.0	65.1		
	5	55.5	71.7	41.8	66.0	64.0	61.0	59.0	54.0	50.0	44.0	43.0	42.0	55.5	10.0	65.5		
	6	57.8	75.4	40.7	68.0	66.0	63.0	62.0	56.0	52.0	45.0	44.0	42.0	57.8	10.0	67.8		
Day	7	59.9	74.6	43.5	69.0	67.0	65.0	64.0	60.0	55.0	48.0	47.0	44.0	59.9	0.0	59.9		
	8	60.1	77.0	44.0	70.0	68.0	66.0	64.0	60.0	55.0	48.0	47.0	44.0	60.1	0.0	60.1		
	9	59.7	75.4	40.8	68.0	67.0	65.0	64.0	60.0	55.0	47.0	45.0	43.0	59.7	0.0	59.7		
	10	60.1	76.6	42.8	70.0	68.0	66.0	64.0	60.0	55.0	47.0	45.0	44.0	60.1	0.0	60.1		
	11	61.4	80.3	44.5	70.0	69.0	67.0	65.0	61.0	56.0	49.0	47.0	45.0	61.4	0.0	61.4		
	12	60.1	78.2	43.6	69.0	67.0	65.0	64.0	60.0	55.0	47.0	46.0	44.0	60.1	0.0	60.1		
	13	61.4	81.1	44.5	70.0	68.0	66.0	65.0	61.0	56.0	49.0	47.0	45.0	61.4	0.0	61.4		
	14	62.7	83.5	46.2	72.0	69.0	67.0	66.0	62.0	58.0	50.0	49.0	47.0	62.7	0.0	62.7		
	15	62.6	78.0	46.3	71.0	69.0	67.0	66.0	63.0	59.0	50.0	49.0	47.0	62.6	0.0	62.6		
	16	63.0	77.7	45.7	71.0	69.0	68.0	67.0	64.0	60.0	50.0	49.0	47.0	63.0	0.0	63.0		
	17	63.1	81.8	45.5	70.0	69.0	67.0	67.0	64.0	60.0	51.0	49.0	48.0	63.1	0.0	63.1		
	18	60.6	77.0	44.9	69.0	68.0	66.0	65.0	61.0	56.0	47.0	46.0	45.0	60.6	0.0	60.6		
Evening	19	58.7	76.7	43.6	67.0	66.0	64.0	63.0	58.0	53.0	46.9	46.0	45.0	58.7	5.0	63.7		
	20	57.1	76.0	43.4	67.0	65.0	63.0	61.0	57.0	52.0	47.0	46.0	44.0	57.1	5.0	62.1		
	21	56.8	78.3	41.9	66.0	65.0	63.0	61.0	56.0	50.0	46.0	45.0	44.0	56.8	5.0	61.8		
Night	22	54.0	73.6	38.9	64.0	63.0	60.0	58.0	51.0	47.0	40.0	40.0	39.0	54.0	10.0	64.0		
	23	50.9	75.0	38.7	62.0	59.0	56.0	54.0	46.0	42.0	39.0	39.0	39.0	50.9	10.0	60.9		
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)				
Day	Min	59.7	74.6	40.8	68.0	67.0	65.0	64.0	60.0	55.0	47.0	45.0	43.0	24-Hour	Daytime	Nighttime		
	Max	63.1	83.5	46.3	72.0	69.0	68.0	67.0	64.0	60.0	51.0	49.0	48.0					
Energy Average		61.4	Average:		69.9	68.2	66.3	65.1	61.3	56.7	48.6	47.2	45.3	59.3	60.9	53.2		
Evening	Min	56.8	76.0	41.9	66.0	65.0	63.0	61.0	56.0	50.0	46.0	45.0	44.0					
	Max	58.7	78.3	43.6	67.0	66.0	64.0	63.0	58.0	53.0	47.0	46.0	45.0					
Energy Average		57.6	Average:		66.7	65.3	63.3	61.7	57.0	51.7	46.6	45.7	44.3	24-Hour CNEL (dBA)				
Night	Min	46.1	61.8	36.0	57.0	55.0	49.0	47.0	42.0	40.0	37.0	36.0	36.0	62.3				
	Max	57.8	83.0	41.8	68.0	66.0	63.0	62.0	56.0	52.0	45.0	44.0	42.0					
Energy Average		53.2	Average:		62.0	59.8	56.1	54.0	48.0	44.7	40.4	39.8	38.8					

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 14, 2019

Location:

L5 - Located within Project site boundaries, adjacent to southwestern border of the Project site, near light industrial area and railroad tracks.

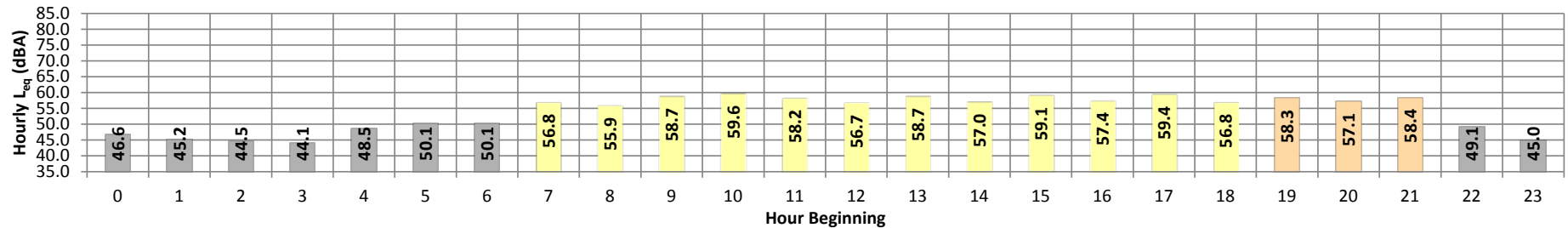
Meter: Piccolo I

JN: 12282

Project: The Bowery - Warner & Redhill Mixed Use Development

Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}		
Night	0	46.6	64.3	42.7	57.0	54.0	49.0	47.0	45.0	44.0	43.0	43.0	43.0	46.6	10.0	56.6		
	1	45.2	62.7	42.1	53.0	49.0	45.0	44.0	44.0	43.0	43.0	42.0	42.0	45.2	10.0	55.2		
	2	44.5	60.5	42.1	49.0	48.0	46.0	45.0	44.0	43.0	42.0	42.0	42.0	44.5	10.0	54.5		
	3	44.1	56.0	42.1	48.0	46.0	45.0	44.0	44.0	43.0	43.0	42.0	42.0	44.1	10.0	54.1		
	4	48.5	66.4	42.3	56.0	53.0	52.0	52.0	47.0	45.0	43.0	43.0	43.0	48.5	10.0	58.5		
	5	50.1	65.3	43.7	59.0	58.0	55.0	54.0	48.0	46.0	45.0	44.0	44.0	50.1	10.0	60.1		
	6	50.1	68.5	43.2	60.0	57.0	54.0	52.0	47.0	46.0	44.0	44.0	44.0	50.1	10.0	60.1		
Day	7	56.8	73.3	45.3	71.0	69.0	60.0	56.0	49.0	47.0	46.0	46.0	45.0	56.8	0.0	56.8		
	8	55.9	72.9	44.3	68.0	66.0	61.0	59.0	52.0	47.0	45.0	45.0	44.0	55.9	0.0	55.9		
	9	58.7	75.3	44.0	72.0	70.0	66.0	61.0	51.0	47.0	45.0	45.0	44.0	58.7	0.0	58.7		
	10	59.6	85.3	45.2	72.0	70.0	65.0	60.0	51.0	48.0	46.0	46.0	45.0	59.6	0.0	59.6		
	11	58.2	75.4	45.0	72.0	70.0	63.0	59.0	50.0	48.0	46.0	46.0	45.0	58.2	0.0	58.2		
	12	56.7	75.7	44.6	71.0	69.0	58.0	55.0	48.0	47.0	45.0	45.0	45.0	56.7	0.0	56.7		
	13	58.7	76.5	44.6	72.0	70.0	65.0	60.0	51.0	48.0	46.0	46.0	45.0	58.7	0.0	58.7		
	14	57.0	77.4	45.8	71.0	68.0	61.0	57.0	50.0	48.0	47.0	47.0	46.0	57.0	0.0	57.0		
	15	59.1	77.5	46.5	72.0	70.0	65.0	62.0	52.0	49.0	47.0	47.0	47.0	59.1	0.0	59.1		
	16	57.4	75.4	46.4	71.0	69.0	61.0	57.0	50.0	49.0	47.0	47.0	47.0	57.4	0.0	57.4		
	17	59.4	75.5	46.4	72.0	71.0	66.0	62.0	53.0	49.0	48.0	47.0	47.0	59.4	0.0	59.4		
	18	56.8	75.4	45.7	71.0	67.0	59.0	56.0	50.0	48.0	47.0	46.0	46.0	56.8	0.0	56.8		
Evening	19	58.3	74.5	45.8	71.0	70.0	65.0	60.0	52.0	49.0	47.0	46.0	46.0	58.3	5.0	63.3		
	20	57.1	76.9	45.7	71.0	68.0	59.0	55.0	49.0	48.0	46.0	46.0	46.0	57.1	5.0	62.1		
	21	58.4	74.0	44.5	71.0	70.0	66.0	59.0	50.0	48.0	46.0	46.0	45.0	58.4	5.0	63.4		
Night	22	49.1	71.0	43.1	59.0	53.0	47.0	46.0	45.0	44.0	44.0	43.0	43.0	49.1	10.0	59.1		
	23	45.0	56.1	43.0	49.0	47.0	46.0	45.0	44.0	44.0	44.0	44.0	43.0	45.0	10.0	55.0		
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)				
Day	Min	55.9	72.9	44.0	68.0	66.0	58.0	55.0	48.0	47.0	45.0	45.0	44.0	24-Hour	Daytime	Nighttime		
	Max	59.6	85.3	46.5	72.0	71.0	66.0	62.0	53.0	49.0	48.0	47.0	47.0					
Energy Average		58.0	Average:		71.3	69.1	62.5	58.7	50.6	47.9	46.3	46.1	45.5	24-Hour CNEL (dBA)				
Evening	Min	57.1	74.0	44.5	71.0	68.0	59.0	55.0	49.0	48.0	46.0	46.0	45.0					
	Max	58.4	76.9	45.8	71.0	70.0	66.0	60.0	52.0	49.0	47.0	46.0	46.0					
Energy Average		58.0	Average:		71.0	69.3	63.3	58.0	50.3	48.3	46.3	46.0	45.7	58.9				
Night	Min	44.1	56.0	42.1	48.0	46.0	45.0	44.0	44.0	43.0	42.0	42.0	42.0					
	Max	50.1	71.0	43.7	60.0	58.0	55.0	54.0	48.0	46.0	45.0	44.0	44.0					
Energy Average		47.6	Average:		54.4	51.7	48.8	47.7	45.3	44.2	43.4	43.0	42.9					

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 14, 2019

Location:

L6 - Located northwest of the Project site, adjacent to existing business commercial area.

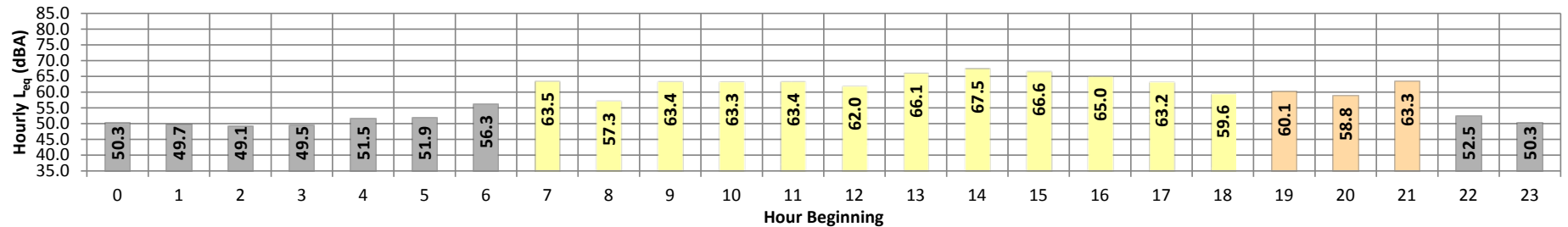
Meter: Piccolo I

JN: 12282

Project: The Bowery - Warner & Redhill Mixed Use Development

Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq}	Adj.	Adj. L _{eq}
Night	0	50.3	56.2	47.7	52.0	52.0	51.0	51.0	50.0	50.0	49.0	49.0	48.0	50.3	10.0	60.3
	1	49.7	64.0	47.6	56.0	51.0	50.0	49.0	49.0	49.0	48.0	48.0	48.0	49.7	10.0	59.7
	2	49.1	54.7	47.2	50.0	50.0	49.0	49.0	49.0	49.0	48.0	48.0	47.0	49.1	10.0	59.1
	3	49.5	56.8	47.8	51.0	51.0	50.0	50.0	49.0	49.0	48.0	48.0	48.0	49.5	10.0	59.5
	4	51.5	62.1	48.7	53.0	53.0	53.0	52.0	52.0	51.0	49.0	49.0	49.0	51.5	10.0	61.5
	5	51.9	57.9	49.2	54.0	53.0	53.0	53.0	52.0	51.0	50.0	50.0	49.0	51.9	10.0	61.9
	6	56.3	86.0	48.4	64.0	61.0	58.0	57.0	53.0	51.0	49.0	49.0	49.0	56.3	10.0	66.3
Day	7	63.5	84.5	49.2	73.0	71.0	70.0	70.0	56.0	52.0	50.0	50.0	49.0	63.5	0.0	63.5
	8	57.3	75.5	48.3	69.0	67.0	62.0	60.0	53.0	51.0	49.0	49.0	49.0	57.3	0.0	57.3
	9	63.4	78.8	50.5	75.0	74.0	70.0	67.0	58.0	54.0	52.0	51.0	50.0	63.4	0.0	63.4
	10	63.3	78.8	52.7	76.0	74.0	69.0	66.0	58.0	55.0	54.0	53.0	53.0	63.3	0.0	63.3
	11	63.4	79.6	51.7	76.0	74.0	68.0	66.0	59.0	56.0	54.0	53.0	52.0	63.4	0.0	63.4
	12	62.0	80.7	51.5	76.0	73.0	65.0	62.0	57.0	54.0	53.0	52.0	52.0	62.0	0.0	62.0
	13	66.1	89.0	53.0	78.0	76.0	71.0	69.0	60.0	56.0	54.0	54.0	53.0	66.1	0.0	66.1
	14	67.5	93.0	54.1	77.0	74.0	69.0	67.0	60.0	57.0	55.0	55.0	54.0	67.5	0.0	67.5
	15	66.6	91.3	54.3	76.0	75.0	71.0	69.0	63.0	57.0	55.0	55.0	54.0	66.6	0.0	66.6
	16	65.0	87.8	53.6	76.0	73.0	68.0	67.0	61.0	56.0	55.0	54.0	54.0	65.0	0.0	65.0
	17	63.2	77.6	53.5	75.0	74.0	69.0	67.0	59.0	57.0	55.0	54.0	54.0	63.2	0.0	63.2
	18	59.6	79.0	51.3	73.0	68.0	62.0	59.0	55.0	54.0	52.0	52.0	52.0	59.6	0.0	59.6
Evening	19	60.1	75.4	50.8	72.0	71.0	66.0	63.0	55.0	53.0	52.0	51.0	51.0	60.1	5.0	65.1
	20	58.8	76.1	49.9	72.0	69.0	64.0	60.0	53.0	52.0	51.0	50.0	50.0	58.8	5.0	63.8
	21	63.3	82.9	49.3	73.0	72.0	70.0	69.0	56.0	53.0	51.0	50.0	49.0	63.3	5.0	68.3
Night	22	52.5	72.3	48.7	63.0	58.0	52.0	51.0	50.0	50.0	49.0	49.0	49.0	52.5	10.0	62.5
	23	50.3	61.4	48.3	52.0	51.0	51.0	51.0	50.0	50.0	49.0	49.0	48.0	50.3	10.0	60.3
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L _{eq} (dBA)		
Day	Min	57.3	75.5	48.3	69.0	67.0	62.0	59.0	53.0	51.0	49.0	49.0	49.0	24-Hour	Daytime	Nighttime
	Max	67.5	93.0	54.3	78.0	76.0	71.0	70.0	63.0	57.0	55.0	55.0	54.0			
Energy Average		64.2	Average:		75.0	72.8	67.8	65.8	58.3	54.9	53.2	52.7	52.2	61.8		
Evening	Min	58.8	75.4	49.3	72.0	69.0	64.0	60.0	53.0	52.0	51.0	50.0	49.0			
	Max	63.3	82.9	50.8	73.0	72.0	70.0	69.0	56.0	53.0	52.0	51.0	51.0	24-Hour CNEL (dBA)		
Energy Average		61.2	Average:		72.3	70.7	66.7	64.0	54.7	52.7	51.3	50.3	50.0	63.8		
Night	Min	49.1	54.7	47.2	50.0	50.0	49.0	49.0	49.0	49.0	48.0	48.0	47.0			
	Max	56.3	86.0	49.2	64.0	61.0	58.0	57.0	53.0	51.0	50.0	50.0	49.0			
Energy Average		51.9	Average:		55.0	53.3	51.9	51.4	50.4	50.0	48.8	48.8	48.3			

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Grand Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,530 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,053 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.17	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-16.07	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-20.02	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.6	67.7	66.0	59.9	68.5	69.1			
Medium Trucks:	63.4	61.9	55.5	54.0	62.5	62.7			
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5			
Vehicle Noise:	71.5	69.7	66.6	61.9	70.4	70.9			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			64	138	298	643			
CNEL:			69	149	320	689			

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Newport Ave. Road Segment: n/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,550 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,055 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	-1.21	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-18.45	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-22.40	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	65.3	63.4	61.6	55.6	64.2	64.8			
Medium Trucks:	59.3	57.8	51.4	49.9	58.3	58.6			
Heavy Trucks:	60.6	59.2	50.1	51.4	59.7	59.9			
Vehicle Noise:	67.3	65.6	62.3	57.8	66.3	66.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			34	73	158	340			
CNEL:			36	78	169	364			

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Redhill Ave. Road Segment: n/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,920 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,392 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph					Vehicle Mix				
Near/Far Lane Distance: 88 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 60.0 feet					Daily				
Centerline Dist. to Observer: 60.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Right View: 90.0 degrees					Lane Equivalent Distance (in feet)				
					Autos: 40.902				
					Medium Trucks: 40.804				
					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	2.35	1.20	-1.20	-4.85	0.000	0.000		0.000
Medium Trucks:	77.72	-14.89	1.22	-1.20	-5.01	0.000	0.000		0.000
Heavy Trucks:	82.99	-18.85	1.20	-1.20	-5.34	0.000	0.000		0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.9	67.0	65.2	59.1	67.8	68.4			
Medium Trucks:	62.8	61.3	55.0	53.4	61.9	62.1			
Heavy Trucks:	64.2	62.7	53.7	54.9	63.3	63.4			
Vehicle Noise:	70.9	69.1	65.9	61.3	69.9	70.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			59	126	272	586			
CNEL:			63	135	291	628			

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL										
Scenario: Existing Road Name: Redhill Ave. Road Segment: s/o Walnut Ave.					Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 24,920 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,492 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType		Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
					Noise Source Elevations (in feet)					
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0					
					Lane Equivalent Distance (in feet)					
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903					
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	66.51	2.53	1.20	-1.20	-4.85	0.000	0.000			
Medium Trucks:	77.72	-14.71	1.22	-1.20	-5.01	0.000	0.000			
Heavy Trucks:	82.99	-18.67	1.20	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	69.0	67.1	65.4	59.3	67.9	68.6				
Medium Trucks:	63.0	61.5	55.2	53.6	62.1	62.3				
Heavy Trucks:	64.3	62.9	53.9	55.1	63.5	63.6				
Vehicle Noise:	71.1	69.3	66.0	61.5	70.0	70.5				
Centerline Distance to Noise Contour (in feet)										
			70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:			60	130	280	603				
CNEL:			65	139	300	645				

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: Existing Road Name: Redhill Ave. Road Segment: n/o Valencia Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,880 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,388 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Noise Source Elevations (in feet)				
				Autos: 2.000				
				Medium Trucks: 4.000				
				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
Autos: 40.902								
Medium Trucks: 40.804								
Heavy Trucks: 40.903								
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	1.83	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	79.45	-15.41	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	84.25	-19.36	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	70.3	68.4	66.6	60.6	69.2	69.8		
Medium Trucks:	64.1	62.6	56.2	54.6	63.1	63.3		
Heavy Trucks:	64.9	63.5	54.4	55.7	64.0	64.2		
Vehicle Noise:	72.1	70.4	67.2	62.6	71.1	71.6		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			71	153	330	711		
CNEL:			76	164	354	762		

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Redhill Ave. Road Segment: s/o Valencia Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 27,350 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,735 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily	
				Autos: 77.5%		12.9%	9.6%	97.42%	
				Medium Trucks: 84.8%		4.9%	10.3%	1.84%	
				Heavy Trucks: 86.5%		2.7%	10.8%	0.74%	
				Noise Source Elevations (in feet)					
				Autos: 2.000					
				Medium Trucks: 4.000					
				Heavy Trucks: 8.006		Grade Adjustment: 0.0			
				Lane Equivalent Distance (in feet)					
				Autos: 40.902					
				Medium Trucks: 40.804					
				Heavy Trucks: 40.903					
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	1.96	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-15.28	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-19.23	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.2	70.3	68.5	62.5	71.1	71.7			
Medium Trucks:	65.7	64.2	57.9	56.3	64.8	65.0			
Heavy Trucks:	66.1	64.7	55.7	56.9	65.3	65.4			
Vehicle Noise:	73.9	72.1	69.1	64.3	72.8	73.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			93	200	430	927			
CNEL:			100	215	462	996			

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Redhill Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 33,040 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,304 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.78	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	81.00	-14.46	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	85.38	-18.41	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.0	71.1	69.3	63.3	71.9	72.5			
Medium Trucks:	66.6	65.1	58.7	57.2	65.6	65.8			
Heavy Trucks:	67.0	65.5	56.5	57.8	66.1	66.2			
Vehicle Noise:	74.7	72.9	69.9	65.1	73.7	74.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			105	227	488	1,051			
CNEL:			113	243	524	1,130			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: Existing Road Name: Redhill Ave. Road Segment: n/o Carnegie Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,770 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,277 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	2.75	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	81.00	-14.49	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	85.38	-18.45	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	73.0	71.1	69.3	63.2	71.9	72.5		
Medium Trucks:	66.5	65.0	58.7	57.1	65.6	65.8		
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2		
Vehicle Noise:	74.7	72.9	69.9	65.1	73.6	74.1		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			105	225	485	1,046		
CNEL:			112	242	521	1,123		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Redhill Ave. Road Segment: s/o Carnegie Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 31,940 vehicles				Autos: 15					
Peak Hour Percentage: 10%				Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,194 vehicles				Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph				Vehicle Mix					
Near/Far Lane Distance: 88 feet				VehicleType		Day	Evening	Night	Daily
Site Data				Autos: 77.5% 12.9% 9.6% 97.42%					
Barrier Height: 0.0 feet				Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
Centerline Dist. to Barrier: 60.0 feet				Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 60.0 feet				Autos: 2.000					
Barrier Distance to Observer: 0.0 feet				Medium Trucks: 4.000					
Observer Height (Above Pad): 5.0 feet				Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet				Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet				Autos: 40.902					
Road Grade: 0.0%				Medium Trucks: 40.804					
Left View: -90.0 degrees				Heavy Trucks: 40.903					
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.63	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-14.60	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-18.56	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.8	70.9	69.2	63.1	71.7	72.4			
Medium Trucks:	66.4	64.9	58.5	57.0	65.5	65.7			
Heavy Trucks:	66.8	65.4	56.4	57.6	66.0	66.1			
Vehicle Noise:	74.5	72.8	69.7	65.0	73.5	74.0			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			103	221	477	1,028			
CNEL:			110	238	513	1,104			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Redhill Ave. Road Segment: n/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,610 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,261 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.72	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-14.51	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-18.47	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.2	70.3	68.5	62.5	71.1	71.7			
Medium Trucks:	65.8	64.3	57.9	56.3	64.8	65.0			
Heavy Trucks:	66.2	64.8	55.7	57.0	65.3	65.4			
Vehicle Noise:	73.9	72.1	69.1	64.3	72.9	73.3			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				109	234	504	1,085		
CNEL:				117	251	541	1,166		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Redhill Ave. Road Segment: s/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,750 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,275 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.74	0.46	-1.20	-4.86	0.000	0.000	0.000	
Medium Trucks:	81.00	-14.49	0.48	-1.20	-5.00	0.000	0.000	0.000	
Heavy Trucks:	85.38	-18.45	0.46	-1.20	-5.28	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.2	70.3	68.5	62.5	71.1	71.7			
Medium Trucks:	65.8	64.3	57.9	56.4	64.8	65.1			
Heavy Trucks:	66.2	64.8	55.7	57.0	65.3	65.5			
Vehicle Noise:	73.9	72.2	69.1	64.3	72.9	73.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			109	234	505	1,088			
CNEL:			117	252	543	1,169			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: Existing Road Name: Redhill Ave. Road Segment: n/o MacArthur Blvd.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 47,300 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 4,730 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	4.34	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	81.00	-12.90	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	85.38	-16.85	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	74.5	72.7	70.9	64.8	73.5	74.1		
Medium Trucks:	68.1	66.6	60.3	58.7	67.2	67.4		
Heavy Trucks:	68.5	67.1	58.1	59.3	67.7	67.8		
Vehicle Noise:	76.2	74.5	71.4	66.7	75.2	75.7		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			134	288	620	1,335		
CNEL:			143	309	666	1,435		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Redhill Ave. Road Segment: s/o MacArthur Blvd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,510 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,151 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 36 feet					VehicleType				
Site Data					Day				
					Evening				
					Night				
					Daily				
					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 40.0 feet					Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet					Autos: 2.000				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 8.006				
Pad Elevation: 0.0 feet					Grade Adjustment: 0.0				
Road Elevation: 0.0 feet					Lane Equivalent Distance (in feet)				
Road Grade: 0.0%					Autos: 35.847				
Left View: -90.0 degrees					Medium Trucks: 35.735				
Right View: 90.0 degrees					Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	0.92	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	81.00	-16.32	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	85.38	-20.28	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.0	70.1	68.3	62.3	70.9	71.5			
Medium Trucks:	65.6	64.1	57.7	56.2	64.6	64.8			
Heavy Trucks:	66.0	64.5	55.5	56.8	65.1	65.2			
Vehicle Noise:	73.7	71.9	68.9	64.1	72.7	73.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			60	129	279	601			
CNEL:			65	139	300	645			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Valencia Ave. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 7,720 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 772 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	-3.07	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-20.31	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-24.27	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	66.3	64.4	62.6	56.5	65.2	65.8			
Medium Trucks:	60.0	58.5	52.2	50.6	59.1	59.3			
Heavy Trucks:	60.8	59.4	50.4	51.6	60.0	60.1			
Vehicle Noise:	68.1	66.3	63.2	58.5	67.1	67.5			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				25	55	118	255		
CNEL:				27	59	127	273		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Valencia Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 9,570 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 957 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 36 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 40.0 feet					Daily				
Centerline Dist. to Observer: 40.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006				
Right View: 90.0 degrees					Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847				
					Medium Trucks: 35.735				
					Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	-2.14	2.06	-1.20	-4.83	0.000	0.000		0.000
Medium Trucks:	79.45	-19.38	2.08	-1.20	-5.08	0.000	0.000		0.000
Heavy Trucks:	84.25	-23.34	2.06	-1.20	-5.56	0.000	0.000		0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn		CNEL		
Autos:	67.2	65.3	63.5	57.5	66.1		66.7		
Medium Trucks:	61.0	59.4	53.1	51.5	60.0		60.2		
Heavy Trucks:	61.8	60.4	51.3	52.6	60.9		61.1		
Vehicle Noise:	69.0	67.3	64.1	59.4	68.0		68.4		
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			29	63	136	294			
CNEL:			32	68	146	315			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: Existing Road Name: Warner Ave. Road Segment: w/o Grand Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,290 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,429 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	1.90	2.06	-1.20	-4.83	0.000	0.000	
Medium Trucks:	79.45	-15.34	2.08	-1.20	-5.08	0.000	0.000	
Heavy Trucks:	84.25	-19.29	2.06	-1.20	-5.56	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	71.2	69.3	67.6	61.5	70.1	70.7		
Medium Trucks:	65.0	63.5	57.1	55.6	64.0	64.3		
Heavy Trucks:	65.8	64.4	55.4	56.6	65.0	65.1		
Vehicle Noise:	73.1	71.3	68.2	63.5	72.0	72.5		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			55	118	254	547		
CNEL:			59	126	272	587		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: Existing Road Name: Warner Ave. Road Segment: elo Grand Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,920 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,292 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000				
				Medium Trucks: 4.000				
				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 35.847				
				Medium Trucks: 35.735				
				Heavy Trucks: 35.847				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos: 68.46 1.65 2.06 -1.20 -4.83 0.000 0.000								
Medium Trucks: 79.45 -15.59 2.08 -1.20 -5.08 0.000 0.000								
Heavy Trucks: 84.25 -19.54 2.06 -1.20 -5.56 0.000 0.000								
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos: 71.0 69.1 67.3 61.3 69.9 70.5								
Medium Trucks: 64.7 63.2 56.9 55.3 63.8 64.0								
Heavy Trucks: 65.6 64.2 55.1 56.4 64.7 64.8								
Vehicle Noise: 72.8 71.1 67.9 63.2 71.8 72.2								
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn: 53			113	244	526			
CNEL: 56			122	262	564			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Warner Ave. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,020 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,302 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph									
Near/Far Lane Distance: 88 feet					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet					Noise Source Elevations (in feet)				
Barrier Type (0-Wall, 1-Berm): 0.0					Autos: 2.000				
Centerline Dist. to Barrier: 60.0 feet					Medium Trucks: 4.000				
Centerline Dist. to Observer: 60.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Barrier Distance to Observer: 0.0 feet									
Observer Height (Above Pad): 5.0 feet									
Pad Elevation: 0.0 feet									
Road Elevation: 0.0 feet									
Road Grade: 0.0%									
Left View: -90.0 degrees									
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.67	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-15.57	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-19.52	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	70.1	68.2	66.5	60.4	69.0	69.6			
Medium Trucks:	63.9	62.4	56.0	54.5	62.9	63.2			
Heavy Trucks:	64.7	63.3	54.3	55.5	63.9	64.0			
Vehicle Noise:	72.0	70.2	67.1	62.4	70.9	71.4			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			69	149	322	694			
CNEL:			74	160	345	744			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Warner Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 15,130 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,513 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	-0.61	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	81.00	-17.85	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	85.38	-21.80	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.6	67.7	65.9	59.9	68.5	69.1			
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5			
Heavy Trucks:	63.6	62.2	53.1	54.4	62.7	62.9			
Vehicle Noise:	71.3	69.5	66.5	61.7	70.3	70.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			62	135	290	625			
CNEL:			67	145	311	671			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL										
Scenario: Existing Road Name: Dyer Rd. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 25,530 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,553 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType		Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
					Noise Source Elevations (in feet)					
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0					
					Lane Equivalent Distance (in feet)					
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903					
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	66.51	2.63	1.20	-1.20	-4.85	0.000	0.000			
Medium Trucks:	77.72	-14.61	1.22	-1.20	-5.01	0.000	0.000			
Heavy Trucks:	82.99	-18.56	1.20	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	69.1	67.2	65.5	59.4	68.1	68.7				
Medium Trucks:	63.1	61.6	55.3	53.7	62.2	62.4				
Heavy Trucks:	64.4	63.0	54.0	55.2	63.6	63.7				
Vehicle Noise:	71.2	69.4	66.1	61.6	70.1	70.6				
Centerline Distance to Noise Contour (in feet)										
			70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:			61	132	284	613				
CNEL:			66	141	304	656				

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Barranca Pkwy. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 30,090 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,009 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.38	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-14.86	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-18.82	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	71.8	69.9	68.2	62.1	70.7	71.4			
Medium Trucks:	65.4	63.9	57.5	56.0	64.5	64.7			
Heavy Trucks:	65.8	64.4	55.4	56.6	65.0	65.1			
Vehicle Noise:	73.5	71.8	68.7	64.0	72.5	73.0			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			103	222	477	1,029			
CNEL:			111	238	513	1,105			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: Barranca Pkwy. Road Segment: w/o Tustin Ranch Rd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 33,720 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,372 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph									
Near/Far Lane Distance: 106 feet					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet					Noise Source Elevations (in feet)				
Barrier Type (0-Wall, 1-Berm): 0.0					Autos: 2.000				
Centerline Dist. to Barrier: 70.0 feet					Medium Trucks: 4.000				
Centerline Dist. to Observer: 70.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Barrier Distance to Observer: 0.0 feet									
Observer Height (Above Pad): 5.0 feet									
Pad Elevation: 0.0 feet									
Road Elevation: 0.0 feet									
Road Grade: 0.0%									
Left View: -90.0 degrees									
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.87	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-14.37	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-18.32	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.3	70.4	68.7	62.6	71.2	71.8			
Medium Trucks:	65.9	64.4	58.0	56.5	65.0	65.2			
Heavy Trucks:	66.3	64.9	55.9	57.1	65.5	65.6			
Vehicle Noise:	74.0	72.3	69.2	64.5	73.0	73.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			111	239	515	1,110			
CNEL:			119	257	553	1,192			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: MacArthur Blvd. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,460 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,146 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.57	0.46	-1.20	-4.86	0.000	0.000	0.000	
Medium Trucks:	81.00	-14.67	0.48	-1.20	-5.00	0.000	0.000	0.000	
Heavy Trucks:	85.38	-18.63	0.46	-1.20	-5.28	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.0	70.1	68.4	62.3	70.9	71.5			
Medium Trucks:	65.6	64.1	57.7	56.2	64.7	64.9			
Heavy Trucks:	66.0	64.6	55.6	56.8	65.2	65.3			
Vehicle Noise:	73.7	72.0	68.9	64.2	72.7	73.2			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			106	228	492	1,060			
CNEL:			114	245	528	1,138			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: Existing Road Name: MacArthur Blvd. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,470 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,547 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	1.65	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-15.59	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-19.54	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	71.1	69.2	67.5	61.4	70.0	70.6			
Medium Trucks:	64.7	63.2	56.8	55.3	63.7	64.0			
Heavy Trucks:	65.1	63.7	54.6	55.9	64.2	64.4			
Vehicle Noise:	72.8	71.1	68.0	63.2	71.8	72.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			92	198	427	920			
CNEL:			99	213	459	989			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Grand Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,600 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,060 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.19	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-16.05	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-20.01	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.7	67.8	66.0	59.9	68.6	69.2			
Medium Trucks:	63.4	61.9	55.5	54.0	62.5	62.7			
Heavy Trucks:	64.3	62.8	53.8	55.0	63.4	63.5			
Vehicle Noise:	71.5	69.7	66.6	61.9	70.5	70.9			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			64	139	299	644			
CNEL:			69	149	321	691			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Newport Ave. Road Segment: n/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,790 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,079 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	-1.11	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-18.35	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-22.30	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	65.4	63.5	61.7	55.7	64.3	64.9			
Medium Trucks:	59.4	57.9	51.5	50.0	58.4	58.7			
Heavy Trucks:	60.7	59.3	50.2	51.5	59.8	60.0			
Vehicle Noise:	67.4	65.7	62.4	57.9	66.4	66.8			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			34	74	160	345			
CNEL:			37	80	171	369			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: n/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,020 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,402 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	2.37	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	77.72	-14.87	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	82.99	-18.83	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.9	67.0	65.2	59.2	67.8	68.4			
Medium Trucks:	62.9	61.4	55.0	53.4	61.9	62.1			
Heavy Trucks:	64.2	62.7	53.7	55.0	63.3	63.4			
Vehicle Noise:	70.9	69.2	65.9	61.3	69.9	70.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			59	127	273	588			
CNEL:			63	136	292	630			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: s/o Walnut Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 25,020 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,502 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
				VehicleType	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
				Noise Source Elevations (in feet)					
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0					
				Lane Equivalent Distance (in feet)					
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903					
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	2.54	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-14.69	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-18.65	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.1	67.2	65.4	59.3	68.0	68.6			
Medium Trucks:	63.0	61.5	55.2	53.6	62.1	62.3			
Heavy Trucks:	64.3	62.9	53.9	55.1	63.5	63.6			
Vehicle Noise:	71.1	69.3	66.1	61.5	70.0	70.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			60	130	281	604			
CNEL:			65	139	300	647			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: n/o Valencia Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 24,070 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,407 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
				VehicleType		Day	Evening	Night	Daily
				Autos:		77.5%	12.9%	9.6%	97.42%
				Medium Trucks:		84.8%	4.9%	10.3%	1.84%
				Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
				Noise Source Elevations (in feet)					
				Autos:		2.000			
				Medium Trucks:		4.000			
				Heavy Trucks:		8.006		Grade Adjustment: 0.0	
				Lane Equivalent Distance (in feet)					
				Autos:		40.902			
				Medium Trucks:		40.804			
				Heavy Trucks:		40.903			
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:		68.46	1.86	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:		79.45	-15.37	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:		84.25	-19.33	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:		70.3	68.4	66.7	60.6	69.2	69.8		
Medium Trucks:		64.1	62.6	56.2	54.7	63.1	63.4		
Heavy Trucks:		64.9	63.5	54.5	55.7	64.1	64.2		
Vehicle Noise:		72.2	70.4	67.3	62.6	71.1	71.6		
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				71	154	332	715		
CNEL:				77	165	356	766		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: s/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,930 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,793 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph									
Near/Far Lane Distance: 88 feet					Vehicle Mix				
Site Data					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 60.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 60.0 feet					Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet					Autos: 2.000				
Observer Height (Above Pad): 5.0 feet					Medium Trucks: 4.000				
Pad Elevation: 0.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet					Lane Equivalent Distance (in feet)				
Road Grade: 0.0%					Autos: 40.902				
Left View: -90.0 degrees					Medium Trucks: 40.804				
Right View: 90.0 degrees					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.05	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-15.19	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-19.14	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.3	70.4	68.6	62.5	71.2	71.8			
Medium Trucks:	65.8	64.3	58.0	56.4	64.9	65.1			
Heavy Trucks:	66.2	64.8	55.8	57.0	65.4	65.5			
Vehicle Noise:	74.0	72.2	69.2	64.4	72.9	73.4			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			94	203	436	940			
CNEL:			101	218	469	1,010			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 34,750 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,475 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.00	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	81.00	-14.24	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	85.38	-18.19	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.2	71.3	69.5	63.5	72.1	72.7			
Medium Trucks:	66.8	65.3	58.9	57.4	65.8	66.1			
Heavy Trucks:	67.2	65.8	56.7	58.0	66.3	66.5			
Vehicle Noise:	74.9	73.2	70.1	65.3	73.9	74.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			109	234	505	1,087			
CNEL:			117	252	542	1,168			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: n/o Carnegie Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 35,710 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,571 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.12	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-14.12	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-18.07	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.3	71.4	69.7	63.6	72.2	72.8			
Medium Trucks:	66.9	65.4	59.0	57.5	65.9	66.2			
Heavy Trucks:	67.3	65.9	56.9	58.1	66.5	66.6			
Vehicle Noise:	75.0	73.3	70.2	65.4	74.0	74.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			111	239	514	1,107			
CNEL:			119	256	552	1,190			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: s/o Carnegie Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 34,880 vehicles				Autos: 15					
Peak Hour Percentage: 10%				Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,488 vehicles				Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph									
Near/Far Lane Distance: 88 feet									
Site Data				Vehicle Mix					
Barrier Height: 0.0 feet				VehicleType	Day	Evening	Night	Daily	
Barrier Type (0-Wall, 1-Berm): 0.0				Autos:		77.5%	12.9%	9.6%	97.42%
Centerline Dist. to Barrier: 60.0 feet				Medium Trucks:		84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Observer: 60.0 feet				Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
Barrier Distance to Observer: 0.0 feet				Noise Source Elevations (in feet)					
Observer Height (Above Pad): 5.0 feet				Autos:		2.000			
Pad Elevation: 0.0 feet				Medium Trucks:		4.000			
Road Elevation: 0.0 feet				Heavy Trucks:		8.006		Grade Adjustment: 0.0	
Road Grade: 0.0%				Lane Equivalent Distance (in feet)					
Left View: -90.0 degrees				Autos:		40.902			
Right View: 90.0 degrees				Medium Trucks:		40.804			
				Heavy Trucks:		40.903			
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.02	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-14.22	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-18.18	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.2	71.3	69.6	63.5	72.1	72.7			
Medium Trucks:	66.8	65.3	58.9	57.4	65.8	66.1			
Heavy Trucks:	67.2	65.8	56.7	58.0	66.4	66.5			
Vehicle Noise:	74.9	73.2	70.1	65.3	73.9	74.4			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			109	235	506	1,090			
CNEL:			117	252	544	1,171			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: n/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 35,550 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,555 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 106 feet					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet					Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet					Autos: 2.000				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet					Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet					Autos: 45.826				
Road Grade: 0.0%					Medium Trucks: 45.738				
Left View: -90.0 degrees					Heavy Trucks: 45.826				
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.10	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-14.14	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-18.09	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.6	70.7	68.9	62.8	71.5	72.1			
Medium Trucks:	66.1	64.6	58.3	56.7	65.2	65.4			
Heavy Trucks:	66.5	65.1	56.1	57.3	65.7	65.8			
Vehicle Noise:	74.3	72.5	69.5	64.7	73.2	73.7			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				115	248	534	1,149		
CNEL:				123	266	573	1,235		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: s/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 34,330 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,433 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 106 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 70.0 feet					Daily				
Centerline Dist. to Observer: 70.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006				
Right View: 90.0 degrees					Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826				
					Medium Trucks: 45.738				
					Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.95	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-14.29	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-18.25	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.4	70.5	68.8	62.7	71.3	71.9			
Medium Trucks:	66.0	64.5	58.1	56.6	65.0	65.3			
Heavy Trucks:	66.4	65.0	55.9	57.2	65.5	65.7			
Vehicle Noise:	74.1	72.4	69.3	64.5	73.1	73.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			112	242	521	1,123			
CNEL:			121	260	560	1,207			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: n/o MacArthur Blvd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 48,100 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 4,810 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	4.41	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-12.83	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-16.78	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	74.6	72.7	71.0	64.9	73.5	74.1			
Medium Trucks:	68.2	66.7	60.3	58.8	67.2	67.5			
Heavy Trucks:	68.6	67.2	58.1	59.4	67.7	67.9			
Vehicle Noise:	76.3	74.6	71.5	66.7	75.3	75.8			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			135	291	627	1,350			
CNEL:			145	313	673	1,451			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Redhill Ave. Road Segment: s/o MacArthur Blvd.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 21,870 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,187 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
				VehicleType	Day	Evening	Night	Daily	
				Autos: 77.5% 12.9% 9.6% 97.42%					
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
				Noise Source Elevations (in feet)					
				Autos: 2.000					
				Medium Trucks: 4.000					
				Heavy Trucks: 8.006 Grade Adjustment: 0.0					
				Lane Equivalent Distance (in feet)					
				Autos: 35.847					
				Medium Trucks: 35.735					
				Heavy Trucks: 35.847					
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	0.99	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	81.00	-16.25	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	85.38	-20.20	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.1	70.2	68.4	62.3	71.0	71.6			
Medium Trucks:	65.6	64.1	57.8	56.2	64.7	64.9			
Heavy Trucks:	66.0	64.6	55.6	56.8	65.2	65.3			
Vehicle Noise:	73.8	72.0	69.0	64.2	72.7	73.2			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			61	131	282	607			
CNEL:			65	141	303	653			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Valencia Ave. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 8,030 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 803 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph									
Near/Far Lane Distance: 36 feet					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet					Noise Source Elevations (in feet)				
Barrier Type (0-Wall, 1-Berm): 0.0					Autos: 2.000				
Centerline Dist. to Barrier: 40.0 feet					Medium Trucks: 4.000				
Centerline Dist. to Observer: 40.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Barrier Distance to Observer: 0.0 feet									
Observer Height (Above Pad): 5.0 feet					Lane Equivalent Distance (in feet)				
Pad Elevation: 0.0 feet					Autos: 35.847				
Road Elevation: 0.0 feet					Medium Trucks: 35.735				
Road Grade: 0.0%					Heavy Trucks: 35.847				
Left View: -90.0 degrees									
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	-2.90	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-20.14	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-24.10	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	66.4	64.5	62.8	56.7	65.3	65.9			
Medium Trucks:	60.2	58.7	52.3	50.8	59.2	59.5			
Heavy Trucks:	61.0	59.6	50.6	51.8	60.2	60.3			
Vehicle Noise:	68.3	66.5	63.4	58.7	67.2	67.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			26	56	121	261			
CNEL:			28	60	130	280			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Valencia Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 9,650 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 965 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 36 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 40.0 feet					Daily				
Centerline Dist. to Observer: 40.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Right View: 90.0 degrees					Lane Equivalent Distance (in feet)				
					Autos: 35.847				
					Medium Trucks: 35.735				
					Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	-2.11	2.06	-1.20	-4.83	0.000	0.000		0.000
Medium Trucks:	79.45	-19.34	2.08	-1.20	-5.08	0.000	0.000		0.000
Heavy Trucks:	84.25	-23.30	2.06	-1.20	-5.56	0.000	0.000		0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn		CNEL		
Autos:	67.2	65.3	63.6	57.5	66.1		66.7		
Medium Trucks:	61.0	59.5	53.1	51.6	60.0		60.3		
Heavy Trucks:	61.8	60.4	51.4	52.6	61.0		61.1		
Vehicle Noise:	69.1	67.3	64.2	59.5	68.0		68.5		
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				30	64	137	296		
CNEL:				32	68	147	317		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Warner Ave. Road Segment: w/o Grand Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,420 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,442 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.93	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-15.31	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-19.27	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	71.3	69.4	67.6	61.5	70.2	70.8			
Medium Trucks:	65.0	63.5	57.2	55.6	64.1	64.3			
Heavy Trucks:	65.8	64.4	55.4	56.6	65.0	65.1			
Vehicle Noise:	73.1	71.3	68.2	63.5	72.1	72.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			55	118	255	549			
CNEL:			59	127	273	589			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: E + P Road Name: Warner Ave. Road Segment: e/o Grand Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,630 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,363 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	1.78	2.06	-1.20	-4.83	0.000	0.000	
Medium Trucks:	79.45	-15.45	2.08	-1.20	-5.08	0.000	0.000	
Heavy Trucks:	84.25	-19.41	2.06	-1.20	-5.56	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	71.1	69.2	67.4	61.4	70.0	70.6		
Medium Trucks:	64.9	63.4	57.0	55.5	63.9	64.2		
Heavy Trucks:	65.7	64.3	55.2	56.5	64.9	65.0		
Vehicle Noise:	72.9	71.2	68.1	63.4	71.9	72.4		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			54	116	249	537		
CNEL:			58	124	267	576		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL										
Scenario: E + P Road Name: Warner Ave. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 26,030 vehicles					Autos: 15					
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,603 vehicles					Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph										
Near/Far Lane Distance: 88 feet					Vehicle Mix					
Site Data					VehicleType		Day	Evening	Night	Daily
					Autos:		77.5%	12.9%	9.6%	97.42%
					Medium Trucks:		84.8%	4.9%	10.3%	1.84%
					Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
Barrier Height: 0.0 feet					Noise Source Elevations (in feet)					
Barrier Type (0-Wall, 1-Berm): 0.0					Autos: 2.000					
Centerline Dist. to Barrier: 60.0 feet					Medium Trucks: 4.000					
Centerline Dist. to Observer: 60.0 feet					Heavy Trucks: 8.006					
Barrier Distance to Observer: 0.0 feet					Grade Adjustment: 0.0					
Observer Height (Above Pad): 5.0 feet					Lane Equivalent Distance (in feet)					
Pad Elevation: 0.0 feet					Autos: 40.902					
Road Elevation: 0.0 feet					Medium Trucks: 40.804					
Road Grade: 0.0%					Heavy Trucks: 40.903					
Left View: -90.0 degrees										
Right View: 90.0 degrees										
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	68.46	2.20	1.20	-1.20	-4.85	0.000	0.000			
Medium Trucks:	79.45	-15.03	1.22	-1.20	-5.01	0.000	0.000			
Heavy Trucks:	84.25	-18.99	1.20	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	70.7	68.8	67.0	60.9	69.6	70.2				
Medium Trucks:	64.4	62.9	56.6	55.0	63.5	63.7				
Heavy Trucks:	65.3	63.8	54.8	56.1	64.4	64.5				
Vehicle Noise:	72.5	70.8	67.6	62.9	71.5	71.9				
Centerline Distance to Noise Contour (in feet)										
			70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:			75	162	349	753				
CNEL:			81	174	375	808				

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Warner Ave. Road Segment: e/o Redhill Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 16,580 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,658 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
				VehicleType	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
				Noise Source Elevations (in feet)					
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0					
				Lane Equivalent Distance (in feet)					
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903					
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	-0.21	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	81.00	-17.45	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	85.38	-21.41	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	70.0	68.1	66.3	60.3	68.9	69.5			
Medium Trucks:	63.6	62.1	55.7	54.2	62.6	62.8			
Heavy Trucks:	64.0	62.6	53.5	54.8	63.1	63.2			
Vehicle Noise:	71.7	69.9	66.9	62.1	70.7	71.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			66	143	308	664			
CNEL:			71	154	331	713			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: Dyer Rd. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,960 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,596 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	2.70	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-14.53	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-18.49	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.2	67.3	65.6	59.5	68.1	68.7			
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5			
Heavy Trucks:	64.5	63.1	54.1	55.3	63.7	63.8			
Vehicle Noise:	71.2	69.5	66.2	61.7	70.2	70.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			62	133	287	619			
CNEL:			66	143	308	663			

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: E + P Road Name: Barranca Pkwy. Road Segment: e/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,020 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,102 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Noise Source Elevations (in feet)				
				Autos: 2.000				
				Medium Trucks: 4.000				
				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
Autos: 45.826								
Medium Trucks: 45.738								
Heavy Trucks: 45.826								
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	2.51	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-14.73	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-18.69	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	72.0	70.1	68.3	62.3	70.9	71.5		
Medium Trucks:	65.5	64.0	57.7	56.1	64.6	64.8		
Heavy Trucks:	66.0	64.5	55.5	56.7	65.1	65.2		
Vehicle Noise:	73.7	71.9	68.9	64.1	72.6	73.1		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			105	226	487	1,050		
CNEL:			113	243	523	1,128		

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: E + P Road Name: Barranca Pkwy. Road Segment: w/o Tustin Ranch Rd.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 34,440 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,444 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	2.96	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-14.28	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-18.23	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	72.4	70.5	68.8	62.7	71.3	71.9		
Medium Trucks:	66.0	64.5	58.1	56.6	65.0	65.3		
Heavy Trucks:	66.4	65.0	56.0	57.2	65.6	65.7		
Vehicle Noise:	74.1	72.4	69.3	64.5	73.1	73.6		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			113	242	522	1,125		
CNEL:			121	260	561	1,209		

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: E + P Road Name: MacArthur Blvd. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 31,540 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,154 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
				VehicleType		Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
				Noise Source Elevations (in feet)					
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0					
				Lane Equivalent Distance (in feet)					
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826					
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.58	0.46	-1.20	-4.86	0.000	0.000	0.000	
Medium Trucks:	81.00	-14.66	0.48	-1.20	-5.00	0.000	0.000	0.000	
Heavy Trucks:	85.38	-18.61	0.46	-1.20	-5.28	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.0	70.1	68.4	62.3	71.0	71.6			
Medium Trucks:	65.6	64.1	57.7	56.2	64.7	64.9			
Heavy Trucks:	66.0	64.6	55.6	56.8	65.2	65.3			
Vehicle Noise:	73.7	72.0	68.9	64.2	72.7	73.2			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			106	229	493	1,061			
CNEL:			114	246	529	1,140			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: E + P Road Name: MacArthur Blvd. Road Segment: e/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,830 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,583 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	1.71	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-15.53	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-19.48	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	71.2	69.3	67.5	61.5	70.1	70.7		
Medium Trucks:	64.8	63.2	56.9	55.3	63.8	64.0		
Heavy Trucks:	65.2	63.7	54.7	56.0	64.3	64.4		
Vehicle Noise:	72.9	71.1	68.1	63.3	71.8	72.3		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			93	200	431	929		
CNEL:			100	215	463	998		

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Grand Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,600 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,160 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph									
Near/Far Lane Distance: 88 feet									
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 60.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 60.0 feet									
Barrier Distance to Observer: 0.0 feet					Noise Source Elevations (in feet)				
Observer Height (Above Pad): 5.0 feet					Autos: 2.000				
Pad Elevation: 0.0 feet					Medium Trucks: 4.000				
Road Elevation: 0.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Grade: 0.0%									
Left View: -90.0 degrees					Lane Equivalent Distance (in feet)				
Right View: 90.0 degrees					Autos: 40.902				
					Medium Trucks: 40.804				
					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.39	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-15.84	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-19.80	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.9	68.0	66.2	60.1	68.8	69.4			
Medium Trucks:	63.6	62.1	55.8	54.2	62.7	62.9			
Heavy Trucks:	64.5	63.0	54.0	55.2	63.6	63.7			
Vehicle Noise:	71.7	70.0	66.8	62.1	70.7	71.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			66	143	309	665			
CNEL:			71	154	331	713			

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Newport Ave. Road Segment: n/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 11,910 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,191 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph									
Near/Far Lane Distance: 88 feet					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet					Noise Source Elevations (in feet)				
Barrier Type (0-Wall, 1-Berm): 0.0					Autos: 2.000				
Centerline Dist. to Barrier: 60.0 feet					Medium Trucks: 4.000				
Centerline Dist. to Observer: 60.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Barrier Distance to Observer: 0.0 feet									
Observer Height (Above Pad): 5.0 feet					Lane Equivalent Distance (in feet)				
Pad Elevation: 0.0 feet					Autos: 40.902				
Road Elevation: 0.0 feet					Medium Trucks: 40.804				
Road Grade: 0.0%					Heavy Trucks: 40.903				
Left View: -90.0 degrees									
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	-0.68	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-17.92	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-21.87	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	65.8	63.9	62.2	56.1	64.7	65.3			
Medium Trucks:	59.8	58.3	51.9	50.4	58.9	59.1			
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4			
Vehicle Noise:	67.8	66.1	62.8	58.3	66.8	67.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			37	79	171	368			
CNEL:			39	85	183	394			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: n/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,990 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,599 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	2.71	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-14.53	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-18.49	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.2	67.3	65.6	59.5	68.1	68.7			
Medium Trucks:	63.2	61.7	55.3	53.8	62.3	62.5			
Heavy Trucks:	64.5	63.1	54.1	55.3	63.7	63.8			
Vehicle Noise:	71.2	69.5	66.2	61.7	70.2	70.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			62	134	288	620			
CNEL:			66	143	308	664			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: s/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,030 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,703 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	2.88	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-14.36	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-18.32	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.4	67.5	65.7	59.7	68.3	68.9			
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7			
Heavy Trucks:	64.7	63.3	54.2	55.5	63.8	64.0			
Vehicle Noise:	71.4	69.7	66.4	61.8	70.4	70.8			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			64	137	295	636			
CNEL:			68	147	316	681			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: n/o Valencia Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 26,120 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,612 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
				VehicleType		Day	Evening	Night	Daily
				Autos:		77.5%	12.9%	9.6%	97.42%
				Medium Trucks:		84.8%	4.9%	10.3%	1.84%
				Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
				Noise Source Elevations (in feet)					
				Autos:		2.000			
				Medium Trucks:		4.000			
				Heavy Trucks:		8.006		Grade Adjustment: 0.0	
				Lane Equivalent Distance (in feet)					
				Autos:		40.902			
				Medium Trucks:		40.804			
				Heavy Trucks:		40.903			
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:		68.46	2.22	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:		79.45	-15.02	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:		84.25	-18.98	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:		70.7	68.8	67.0	61.0	69.6	70.2		
Medium Trucks:		64.5	62.9	56.6	55.0	63.5	63.7		
Heavy Trucks:		65.3	63.9	54.8	56.1	64.4	64.6		
Vehicle Noise:		72.5	70.8	67.6	63.0	71.5	72.0		
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				75	163	350	755		
CNEL:				81	174	376	809		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: s/o Valencia Ave.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 28,570 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,857 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType		Day	Evening	Night	Daily
				Autos:		77.5%	12.9%	9.6%	97.42%
				Medium Trucks:		84.8%	4.9%	10.3%	1.84%
				Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
				Noise Source Elevations (in feet)					
				Autos:		2.000			
				Medium Trucks:		4.000			
				Heavy Trucks:		8.006		Grade Adjustment: 0.0	
				Lane Equivalent Distance (in feet)					
				Autos:		40.902			
				Medium Trucks:		40.804			
				Heavy Trucks:		40.903			
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.15	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-15.09	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-19.04	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.4	70.5	68.7	62.6	71.3	71.9			
Medium Trucks:	65.9	64.4	58.1	56.5	65.0	65.2			
Heavy Trucks:	66.3	64.9	55.9	57.1	65.5	65.6			
Vehicle Noise:	74.1	72.3	69.3	64.5	73.0	73.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			95	206	443	954			
CNEL:			103	221	476	1,025			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 34,350 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,435 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 88 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 60.0 feet					Daily				
Centerline Dist. to Observer: 60.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Right View: 90.0 degrees					Lane Equivalent Distance (in feet)				
					Autos: 40.902				
					Medium Trucks: 40.804				
					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.95	1.20	-1.20	-4.85	0.000	0.000		0.000
Medium Trucks:	81.00	-14.29	1.22	-1.20	-5.01	0.000	0.000		0.000
Heavy Trucks:	85.38	-18.24	1.20	-1.20	-5.34	0.000	0.000		0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.2	71.3	69.5	63.4	72.1	72.7			
Medium Trucks:	66.7	65.2	58.9	57.3	65.8	66.0			
Heavy Trucks:	67.1	65.7	56.7	57.9	66.3	66.4			
Vehicle Noise:	74.9	73.1	70.1	65.3	73.8	74.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			108	232	501	1,079			
CNEL:			116	250	538	1,159			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL							
Scenario: OY Road Name: Redhill Ave. Road Segment: n/o Carnegie Ave.				Project Name: The Bowery Job Number: 12282			
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS			
Highway Data				Site Conditions (Hard = 10, Soft = 15)			
Average Daily Traffic (Adt): 34,080 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,408 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15			
Site Data				Vehicle Mix			
				VehicleType	Day	Evening	Night
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%			
				Noise Source Elevations (in feet)			
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0			
				Lane Equivalent Distance (in feet)			
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903			
FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.92	1.20	-1.20	-4.85	0.000	0.000
Medium Trucks:	81.00	-14.32	1.22	-1.20	-5.01	0.000	0.000
Heavy Trucks:	85.38	-18.28	1.20	-1.20	-5.34	0.000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)							
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL	
Autos:	73.1	71.2	69.5	63.4	72.0	72.6	
Medium Trucks:	66.7	65.2	58.8	57.3	65.7	66.0	
Heavy Trucks:	67.1	65.7	56.6	57.9	66.3	66.4	
Vehicle Noise:	74.8	73.1	70.0	65.2	73.8	74.3	
Centerline Distance to Noise Contour (in feet)							
			70 dBA	65 dBA	60 dBA	55 dBA	
Ldn:			107	231	498	1,073	
CNEL:			115	248	535	1,153	

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: s/o Carnegie Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 33,220 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,322 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.81	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-14.43	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-18.39	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.0	71.1	69.3	63.3	71.9	72.5			
Medium Trucks:	66.6	65.1	58.7	57.2	65.6	65.9			
Heavy Trucks:	67.0	65.6	56.5	57.8	66.1	66.3			
Vehicle Noise:	74.7	73.0	69.9	65.1	73.7	74.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			106	227	490	1,055			
CNEL:			113	244	526	1,134			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: n/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,650 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,665 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Vehicle Mix				
					Vehicle Type	Day	Evening	Night	Daily
					Autos:	77.5%	12.9%	9.6%	97.42%
					Medium Trucks:	84.8%	4.9%	10.3%	1.84%
					Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
					Noise Source Elevations (in feet)				
					Autos:	2.000			
					Medium Trucks:	4.000			
					Heavy Trucks:	8.006	Grade Adjustment: 0.0		
					Lane Equivalent Distance (in feet)				
					Autos:	45.826			
					Medium Trucks:	45.738			
					Heavy Trucks:	45.826			
FHWA Noise Model Calculations									
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.23	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-14.01	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.96	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.7	70.8	69.0	63.0	71.6	72.2			
Medium Trucks:	66.3	64.8	58.4	56.9	65.3	65.6			
Heavy Trucks:	66.7	65.3	56.2	57.5	65.8	66.0			
Vehicle Noise:	74.4	72.6	69.6	64.8	73.4	73.8			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				117	253	544	1,173		
CNEL:				126	272	585	1,260		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: s/o Barranca Pkwy.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 37,140 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,714 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data				Vehicle Mix					
				VehicleType		Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
				Noise Source Elevations (in feet)					
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0					
				Lane Equivalent Distance (in feet)					
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826					
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.29	0.46	-1.20	-4.86	0.000	0.000	0.000	
Medium Trucks:	81.00	-13.95	0.48	-1.20	-5.00	0.000	0.000	0.000	
Heavy Trucks:	85.38	-17.90	0.46	-1.20	-5.28	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.8	70.9	69.1	63.0	71.7	72.3			
Medium Trucks:	66.3	64.8	58.5	56.9	65.4	65.6			
Heavy Trucks:	66.7	65.3	56.3	57.5	65.9	66.0			
Vehicle Noise:	74.5	72.7	69.7	64.9	73.4	73.9			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			118	255	549	1,183			
CNEL:			127	274	590	1,272			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY Road Name: Redhill Ave. Road Segment: n/o MacArthur Blvd.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 52,120 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 5,212 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	4.76	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	81.00	-12.48	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	85.38	-16.43	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	75.0	73.1	71.3	65.3	73.9	74.5		
Medium Trucks:	68.5	67.0	60.7	59.1	67.6	67.8		
Heavy Trucks:	69.0	67.5	58.5	59.7	68.1	68.2		
Vehicle Noise:	76.7	74.9	71.9	67.1	75.6	76.1		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			142	307	661	1,425		
CNEL:			153	330	710	1,531		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Redhill Ave. Road Segment: s/o MacArthur Blvd.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 22,170 vehicles				Autos: 15					
Peak Hour Percentage: 10%				Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,217 vehicles				Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph				Vehicle Mix					
Near/Far Lane Distance: 36 feet				VehicleType		Day	Evening	Night	Daily
Site Data				Autos: 77.5% 12.9% 9.6% 97.42%					
Barrier Height: 0.0 feet				Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
Barrier Type (0-Wall, 1-Berm): 0.0				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
Centerline Dist. to Barrier: 40.0 feet				Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 40.0 feet				Autos: 2.000					
Barrier Distance to Observer: 0.0 feet				Medium Trucks: 4.000					
Observer Height (Above Pad): 5.0 feet				Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet				Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet				Autos: 35.847					
Road Grade: 0.0%				Medium Trucks: 35.735					
Left View: -90.0 degrees				Heavy Trucks: 35.847					
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	1.05	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	81.00	-16.19	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	85.38	-20.15	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.1	70.2	68.5	62.4	71.0	71.6			
Medium Trucks:	65.7	64.2	57.8	56.3	64.7	65.0			
Heavy Trucks:	66.1	64.7	55.6	56.9	65.2	65.4			
Vehicle Noise:	73.8	72.1	69.0	64.2	72.8	73.2			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			61	132	285	613			
CNEL:			66	142	306	659			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Valencia Ave. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 8,990 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 899 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph									
Near/Far Lane Distance: 36 feet					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet					Noise Source Elevations (in feet)				
Barrier Type (0-Wall, 1-Berm): 0.0					Autos: 2.000				
Centerline Dist. to Barrier: 40.0 feet					Medium Trucks: 4.000				
Centerline Dist. to Observer: 40.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Barrier Distance to Observer: 0.0 feet									
Observer Height (Above Pad): 5.0 feet					Lane Equivalent Distance (in feet)				
Pad Elevation: 0.0 feet					Autos: 35.847				
Road Elevation: 0.0 feet					Medium Trucks: 35.735				
Road Grade: 0.0%					Heavy Trucks: 35.847				
Left View: -90.0 degrees									
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	-2.41	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-19.65	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-23.61	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	66.9	65.0	63.2	57.2	65.8	66.4			
Medium Trucks:	60.7	59.2	52.8	51.3	59.7	60.0			
Heavy Trucks:	61.5	60.1	51.1	52.3	60.7	60.8			
Vehicle Noise:	68.7	67.0	63.9	59.2	67.7	68.2			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				28	61	131	282		
CNEL:				30	65	140	302		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Valencia Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,040 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,204 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	-1.14	2.06	-1.20	-4.83	0.000	0.000	0.000	
Medium Trucks:	79.45	-18.38	2.08	-1.20	-5.08	0.000	0.000	0.000	
Heavy Trucks:	84.25	-22.34	2.06	-1.20	-5.56	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.2	66.3	64.5	58.5	67.1	67.7			
Medium Trucks:	62.0	60.4	54.1	52.5	61.0	61.2			
Heavy Trucks:	62.8	61.4	52.3	53.6	61.9	62.1			
Vehicle Noise:	70.0	68.3	65.1	60.4	69.0	69.4			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				34	74	159	343		
CNEL:				37	79	171	367		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL										
Scenario: OY Road Name: Warner Ave. Road Segment: w/o Grand Ave.					Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 25,840 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,584 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType		Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%					
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
					Noise Source Elevations (in feet)					
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0					
					Lane Equivalent Distance (in feet)					
					Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847					
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	68.46	2.17	2.06	-1.20	-4.83	0.000	0.000			
Medium Trucks:	79.45	-15.07	2.08	-1.20	-5.08	0.000	0.000			
Heavy Trucks:	84.25	-19.02	2.06	-1.20	-5.56	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	71.5	69.6	67.8	61.8	70.4	71.0				
Medium Trucks:	65.3	63.8	57.4	55.9	64.3	64.5				
Heavy Trucks:	66.1	64.7	55.6	56.9	65.2	65.4				
Vehicle Noise:	73.3	71.6	68.4	63.8	72.3	72.8				
Centerline Distance to Noise Contour (in feet)										
				70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:				57	123	265	570			
CNEL:				61	132	284	611			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL											
Scenario: OY Road Name: Warner Ave. Road Segment: elo Grand Ave.					Project Name: The Bowery Job Number: 12282						
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS						
Highway Data					Site Conditions (Hard = 10, Soft = 15)						
Average Daily Traffic (Adt): 24,220 vehicles					Autos: 15						
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15						
Peak Hour Volume: 2,422 vehicles					Heavy Trucks (3+ Axles): 15						
Vehicle Speed: 45 mph											
Near/Far Lane Distance: 36 feet					Vehicle Mix						
Site Data					VehicleType		Day	Evening	Night	Daily	
							Autos:	77.5%	12.9%	9.6%	97.42%
							Medium Trucks:	84.8%	4.9%	10.3%	1.84%
							Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
					Noise Source Elevations (in feet)						
							Autos:	2.000			
							Medium Trucks:	4.000			
							Heavy Trucks:	8.006		Grade Adjustment: 0.0	
					Lane Equivalent Distance (in feet)						
							Autos:	35.847			
							Medium Trucks:	35.735			
							Heavy Trucks:	35.847			
					FHWA Noise Model Calculations						
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten				
Autos:		68.46	1.89	2.06	-1.20	-4.83	0.000	0.000			
Medium Trucks:		79.45	-15.35	2.08	-1.20	-5.08	0.000	0.000			
Heavy Trucks:		84.25	-19.30	2.06	-1.20	-5.56	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)											
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn		CNEL				
Autos:		71.2	69.3	67.6	61.5	70.1	70.7				
Medium Trucks:		65.0	63.5	57.1	55.6	64.0	64.3				
Heavy Trucks:		65.8	64.4	55.4	56.6	65.0	65.1				
Vehicle Noise:		73.1	71.3	68.2	63.5	72.0	72.5				
Centerline Distance to Noise Contour (in feet)											
				70 dBA		65 dBA		60 dBA		55 dBA	
Ldn:				55		118		253		546	
CNEL:				59		126		272		586	

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Warner Ave. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,330 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,433 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.91	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-15.33	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-19.28	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	70.4	68.5	66.7	60.7	69.3	69.9			
Medium Trucks:	64.1	62.6	56.3	54.7	63.2	63.4			
Heavy Trucks:	65.0	63.6	54.5	55.8	64.1	64.2			
Vehicle Noise:	72.2	70.5	67.3	62.6	71.2	71.6			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				72	155	334	720		
CNEL:				77	166	358	772		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL										
Scenario: OY Road Name: Warner Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 16,260 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,626 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
					VehicleType		Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%					
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Noise Source Elevations (in feet)					
					Autos: 2.000					
					Medium Trucks: 4.000					
					Heavy Trucks: 8.006 Grade Adjustment: 0.0					
					Lane Equivalent Distance (in feet)					
					Autos: 40.902					
					Medium Trucks: 40.804					
					Heavy Trucks: 40.903					
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	70.20	-0.30	1.20	-1.20	-4.85	0.000	0.000			
Medium Trucks:	81.00	-17.54	1.22	-1.20	-5.01	0.000	0.000			
Heavy Trucks:	85.38	-21.49	1.20	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	69.9	68.0	66.2	60.2	68.8	69.4				
Medium Trucks:	63.5	62.0	55.6	54.1	62.5	62.8				
Heavy Trucks:	63.9	62.5	53.4	54.7	63.0	63.2				
Vehicle Noise:	71.6	69.9	66.8	62.0	70.6	71.0				
Centerline Distance to Noise Contour (in feet)										
				70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:				66	141	304	655			
CNEL:				70	152	327	704			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY Road Name: Dyer Rd. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 29,320 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,932 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos: 66.51 3.23 1.20 -1.20 -4.85 0.000 0.000								
Medium Trucks: 77.72 -14.01 1.22 -1.20 -5.01 0.000 0.000								
Heavy Trucks: 82.99 -17.96 1.20 -1.20 -5.34 0.000 0.000								
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos: 69.7 67.9 66.1 60.0 68.7 69.3								
Medium Trucks: 63.7 62.2 55.9 54.3 62.8 63.0								
Heavy Trucks: 65.0 63.6 54.6 55.8 64.2 64.3								
Vehicle Noise: 71.8 70.0 66.7 62.2 70.7 71.2								
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			67	145	312	672		
CNEL:			72	155	334	719		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: Barranca Pkwy. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 35,910 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,591 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.14	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-14.09	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-18.05	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.6	70.7	68.9	62.9	71.5	72.1			
Medium Trucks:	66.2	64.7	58.3	56.8	65.2	65.5			
Heavy Trucks:	66.6	65.2	56.1	57.4	65.7	65.9			
Vehicle Noise:	74.3	72.6	69.5	64.7	73.3	73.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			116	249	537	1,157			
CNEL:			124	268	577	1,243			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY Road Name: Barranca Pkwy. Road Segment: w/o Tustin Ranch Rd.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 38,240 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,824 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	3.42	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-13.82	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-17.78	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	72.9	71.0	69.2	63.2	71.8	72.4		
Medium Trucks:	66.5	64.9	58.6	57.0	65.5	65.7		
Heavy Trucks:	66.9	65.4	56.4	57.7	66.0	66.1		
Vehicle Noise:	74.6	72.8	69.8	65.0	73.5	74.0		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			121	260	560	1,207		
CNEL:			130	279	602	1,296		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY Road Name: MacArthur Blvd. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 33,190 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,319 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.80	0.46	-1.20	-4.86	0.000	0.000	0.000	
Medium Trucks:	81.00	-14.44	0.48	-1.20	-5.00	0.000	0.000	0.000	
Heavy Trucks:	85.38	-18.39	0.46	-1.20	-5.28	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.3	70.4	68.6	62.6	71.2	71.8			
Medium Trucks:	65.8	64.3	58.0	56.4	64.9	65.1			
Heavy Trucks:	66.2	64.8	55.8	57.0	65.4	65.5			
Vehicle Noise:	74.0	72.2	69.2	64.4	72.9	73.4			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				110	237	510	1,098		
CNEL:				118	254	548	1,180		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY Road Name: MacArthur Blvd. Road Segment: e/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 29,080 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,908 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	2.23	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-15.01	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-18.97	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	71.7	69.8	68.0	62.0	70.6	71.2		
Medium Trucks:	65.3	63.8	57.4	55.9	64.3	64.5		
Heavy Trucks:	65.7	64.3	55.2	56.5	64.8	64.9		
Vehicle Noise:	73.4	71.6	68.6	63.8	72.4	72.8		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			101	217	467	1,005		
CNEL:			108	233	501	1,080		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Grand Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,670 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,167 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.41	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-15.83	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-19.79	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.9	68.0	66.2	60.2	68.8	69.4			
Medium Trucks:	63.6	62.1	55.8	54.2	62.7	62.9			
Heavy Trucks:	64.5	63.0	54.0	55.3	63.6	63.7			
Vehicle Noise:	71.7	70.0	66.8	62.1	70.7	71.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			67	144	309	666			
CNEL:			71	154	332	715			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Newport Ave. Road Segment: n/o Valencia Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,150 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,215 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	66.51	-0.59	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	77.72	-17.83	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	82.99	-21.79	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	65.9	64.0	62.3	56.2	64.8	65.4		
Medium Trucks:	59.9	58.4	52.0	50.5	59.0	59.2		
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5		
Vehicle Noise:	67.9	66.2	62.9	58.4	66.9	67.4		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			37	80	173	373		
CNEL:			40	86	186	400		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Redhill Ave. Road Segment: n/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 26,090 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,609 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	2.73	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-14.51	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-18.47	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.2	67.3	65.6	59.5	68.1	68.7			
Medium Trucks:	63.2	61.7	55.4	53.8	62.3	62.5			
Heavy Trucks:	64.5	63.1	54.1	55.3	63.7	63.8			
Vehicle Noise:	71.3	69.5	66.2	61.7	70.2	70.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			62	134	288	621			
CNEL:			67	143	309	665			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Redhill Ave. Road Segment: s/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,130 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,713 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	2.90	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-14.34	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-18.30	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.4	67.5	65.7	59.7	68.3	68.9			
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7			
Heavy Trucks:	64.7	63.3	54.2	55.5	63.8	64.0			
Vehicle Noise:	71.4	69.7	66.4	61.9	70.4	70.8			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			64	137	296	638			
CNEL:			68	147	317	683			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Redhill Ave. Road Segment: n/o Valencia Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 26,310 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,631 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Noise Source Elevations (in feet)				
				Autos: 2.000				
				Medium Trucks: 4.000				
				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
Autos: 40.902								
Medium Trucks: 40.804								
Heavy Trucks: 40.903								
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	2.25	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	79.45	-14.99	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	84.25	-18.94	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	70.7	68.8	67.1	61.0	69.6	70.2		
Medium Trucks:	64.5	63.0	56.6	55.1	63.5	63.8		
Heavy Trucks:	65.3	63.9	54.9	56.1	64.5	64.6		
Vehicle Noise:	72.6	70.8	67.7	63.0	71.5	72.0		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			76	163	352	758		
CNEL:			81	175	378	813		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Redhill Ave. Road Segment: s/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 29,150 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,915 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 88 feet					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 60.0 feet					Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 60.0 feet					Autos: 2.000				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet					Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet					Autos: 40.902				
Road Grade: 0.0%					Medium Trucks: 40.804				
Left View: -90.0 degrees					Heavy Trucks: 40.903				
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.24	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-15.00	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-18.96	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.4	70.5	68.8	62.7	71.3	72.0			
Medium Trucks:	66.0	64.5	58.2	56.6	65.1	65.3			
Heavy Trucks:	66.4	65.0	56.0	57.2	65.6	65.7			
Vehicle Noise:	74.1	72.4	69.3	64.6	73.1	73.6			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				97	208	449	967		
CNEL:				104	224	482	1,039		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Redhill Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,060 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,606 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.16	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	81.00	-14.08	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	85.38	-18.03	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.4	71.5	69.7	63.7	72.3	72.9			
Medium Trucks:	66.9	65.4	59.1	57.5	66.0	66.2			
Heavy Trucks:	67.4	65.9	56.9	58.1	66.5	66.6			
Vehicle Noise:	75.1	73.3	70.3	65.5	74.0	74.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			111	240	517	1,114			
CNEL:			120	258	556	1,197			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Redhill Ave. Road Segment: n/o Carnegie Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 37,020 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,702 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	3.28	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	81.00	-13.96	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	85.38	-17.92	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	73.5	71.6	69.8	63.8	72.4	73.0		
Medium Trucks:	67.1	65.6	59.2	57.6	66.1	66.3		
Heavy Trucks:	67.5	66.0	57.0	58.3	66.6	66.7		
Vehicle Noise:	75.2	73.4	70.4	65.6	74.1	74.6		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			113	244	526	1,134		
CNEL:			122	263	566	1,219		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Redhill Ave. Road Segment: s/o Carnegie Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,160 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,616 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	3.17	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	81.00	-14.06	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	85.38	-18.02	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	73.4	71.5	69.7	63.7	72.3	72.9		
Medium Trucks:	67.0	65.4	59.1	57.5	66.0	66.2		
Heavy Trucks:	67.4	65.9	56.9	58.2	66.5	66.6		
Vehicle Noise:	75.1	73.3	70.3	65.5	74.0	74.5		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			112	241	518	1,117		
CNEL:			120	258	557	1,200		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Redhill Ave. Road Segment: n/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,590 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,959 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.57	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.67	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.63	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.0	71.1	69.4	63.3	71.9	72.5			
Medium Trucks:	66.6	65.1	58.7	57.2	65.7	65.9			
Heavy Trucks:	67.0	65.6	56.6	57.8	66.2	66.3			
Vehicle Noise:	74.7	73.0	69.9	65.2	73.7	74.2			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				123	266	573	1,235		
CNEL:				133	286	616	1,327		

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL											
Scenario: OY + P Road Name: Redhill Ave. Road Segment: s/o Barranca Pkwy.				Project Name: The Bowery Job Number: 12282							
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS							
Highway Data				Site Conditions (Hard = 10, Soft = 15)							
Average Daily Traffic (Adt): 38,720 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,872 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15							
Site Data				Vehicle Mix							
				VehicleType		Day	Evening	Night	Daily		
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%							
				Noise Source Elevations (in feet)							
				Autos:		2.000					
				Medium Trucks:		4.000					
				Heavy Trucks:		8.006		Grade Adjustment: 0.0			
				Lane Equivalent Distance (in feet)							
				Autos: 45.826							
				Medium Trucks: 45.738 Heavy Trucks: 45.826							
FHWA Noise Model Calculations											
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten				
Autos:	70.20	3.47	0.46	-1.20	-4.86	0.000	0.000	0.000			
Medium Trucks:	81.00	-13.77	0.48	-1.20	-5.00	0.000	0.000	0.000			
Heavy Trucks:	85.38	-17.72	0.46	-1.20	-5.28	0.000	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)											
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL					
Autos:	72.9	71.0	69.3	63.2	71.8	72.4					
Medium Trucks:	66.5	65.0	58.6	57.1	65.6	65.8					
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2					
Vehicle Noise:	74.6	72.9	69.8	65.1	73.6	74.1					
Centerline Distance to Noise Contour (in feet)											
			70 dBA	65 dBA	60 dBA	55 dBA					
Ldn:			122	262	565	1,217					
CNEL:			131	282	607	1,307					

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Redhill Ave. Road Segment: n/o MacArthur Blvd.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 52,920 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 5,292 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	4.83	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	81.00	-12.41	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	85.38	-16.37	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	75.0	73.1	71.4	65.3	73.9	74.5		
Medium Trucks:	68.6	67.1	60.7	59.2	67.7	67.9		
Heavy Trucks:	69.0	67.6	58.6	59.8	68.2	68.3		
Vehicle Noise:	76.7	75.0	71.9	67.2	75.7	76.2		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			144	310	668	1,439		
CNEL:			155	333	718	1,546		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Redhill Ave. Road Segment: s/o MacArthur Blvd.				Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS					
Highway Data				Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 22,530 vehicles				Autos: 15					
Peak Hour Percentage: 10%				Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,253 vehicles				Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph									
Near/Far Lane Distance: 36 feet									
Site Data				Vehicle Mix					
Barrier Height: 0.0 feet				VehicleType		Day	Evening	Night	Daily
Barrier Type (0-Wall, 1-Berm): 0.0				Autos:		77.5%	12.9%	9.6%	97.42%
Centerline Dist. to Barrier: 40.0 feet				Medium Trucks:		84.8%	4.9%	10.3%	1.84%
Centerline Dist. to Observer: 40.0 feet				Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
Barrier Distance to Observer: 0.0 feet				Noise Source Elevations (in feet)					
Observer Height (Above Pad): 5.0 feet				Autos:		2.000			
Pad Elevation: 0.0 feet				Medium Trucks:		4.000			
Road Elevation: 0.0 feet				Heavy Trucks:		8.006		Grade Adjustment: 0.0	
Road Grade: 0.0%				Lane Equivalent Distance (in feet)					
Left View: -90.0 degrees				Autos:		35.847			
Right View: 90.0 degrees				Medium Trucks:		35.735			
				Heavy Trucks:		35.847			
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	1.12	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	81.00	-16.12	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	85.38	-20.08	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.2	70.3	68.5	62.5	71.1	71.7			
Medium Trucks:	65.8	64.3	57.9	56.4	64.8	65.0			
Heavy Trucks:	66.2	64.7	55.7	57.0	65.3	65.4			
Vehicle Noise:	73.9	72.1	69.1	64.3	72.9	73.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			62	133	288	620			
CNEL:			67	143	309	666			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL										
Scenario: OY + P Road Name: Valencia Ave. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 9,300 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 930 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType		Day	Evening	Night	Daily
					Autos:		77.5%	12.9%	9.6%	97.42%
					Medium Trucks:		84.8%	4.9%	10.3%	1.84%
					Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
					Noise Source Elevations (in feet)					
					Autos: 2,000 Medium Trucks: 4,000 Heavy Trucks: 8,006 Grade Adjustment: 0.0					
					Lane Equivalent Distance (in feet)					
					Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847					
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	68.46	-2.27	2.06	-1.20	-4.83	0.000	0.000			
Medium Trucks:	79.45	-19.50	2.08	-1.20	-5.08	0.000	0.000			
Heavy Trucks:	84.25	-23.46	2.06	-1.20	-5.56	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	67.1	65.2	63.4	57.3	66.0	66.6				
Medium Trucks:	60.8	59.3	53.0	51.4	59.9	60.1				
Heavy Trucks:	61.7	60.2	51.2	52.4	60.8	60.9				
Vehicle Noise:	68.9	67.2	64.0	59.3	67.9	68.3				
Centerline Distance to Noise Contour (in feet)										
				70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:				29	62	134	288			
CNEL:				31	67	144	309			

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Valencia Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 12,120 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,212 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 36 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 40.0 feet					Daily				
Centerline Dist. to Observer: 40.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2,000				
Road Grade: 0.0%					Medium Trucks: 4,000				
Left View: -90.0 degrees					Heavy Trucks: 8,006				
Right View: 90.0 degrees					Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847				
					Medium Trucks: 35.735				
					Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	-1.12	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-18.35	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-22.31	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.2	66.3	64.5	58.5	67.1	67.7			
Medium Trucks:	62.0	60.5	54.1	52.6	61.0	61.3			
Heavy Trucks:	62.8	61.4	52.3	53.6	62.0	62.1			
Vehicle Noise:	70.0	68.3	65.2	60.5	69.0	69.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			34	74	160	344			
CNEL:			37	80	171	369			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Warner Ave. Road Segment: w/o Grand Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,970 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,597 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2,000 Medium Trucks: 4,000 Heavy Trucks: 8,006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	2.19	2.06	-1.20	-4.83	0.000	0.000	
Medium Trucks:	79.45	-15.04	2.08	-1.20	-5.08	0.000	0.000	
Heavy Trucks:	84.25	-19.00	2.06	-1.20	-5.56	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	71.5	69.6	67.9	61.8	70.4	71.0		
Medium Trucks:	65.3	63.8	57.4	55.9	64.3	64.6		
Heavy Trucks:	66.1	64.7	55.7	56.9	65.3	65.4		
Vehicle Noise:	73.4	71.6	68.5	63.8	72.3	72.8		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			57	123	265	572		
CNEL:			61	132	285	613		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Warner Ave. Road Segment: elo Grand Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,930 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,493 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 36 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 40.0 feet					Daily				
Centerline Dist. to Observer: 40.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006				
Right View: 90.0 degrees					Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847				
					Medium Trucks: 35.735				
					Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.02	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-15.22	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-19.18	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	71.3	69.4	67.7	61.6	70.2	70.8			
Medium Trucks:	65.1	63.6	57.2	55.7	64.2	64.4			
Heavy Trucks:	65.9	64.5	55.5	56.7	65.1	65.2			
Vehicle Noise:	73.2	71.4	68.3	63.6	72.2	72.6			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			56	120	258	556			
CNEL:			60	129	277	597			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Warner Ave. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,340 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,734 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	2.42	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	79.45	-14.82	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	84.25	-18.78	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	70.9	69.0	67.2	61.2	69.8	70.4		
Medium Trucks:	64.6	63.1	56.8	55.2	63.7	63.9		
Heavy Trucks:	65.5	64.1	55.0	56.3	64.6	64.8		
Vehicle Noise:	72.7	71.0	67.8	63.1	71.7	72.1		
Centerline Distance to Noise Contour (in feet)								
				70 dBA	65 dBA	60 dBA	55 dBA	
Ldn:				78	168	361	778	
CNEL:				83	180	387	834	

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Warner Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 17,710 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,771 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	0.07	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	81.00	-17.16	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	85.38	-21.12	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	70.3	68.4	66.6	60.6	69.2	69.8		69.8	
Medium Trucks:	63.9	62.3	56.0	54.4	62.9	63.1		63.1	
Heavy Trucks:	64.3	62.8	53.8	55.1	63.4	63.5		63.5	
Vehicle Noise:	72.0	70.2	67.2	62.4	70.9	71.4		71.4	
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				69	149	322	694		
CNEL:				75	161	346	745		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Dyer Rd. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 29,750 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,975 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	66.51	3.30	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	77.72	-13.94	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	82.99	-17.90	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	69.8	67.9	66.1	60.1	68.7	69.3		
Medium Trucks:	63.8	62.3	55.9	54.4	62.8	63.1		
Heavy Trucks:	65.1	63.7	54.6	55.9	64.2	64.4		
Vehicle Noise:	71.8	70.1	66.8	62.3	70.8	71.2		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			68	146	315	678		
CNEL:			73	156	337	726		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: OY + P Road Name: Barranca Pkwy. Road Segment: e/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,840 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,684 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Noise Source Elevations (in feet)				
				Autos: 2.000				
				Medium Trucks: 4.000				
				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
Autos: 45.826								
Medium Trucks: 45.738								
Heavy Trucks: 45.826								
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	3.25	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-13.98	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-17.94	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	72.7	70.8	69.1	63.0	71.6	72.2		
Medium Trucks:	66.3	64.8	58.4	56.9	65.3	65.6		
Heavy Trucks:	66.7	65.3	56.2	57.5	65.9	66.0		
Vehicle Noise:	74.4	72.7	69.6	64.8	73.4	73.9		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			118	254	546	1,177		
CNEL:			126	272	587	1,265		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: Barranca Pkwy. Road Segment: w/o Tustin Ranch Rd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 38,960 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,896 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.50	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.74	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.70	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.0	71.1	69.3	63.2	71.9	72.5			
Medium Trucks:	66.5	65.0	58.7	57.1	65.6	65.8			
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2			
Vehicle Noise:	74.7	72.9	69.9	65.1	73.6	74.1			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				122	263	567	1,222		
CNEL:				131	283	609	1,313		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: OY + P Road Name: MacArthur Blvd. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 33,270 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,327 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.81	0.46	-1.20	-4.86	0.000	0.000	0.000	
Medium Trucks:	81.00	-14.43	0.48	-1.20	-5.00	0.000	0.000	0.000	
Heavy Trucks:	85.38	-18.38	0.46	-1.20	-5.28	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.3	70.4	68.6	62.6	71.2	71.8			
Medium Trucks:	65.9	64.3	58.0	56.4	64.9	65.1			
Heavy Trucks:	66.3	64.8	55.8	57.1	65.4	65.5			
Vehicle Noise:	74.0	72.2	69.2	64.4	72.9	73.4			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				110	237	510	1,100		
CNEL:				118	255	548	1,182		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL							
Scenario: OY + P Road Name: MacArthur Blvd. Road Segment: e/o Redhill Ave.				Project Name: The Bowery Job Number: 12282			
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS			
Highway Data				Site Conditions (Hard = 10, Soft = 15)			
Average Daily Traffic (Adt): 29,440 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,944 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15			
Site Data				Vehicle Mix			
				VehicleType	Day	Evening	Night
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%			
				Noise Source Elevations (in feet)			
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0			
				Lane Equivalent Distance (in feet)			
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826			
FHWA Noise Model Calculations							
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.28	0.46	-1.20	-4.86	0.000	0.000
Medium Trucks:	81.00	-14.96	0.48	-1.20	-5.00	0.000	0.000
Heavy Trucks:	85.38	-18.91	0.46	-1.20	-5.28	0.000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)							
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL	
Autos:	71.7	69.9	68.1	62.0	70.7	71.3	
Medium Trucks:	65.3	63.8	57.5	55.9	64.4	64.6	
Heavy Trucks:	65.7	64.3	55.3	56.5	64.9	65.0	
Vehicle Noise:	73.4	71.7	68.6	63.9	72.4	72.9	
Centerline Distance to Noise Contour (in feet)							
			70 dBA	65 dBA	60 dBA	55 dBA	
Ldn:			101	218	470	1,014	
CNEL:			109	235	505	1,089	

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Grand Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,010 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,001 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.06	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-16.18	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-20.13	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.5	67.6	65.9	59.8	68.4	69.0			
Medium Trucks:	63.3	61.8	55.4	53.9	62.3	62.6			
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4			
Vehicle Noise:	71.4	69.6	66.5	61.8	70.3	70.8			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				63	136	293	632		
CNEL:				68	146	315	678		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Newport Ave. Road Segment: n/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,770 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,077 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	1.73	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-15.50	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-19.46	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn		CNEL		
Autos:	68.3	66.4	64.6	58.5	67.2		67.8		
Medium Trucks:	62.2	60.7	54.4	52.8	61.3		61.5		
Heavy Trucks:	63.5	62.1	53.1	54.3	62.7		62.8		
Vehicle Noise:	70.3	68.5	65.3	60.7	69.2		69.7		
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			53	115	248	534			
CNEL:			57	123	265	572			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL										
Scenario: 2040 Road Name: Redhill Ave. Road Segment: n/o Walnut Ave.				Project Name: The Bowery Job Number: 12282						
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS						
Highway Data				Site Conditions (Hard = 10, Soft = 15)						
Average Daily Traffic (Adt): 29,470 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,947 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15						
Site Data				Vehicle Mix						
				VehicleType	Day	Evening	Night	Daily		
				Autos: 77.5% 12.9% 9.6% 97.42%						
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%						
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%						
				Noise Source Elevations (in feet)						
				Autos: 2.000						
				Medium Trucks: 4.000						
				Heavy Trucks: 8.006					Grade Adjustment: 0.0	
				Lane Equivalent Distance (in feet)						
				Autos: 40.902						
				Medium Trucks: 40.804						
				Heavy Trucks: 40.903						
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	66.51	3.25	1.20	-1.20	-4.85	0.000	0.000			
Medium Trucks:	77.72	-13.98	1.22	-1.20	-5.01	0.000	0.000			
Heavy Trucks:	82.99	-17.94	1.20	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	69.8	67.9	66.1	60.1	68.7	69.3				
Medium Trucks:	63.8	62.2	55.9	54.3	62.8	63.0				
Heavy Trucks:	65.1	63.6	54.6	55.9	64.2	64.3				
Vehicle Noise:	71.8	70.0	66.8	62.2	70.8	71.2				
Centerline Distance to Noise Contour (in feet)										
				70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:				67	145	313	674			
CNEL:				72	155	335	722			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Redhill Ave. Road Segment: s/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,240 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,124 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	3.51	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-13.73	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-17.69	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	70.0	68.1	66.4	60.3	68.9	69.5			
Medium Trucks:	64.0	62.5	56.1	54.6	63.1	63.3			
Heavy Trucks:	65.3	63.9	54.9	56.1	64.5	64.6			
Vehicle Noise:	72.0	70.3	67.0	62.5	71.0	71.5			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			70	151	325	701			
CNEL:			75	162	348	750			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Redhill Ave. Road Segment: n/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,000 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,200 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	3.10	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-14.14	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-18.09	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	71.6	69.7	67.9	61.8	70.5	71.1			
Medium Trucks:	65.3	63.8	57.5	55.9	64.4	64.6			
Heavy Trucks:	66.2	64.7	55.7	57.0	65.3	65.4			
Vehicle Noise:	73.4	71.7	68.5	63.8	72.4	72.8			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				86	186	401	864		
CNEL:				93	200	430	927		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL										
Scenario: 2040 Road Name: Redhill Ave. Road Segment: s/o Valencia Ave.					Project Name: The Bowery Job Number: 12282					
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS					
Highway Data					Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 30,940 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,094 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15					
Site Data					Vehicle Mix					
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType		Day	Evening	Night	Daily
					Autos:		77.5%	12.9%	9.6%	97.42%
					Medium Trucks:		84.8%	4.9%	10.3%	1.84%
					Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
					Noise Source Elevations (in feet)					
					Autos:		2.000			
					Medium Trucks:		4.000			
					Heavy Trucks:		8.006		Grade Adjustment: 0.0	
					Lane Equivalent Distance (in feet)					
					Autos:		40.902			
					Medium Trucks:		40.804			
					Heavy Trucks:		40.903			
FHWA Noise Model Calculations										
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten			
Autos:	70.20	2.50	1.20	-1.20	-4.85	0.000	0.000			
Medium Trucks:	81.00	-14.74	1.22	-1.20	-5.01	0.000	0.000			
Heavy Trucks:	85.38	-18.70	1.20	-1.20	-5.34	0.000	0.000			
Unmitigated Noise Levels (without Topo and barrier attenuation)										
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL				
Autos:	72.7	70.8	69.0	63.0	71.6	72.2				
Medium Trucks:	66.3	64.8	58.4	56.9	65.3	65.6				
Heavy Trucks:	66.7	65.3	56.2	57.5	65.8	66.0				
Vehicle Noise:	74.4	72.6	69.6	64.8	73.4	73.8				
Centerline Distance to Noise Contour (in feet)										
				70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:				101	217	467	1,006			
CNEL:				108	233	502	1,081			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Redhill Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 38,450 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,845 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 88 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 60.0 feet					Daily				
Centerline Dist. to Observer: 60.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Right View: 90.0 degrees					Lane Equivalent Distance (in feet)				
					Autos: 40.902				
					Medium Trucks: 40.804				
					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.44	1.20	-1.20	-4.85	0.000	0.000		0.000
Medium Trucks:	81.00	-13.80	1.22	-1.20	-5.01	0.000	0.000		0.000
Heavy Trucks:	85.38	-17.75	1.20	-1.20	-5.34	0.000	0.000		0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.6	71.8	70.0	63.9	72.6	73.2			
Medium Trucks:	67.2	65.7	59.4	57.8	66.3	66.5			
Heavy Trucks:	67.6	66.2	57.2	58.4	66.8	66.9			
Vehicle Noise:	75.3	73.6	70.5	65.8	74.3	74.8			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			116	251	540	1,163			
CNEL:			125	269	580	1,250			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL							
Scenario: 2040 Road Name: Redhill Ave. Road Segment: n/o Carnegie Ave.				Project Name: The Bowery Job Number: 12282			
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS			
Highway Data				Site Conditions (Hard = 10, Soft = 15)			
Average Daily Traffic (Adt): 37,150 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,715 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15			
Site Data				Vehicle Mix			
				VehicleType	Day	Evening	Night
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%			
				Noise Source Elevations (in feet)			
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0			
				Lane Equivalent Distance (in feet)			
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903			
FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.29	1.20	-1.20	-4.85	0.000	0.000
Medium Trucks:	81.00	-13.95	1.22	-1.20	-5.01	0.000	0.000
Heavy Trucks:	85.38	-17.90	1.20	-1.20	-5.34	0.000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)							
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL	
Autos:	73.5	71.6	69.8	63.8	72.4	73.0	
Medium Trucks:	67.1	65.6	59.2	57.7	66.1	66.4	
Heavy Trucks:	67.5	66.1	57.0	58.3	66.6	66.8	
Vehicle Noise:	75.2	73.4	70.4	65.6	74.2	74.6	
Centerline Distance to Noise Contour (in feet)							
			70 dBA	65 dBA	60 dBA	55 dBA	
Ldn:			114	245	528	1,137	
CNEL:			122	263	567	1,221	

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Redhill Ave. Road Segment: s/o Carnegie Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 37,530 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,753 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.34	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-13.90	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-17.86	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.5	71.6	69.9	63.8	72.4	73.1			
Medium Trucks:	67.1	65.6	59.2	57.7	66.2	66.4			
Heavy Trucks:	67.5	66.1	57.1	58.3	66.7	66.8			
Vehicle Noise:	75.2	73.5	70.4	65.7	74.2	74.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			114	247	531	1,145			
CNEL:			123	265	571	1,230			
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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Redhill Ave. Road Segment: n/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,690 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 4,069 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
FHWA Noise Model Calculations					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
FHWA Noise Model Calculations					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.69	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.55	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.51	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.2	71.3	69.5	63.4	72.1	72.7			
Medium Trucks:	66.7	65.2	58.9	57.3	65.8	66.0			
Heavy Trucks:	67.1	65.7	56.7	57.9	66.3	66.4			
Vehicle Noise:	74.9	73.1	70.1	65.3	73.8	74.3			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			126	271	584	1,258			
CNEL:			135	291	627	1,351			
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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Redhill Ave. Road Segment: s/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 41,110 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,111 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 106 feet					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet					Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet					Autos: 2.000				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet					Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet					Autos: 45.826				
Road Grade: 0.0%					Medium Trucks: 45.738				
Left View: -90.0 degrees					Heavy Trucks: 45.826				
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.73	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.51	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.46	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.2	71.3	69.5	63.5	72.1	72.7			
Medium Trucks:	66.8	65.3	58.9	57.4	65.8	66.0			
Heavy Trucks:	67.2	65.8	56.7	58.0	66.3	66.5			
Vehicle Noise:	74.9	73.1	70.1	65.3	73.9	74.3			
Centerline Distance to Noise Contour (in feet)									
	70 dBA		65 dBA		60 dBA		55 dBA		
Ldn:	127		273		588		1,266		
CNEL:	136		293		632		1,361		
Friday, November 15, 2019									

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Redhill Ave. Road Segment: n/o MacArthur Blvd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 58,490 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 5,849 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
FHWA Noise Model Calculations					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
FHWA Noise Model Calculations					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	5.26	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-11.98	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-15.93	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	75.5	73.6	71.8	65.8	74.4	75.0			
Medium Trucks:	69.0	67.5	61.2	59.6	68.1	68.3			
Heavy Trucks:	69.5	68.0	59.0	60.2	68.6	68.7			
Vehicle Noise:	77.2	75.4	72.4	67.6	76.1	76.6			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			154	331	714	1,539			
CNEL:			165	356	767	1,653			
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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Redhill Ave. Road Segment: s/o MacArthur Blvd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,290 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,429 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 36 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	1.45	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	81.00	-15.79	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	85.38	-19.75	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.5	70.6	68.8	62.8	71.4	72.0			
Medium Trucks:	66.1	64.6	58.2	56.7	65.1	65.4			
Heavy Trucks:	66.5	65.1	56.0	57.3	65.6	65.8			
Vehicle Noise:	74.2	72.5	69.4	64.6	73.2	73.6			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				65	140	302	652		
CNEL:				70	151	325	700		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 Road Name: Valencia Ave. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 15,320 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,532 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	-0.10	2.06	-1.20	-4.83	0.000	0.000	
Medium Trucks:	79.45	-17.34	2.08	-1.20	-5.08	0.000	0.000	
Heavy Trucks:	84.25	-21.29	2.06	-1.20	-5.56	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	69.2	67.3	65.6	59.5	68.1	68.7		
Medium Trucks:	63.0	61.5	55.1	53.6	62.0	62.3		
Heavy Trucks:	63.8	62.4	53.4	54.6	63.0	63.1		
Vehicle Noise:	71.1	69.3	66.2	61.5	70.0	70.5		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			40	87	187	402		
CNEL:			43	93	200	431		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Valencia Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,600 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,160 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.39	2.06	-1.20	-4.83	0.000	0.000	0.000	
Medium Trucks:	79.45	-15.84	2.08	-1.20	-5.08	0.000	0.000	0.000	
Heavy Trucks:	84.25	-19.80	2.06	-1.20	-5.56	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	70.7	68.8	67.1	61.0	69.6	70.2			
Medium Trucks:	64.5	63.0	56.6	55.1	63.5	63.8			
Heavy Trucks:	65.3	63.9	54.9	56.1	64.5	64.6			
Vehicle Noise:	72.6	70.8	67.7	63.0	71.5	72.0			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			51	109	235	506			
CNEL:			54	117	252	542			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Warner Ave. Road Segment: w/o Grand Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,580 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,758 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	2.45	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-14.78	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-18.74	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	71.8	69.9	68.1	62.1	70.7	71.3			
Medium Trucks:	65.6	64.0	57.7	56.1	64.6	64.8			
Heavy Trucks:	66.4	65.0	55.9	57.2	65.5	65.7			
Vehicle Noise:	73.6	71.9	68.7	64.0	72.6	73.0			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			60	128	276	595			
CNEL:			64	138	296	638			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 Road Name: Warner Ave. Road Segment: e/o Grand Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,140 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,214 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Noise Source Elevations (in feet)				
				Autos: 2.000				
				Medium Trucks: 4.000				
				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
Autos: 35.847								
Medium Trucks: 35.735								
Heavy Trucks: 35.847								
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	3.12	2.06	-1.20	-4.83	0.000	0.000	
Medium Trucks:	79.45	-14.12	2.08	-1.20	-5.08	0.000	0.000	
Heavy Trucks:	84.25	-18.07	2.06	-1.20	-5.56	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	72.4	70.5	68.8	62.7	71.3	72.0		
Medium Trucks:	66.2	64.7	58.3	56.8	65.3	65.5		
Heavy Trucks:	67.0	65.6	56.6	57.8	66.2	66.3		
Vehicle Noise:	74.3	72.5	69.4	64.7	73.3	73.7		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			66	142	306	659		
CNEL:			71	152	328	707		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 Road Name: Warner Ave. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,830 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,683 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	3.71	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	79.45	-13.53	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	84.25	-17.48	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	72.2	70.3	68.5	62.5	71.1	71.7		
Medium Trucks:	65.9	64.4	58.1	56.5	65.0	65.2		
Heavy Trucks:	66.8	65.4	56.3	57.6	65.9	66.0		
Vehicle Noise:	74.0	72.3	69.1	64.4	73.0	73.4		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			95	204	440	949		
CNEL:			102	219	472	1,018		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Warner Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,170 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,117 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000				
					Medium Trucks: 4.000				
					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902				
					Medium Trucks: 40.804				
					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.53	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-14.71	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-18.67	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.7	70.8	69.1	63.0	71.6	72.2			
Medium Trucks:	66.3	64.8	58.4	56.9	65.4	65.6			
Heavy Trucks:	66.7	65.3	56.3	57.5	65.9	66.0			
Vehicle Noise:	74.4	72.7	69.6	64.9	73.4	73.9			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			101	218	469	1,011			
CNEL:			109	234	504	1,086			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Dyer Rd. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 34,920 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,492 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	3.99	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-13.25	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-17.20	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	70.5	68.6	66.8	60.8	69.4	70.0			
Medium Trucks:	64.5	63.0	56.6	55.1	63.5	63.8			
Heavy Trucks:	65.8	64.4	55.3	56.6	64.9	65.1			
Vehicle Noise:	72.5	70.8	67.5	63.0	71.5	71.9			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			75	163	350	755			
CNEL:			81	174	375	808			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Barranca Pkwy. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,340 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,934 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.54	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.70	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.65	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.0	71.1	69.3	63.3	71.9	72.5			
Medium Trucks:	66.6	65.1	58.7	57.2	65.6	65.9			
Heavy Trucks:	67.0	65.6	56.5	57.8	66.1	66.3			
Vehicle Noise:	74.7	73.0	69.9	65.1	73.7	74.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			123	265	571	1,230			
CNEL:			132	285	613	1,321			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 Road Name: Barranca Pkwy. Road Segment: w/o Tustin Ranch Rd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 41,820 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,182 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph									
Near/Far Lane Distance: 106 feet									
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 70.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 70.0 feet									
Barrier Distance to Observer: 0.0 feet									
Observer Height (Above Pad): 5.0 feet									
Pad Elevation: 0.0 feet									
Road Elevation: 0.0 feet									
Road Grade: 0.0%									
Left View: -90.0 degrees									
Right View: 90.0 degrees									
					Noise Source Elevations (in feet)				
					Autos: 2.000				
					Medium Trucks: 4.000				
					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826				
					Medium Trucks: 45.738				
					Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
Vehicle Type	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.81	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.43	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.39	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
Vehicle Type	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.3	71.4	69.6	63.6	72.2	72.8			
Medium Trucks:	66.8	65.3	59.0	57.4	65.9	66.1			
Heavy Trucks:	67.3	65.8	56.8	58.0	66.4	66.5			
Vehicle Noise:	75.0	73.2	70.2	65.4	73.9	74.4			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			128	276	595	1,281			
CNEL:			138	296	639	1,376			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 Road Name: MacArthur Blvd. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 38,740 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,874 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	3.47	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-13.77	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-17.72	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	72.9	71.0	69.3	63.2	71.8	72.4		
Medium Trucks:	66.5	65.0	58.6	57.1	65.6	65.8		
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2		
Vehicle Noise:	74.6	72.9	69.8	65.1	73.6	74.1		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			122	262	565	1,217		
CNEL:			131	282	607	1,308		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 Road Name: MacArthur Blvd. Road Segment: e/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,220 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,122 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	2.54	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-14.70	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-18.66	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	72.0	70.1	68.3	62.3	70.9	71.5		
Medium Trucks:	65.6	64.1	57.7	56.2	64.6	64.9		
Heavy Trucks:	66.0	64.6	55.5	56.8	65.1	65.3		
Vehicle Noise:	73.7	71.9	68.9	64.1	72.7	73.1		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			105	227	489	1,054		
CNEL:			113	244	526	1,133		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Grand Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,080 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,008 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.08	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	79.45	-16.16	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	84.25	-20.12	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.5	67.6	65.9	59.8	68.4	69.1			
Medium Trucks:	63.3	61.8	55.4	53.9	62.4	62.6			
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4			
Vehicle Noise:	71.4	69.6	66.5	61.8	70.4	70.8			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				63	136	294	633		
CNEL:				68	146	315	679		
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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Newport Ave. Road Segment: n/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,010 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,101 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000				
					Medium Trucks: 4.000				
					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902				
					Medium Trucks: 40.804				
					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	1.78	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-15.45	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-19.41	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	68.3	66.4	64.6	58.6	67.2	67.8			
Medium Trucks:	62.3	60.8	54.4	52.9	61.3	61.6			
Heavy Trucks:	63.6	62.2	53.1	54.4	62.7	62.9			
Vehicle Noise:	70.3	68.6	65.3	60.8	69.3	69.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			54	116	250	538			
CNEL:			58	124	267	576			
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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: n/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 29,570 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,957 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	3.27	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-13.97	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-17.93	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	69.8	67.9	66.1	60.1	68.7	69.3			
Medium Trucks:	63.8	62.3	55.9	54.4	62.8	63.0			
Heavy Trucks:	65.1	63.7	54.6	55.9	64.2	64.3			
Vehicle Noise:	71.8	70.1	66.8	62.2	70.8	71.2			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				68	146	314	676		
CNEL:				72	156	336	723		
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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: s/o Walnut Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,340 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,134 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
FHWA Noise Model Calculations					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
FHWA Noise Model Calculations					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	66.51	3.52	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	77.72	-13.72	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	82.99	-17.67	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn		CNEL		
Autos:	70.0	68.1	66.4	60.3	68.9		69.5		
Medium Trucks:	64.0	62.5	56.1	54.6	63.1		63.3		
Heavy Trucks:	65.3	63.9	54.9	56.1	64.5		64.6		
Vehicle Noise:	72.0	70.3	67.0	62.5	71.0		71.5		
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			70	151	326	702			
CNEL:			75	162	349	752			
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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL											
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: n/o Valencia Ave.					Project Name: The Bowery Job Number: 12282						
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS						
Highway Data					Site Conditions (Hard = 10, Soft = 15)						
Average Daily Traffic (Adt): 32,190 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,219 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15						
Site Data					Vehicle Mix						
					VehicleType	Day	Evening	Night	Daily		
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%						
					Noise Source Elevations (in feet)						
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006					Grade Adjustment: 0.0	
					Lane Equivalent Distance (in feet)						
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903						
FHWA Noise Model Calculations											
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten				
Autos:	68.46	3.13	1.20	-1.20	-4.85	0.000	0.000				
Medium Trucks:	79.45	-14.11	1.22	-1.20	-5.01	0.000	0.000				
Heavy Trucks:	84.25	-18.07	1.20	-1.20	-5.34	0.000	0.000				
Unmitigated Noise Levels (without Topo and barrier attenuation)											
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL					
Autos:	71.6	69.7	67.9	61.9	70.5	71.1					
Medium Trucks:	65.4	63.8	57.5	55.9	64.4	64.6					
Heavy Trucks:	66.2	64.8	55.7	57.0	65.3	65.5					
Vehicle Noise:	73.4	71.7	68.5	63.9	72.4	72.9					
Centerline Distance to Noise Contour (in feet)											
				70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:				87	187	403	867				
CNEL:				93	200	432	930				

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: s/o Valencia Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,520 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,152 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.58	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-14.66	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-18.62	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.8	70.9	69.1	63.1	71.7	72.3			
Medium Trucks:	66.4	64.9	58.5	56.9	65.4	65.6			
Heavy Trucks:	66.8	65.3	56.3	57.6	65.9	66.0			
Vehicle Noise:	74.5	72.7	69.7	64.9	73.4	73.9			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				102	220	473	1,019		
CNEL:				109	236	508	1,095		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: s/o Warner Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,160 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,016 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 88 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 60.0 feet					Daily				
Centerline Dist. to Observer: 60.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Right View: 90.0 degrees					Lane Equivalent Distance (in feet)				
					Autos: 40.902				
					Medium Trucks: 40.804				
					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.63	1.20	-1.20	-4.85	0.000	0.000	0.000	
Medium Trucks:	81.00	-13.61	1.22	-1.20	-5.01	0.000	0.000	0.000	
Heavy Trucks:	85.38	-17.56	1.20	-1.20	-5.34	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.8	71.9	70.2	64.1	72.7	73.3			
Medium Trucks:	67.4	65.9	59.5	58.0	66.5	66.7			
Heavy Trucks:	67.8	66.4	57.4	58.6	67.0	67.1			
Vehicle Noise:	75.5	73.8	70.7	66.0	74.5	75.0			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			120	258	556	1,197			
CNEL:			129	277	597	1,286			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: n/o Carnegie Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,090 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 4,009 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.62	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-13.62	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-17.57	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.8	71.9	70.2	64.1	72.7	73.3			
Medium Trucks:	67.4	65.9	59.5	58.0	66.5	66.7			
Heavy Trucks:	67.8	66.4	57.4	58.6	67.0	67.1			
Vehicle Noise:	75.5	73.8	70.7	65.9	74.5	75.0			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			120	258	555	1,196			
CNEL:			128	277	596	1,285			

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: s/o Carnegie Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,470 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,047 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph									
Near/Far Lane Distance: 88 feet									
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 60.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 60.0 feet									
Barrier Distance to Observer: 0.0 feet					Noise Source Elevations (in feet)				
Observer Height (Above Pad): 5.0 feet					Autos: 2.000				
Pad Elevation: 0.0 feet					Medium Trucks: 4.000				
Road Elevation: 0.0 feet					Heavy Trucks: 8.006				
Road Grade: 0.0%					Grade Adjustment: 0.0				
Left View: -90.0 degrees									
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.66	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-13.58	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-17.53	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.9	72.0	70.2	64.2	72.8	73.4			
Medium Trucks:	67.4	65.9	59.6	58.0	66.5	66.7			
Heavy Trucks:	67.9	66.4	57.4	58.6	67.0	67.1			
Vehicle Noise:	75.6	73.8	70.8	66.0	74.5	75.0			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				120	259	559	1,204		
CNEL:				129	279	600	1,293		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: n/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 43,630 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,363 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph									
Near/Far Lane Distance: 106 feet					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Barrier Height: 0.0 feet					Noise Source Elevations (in feet)				
Barrier Type (0-Wall, 1-Berm): 0.0					Autos: 2.000				
Centerline Dist. to Barrier: 70.0 feet					Medium Trucks: 4.000				
Centerline Dist. to Observer: 70.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Barrier Distance to Observer: 0.0 feet									
Observer Height (Above Pad): 5.0 feet					Lane Equivalent Distance (in feet)				
Pad Elevation: 0.0 feet					Autos: 45.826				
Road Elevation: 0.0 feet					Medium Trucks: 45.738				
Road Grade: 0.0%					Heavy Trucks: 45.826				
Left View: -90.0 degrees									
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.99	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.25	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.20	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn		CNEL		
Autos:	73.5	71.6	69.8	63.7	72.4		73.0		
Medium Trucks:	67.0	65.5	59.2	57.6	66.1		66.3		
Heavy Trucks:	67.4	66.0	57.0	58.2	66.6		66.7		
Vehicle Noise:	75.2	73.4	70.4	65.6	74.1		74.6		
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				132	284	612	1,318		
CNEL:				142	305	657	1,416		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: s/o Barranca Pkwy.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 42,690 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 4,269 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.89	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.34	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.30	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.4	71.5	69.7	63.6	72.3	72.9			
Medium Trucks:	66.9	65.4	59.1	57.5	66.0	66.2			
Heavy Trucks:	67.3	65.9	56.9	58.1	66.5	66.6			
Vehicle Noise:	75.1	73.3	70.3	65.5	74.0	74.5			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				130	280	603	1,299		
CNEL:				140	301	648	1,395		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: n/o MacArthur Blvd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 59,290 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 5,929 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 88 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	5.32	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	81.00	-11.92	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	85.38	-15.87	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	75.5	73.6	71.9	65.8	74.4	75.0			
Medium Trucks:	69.1	67.6	61.2	59.7	68.2	68.4			
Heavy Trucks:	69.5	68.1	59.1	60.3	68.7	68.8			
Vehicle Noise:	77.2	75.5	72.4	67.6	76.2	76.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			155	334	721	1,553			
CNEL:			167	359	774	1,668			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Redhill Ave. Road Segment: s/o MacArthur Blvd.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,650 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,465 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph									
Near/Far Lane Distance: 36 feet					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
					Autos: 77.5% 12.9% 9.6% 97.42%				
					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Site Data					Noise Source Elevations (in feet)				
Barrier Height: 0.0 feet					Autos: 2.000				
Barrier Type (0-Wall, 1-Berm): 0.0					Medium Trucks: 4.000				
Centerline Dist. to Barrier: 40.0 feet					Heavy Trucks: 8.006				
Centerline Dist. to Observer: 40.0 feet					Grade Adjustment: 0.0				
Barrier Distance to Observer: 0.0 feet									
Observer Height (Above Pad): 5.0 feet									
Pad Elevation: 0.0 feet									
Road Elevation: 0.0 feet									
Road Grade: 0.0%									
Left View: -90.0 degrees									
Right View: 90.0 degrees									
					Lane Equivalent Distance (in feet)				
					Autos: 35.847				
					Medium Trucks: 35.735				
					Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	1.51	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	81.00	-15.73	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	85.38	-19.68	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.6	70.7	68.9	62.9	71.5	72.1			
Medium Trucks:	66.2	64.6	58.3	56.7	65.2	65.4			
Heavy Trucks:	66.6	65.1	56.1	57.3	65.7	65.8			
Vehicle Noise:	74.3	72.5	69.5	64.7	73.2	73.7			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			66	142	305	658			
CNEL:			71	152	328	707			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 + P Road Name: Valencia Ave. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 15,630 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,563 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	-0.01	2.06	-1.20	-4.83	0.000	0.000	
Medium Trucks:	79.45	-17.25	2.08	-1.20	-5.08	0.000	0.000	
Heavy Trucks:	84.25	-21.21	2.06	-1.20	-5.56	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	69.3	67.4	65.6	59.6	68.2	68.8		
Medium Trucks:	63.1	61.6	55.2	53.7	62.1	62.4		
Heavy Trucks:	63.9	62.5	53.5	54.7	63.1	63.2		
Vehicle Noise:	71.2	69.4	66.3	61.6	70.1	70.6		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			41	88	189	408		
CNEL:			44	94	203	437		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Valencia Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,680 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,168 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 36 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 40.0 feet					Daily				
Centerline Dist. to Observer: 40.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006				
Right View: 90.0 degrees					Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847				
					Medium Trucks: 35.735				
					Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	1.41	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-15.83	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-19.78	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	70.7	68.8	67.1	61.0	69.6	70.2			
Medium Trucks:	64.5	63.0	56.6	55.1	63.6	63.8			
Heavy Trucks:	65.3	63.9	54.9	56.1	64.5	64.6			
Vehicle Noise:	72.6	70.8	67.7	63.0	71.5	72.0			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:	51	109	235	507					
CNEL:	54	117	252	544					

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 + P Road Name: Warner Ave. Road Segment: w/o Grand Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,710 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 2,771 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 36 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 35.847 Medium Trucks: 35.735 Heavy Trucks: 35.847				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	68.46	2.48	2.06	-1.20	-4.83	0.000	0.000	
Medium Trucks:	79.45	-14.76	2.08	-1.20	-5.08	0.000	0.000	
Heavy Trucks:	84.25	-18.72	2.06	-1.20	-5.56	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	71.8	69.9	68.1	62.1	70.7	71.3		
Medium Trucks:	65.6	64.1	57.7	56.2	64.6	64.9		
Heavy Trucks:	66.4	65.0	55.9	57.2	65.5	65.7		
Vehicle Noise:	73.6	71.9	68.7	64.1	72.6	73.1		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			60	129	277	597		
CNEL:			64	138	297	640		

Friday, November 15, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Warner Ave. Road Segment: elo Grand Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,850 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,285 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 36 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 40.0 feet					Daily				
Centerline Dist. to Observer: 40.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006				
Right View: 90.0 degrees					Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 35.847				
					Medium Trucks: 35.735				
					Heavy Trucks: 35.847				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	3.21	2.06	-1.20	-4.83	0.000	0.000		
Medium Trucks:	79.45	-14.02	2.08	-1.20	-5.08	0.000	0.000		
Heavy Trucks:	84.25	-17.98	2.06	-1.20	-5.56	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn		CNEL		
Autos:	72.5	70.6	68.9	62.8	71.4		72.0		
Medium Trucks:	66.3	64.8	58.4	56.9	65.4		65.6		
Heavy Trucks:	67.1	65.7	56.7	57.9	66.3		66.4		
Vehicle Noise:	74.4	72.6	69.5	64.8	73.3		73.8		
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			67	144	310	669			
CNEL:			72	155	333	717			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Warner Ave. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,840 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,984 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph					Vehicle Mix				
Near/Far Lane Distance: 88 feet					VehicleType	Day	Evening	Night	Daily
Site Data					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 60.0 feet					Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 60.0 feet					Autos: 2.000				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet					Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet					Autos: 40.902				
Road Grade: 0.0%					Medium Trucks: 40.804				
Left View: -90.0 degrees					Heavy Trucks: 40.903				
Right View: 90.0 degrees									
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	68.46	4.05	1.20	-1.20	-4.85	0.000	0.000		
Medium Trucks:	79.45	-13.19	1.22	-1.20	-5.01	0.000	0.000		
Heavy Trucks:	84.25	-17.14	1.20	-1.20	-5.34	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.5	70.6	68.9	62.8	71.4	72.0			
Medium Trucks:	66.3	64.8	58.4	56.9	65.3	65.6			
Heavy Trucks:	67.1	65.7	56.7	57.9	66.3	66.4			
Vehicle Noise:	74.4	72.6	69.5	64.8	73.3	73.8			
Centerline Distance to Noise Contour (in feet)									
				70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:				100	215	464	1,000		
CNEL:				107	231	498	1,072		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Warner Ave. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,620 vehicles					Autos: 15				
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,262 vehicles					Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph					Vehicle Mix				
Near/Far Lane Distance: 88 feet					VehicleType				
Site Data					Day				
Barrier Height: 0.0 feet					Evening				
Barrier Type (0-Wall, 1-Berm): 0.0					Night				
Centerline Dist. to Barrier: 60.0 feet					Daily				
Centerline Dist. to Observer: 60.0 feet					Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Distance to Observer: 0.0 feet					Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Pad Elevation: 0.0 feet					Noise Source Elevations (in feet)				
Road Elevation: 0.0 feet					Autos: 2.000				
Road Grade: 0.0%					Medium Trucks: 4.000				
Left View: -90.0 degrees					Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Right View: 90.0 degrees					Lane Equivalent Distance (in feet)				
					Autos: 40.902				
					Medium Trucks: 40.804				
					Heavy Trucks: 40.903				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	2.73	1.20	-1.20	-4.85	0.000	0.000	0.000	0.000
Medium Trucks:	81.00	-14.51	1.22	-1.20	-5.01	0.000	0.000	0.000	0.000
Heavy Trucks:	85.38	-18.47	1.20	-1.20	-5.34	0.000	0.000	0.000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	72.9	71.0	69.3	63.2	71.8	72.4			
Medium Trucks:	66.5	65.0	58.6	57.1	65.6	65.8			
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2			
Vehicle Noise:	74.6	72.9	69.8	65.0	73.6	74.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			104	225	484	1,042			
CNEL:			112	241	520	1,120			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 + P Road Name: Dyer Rd. Road Segment: w/o Redhill Ave.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 35,350 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,535 vehicles Vehicle Speed: 40 mph Near/Far Lane Distance: 88 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 40.902 Medium Trucks: 40.804 Heavy Trucks: 40.903				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	66.51	4.04	1.20	-1.20	-4.85	0.000	0.000	
Medium Trucks:	77.72	-13.19	1.22	-1.20	-5.01	0.000	0.000	
Heavy Trucks:	82.99	-17.15	1.20	-1.20	-5.34	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	70.6	68.7	66.9	60.8	69.5	70.1		
Medium Trucks:	64.5	63.0	56.7	55.1	63.6	63.8		
Heavy Trucks:	65.8	64.4	55.4	56.6	65.0	65.1		
Vehicle Noise:	72.6	70.8	67.6	63.0	71.5	72.0		
Centerline Distance to Noise Contour (in feet)								
			70 dBA	65 dBA	60 dBA	55 dBA		
Ldn:			76	164	353	761		
CNEL:			81	176	378	815		

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: Barranca Pkwy. Road Segment: e/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,270 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 4,027 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.64	0.46	-1.20	-4.86	0.000	0.000		
Medium Trucks:	81.00	-13.60	0.48	-1.20	-5.00	0.000	0.000		
Heavy Trucks:	85.38	-17.55	0.46	-1.20	-5.28	0.000	0.000		
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.1	71.2	69.4	63.4	72.0	72.6			
Medium Trucks:	66.7	65.2	58.8	57.3	65.7	66.0			
Heavy Trucks:	67.1	65.7	56.6	57.9	66.2	66.4			
Vehicle Noise:	74.8	73.1	70.0	65.2	73.8	74.2			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			125	269	580	1,249			
CNEL:			134	289	623	1,342			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL								
Scenario: 2040 + P Road Name: Barranca Pkwy. Road Segment: w/o Tustin Ranch Rd.				Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 42,540 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 4,254 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data				Vehicle Mix				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				VehicleType	Day	Evening	Night	Daily
				Autos: 77.5% 12.9% 9.6% 97.42%				
				Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
				Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
				Noise Source Elevations (in feet)				
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
				Lane Equivalent Distance (in feet)				
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	3.88	0.46	-1.20	-4.86	0.000	0.000	
Medium Trucks:	81.00	-13.36	0.48	-1.20	-5.00	0.000	0.000	
Heavy Trucks:	85.38	-17.31	0.46	-1.20	-5.28	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	73.3	71.4	69.7	63.6	72.3	72.9		
Medium Trucks:	66.9	65.4	59.0	57.5	66.0	66.2		
Heavy Trucks:	67.3	65.9	56.9	58.1	66.5	66.6		
Vehicle Noise:	75.0	73.3	70.2	65.5	74.0	74.5		
Centerline Distance to Noise Contour (in feet)								
				70 dBA	65 dBA	60 dBA	55 dBA	
Ldn:				130	279	601	1,296	
CNEL:				139	300	646	1,392	

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL									
Scenario: 2040 + P Road Name: MacArthur Blvd. Road Segment: w/o Redhill Ave.					Project Name: The Bowery Job Number: 12282				
SITE SPECIFIC INPUT DATA					NOISE MODEL INPUTS				
Highway Data					Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 38,820 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,882 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet					Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15				
Site Data					Vehicle Mix				
					VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees					Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
					Noise Source Elevations (in feet)				
					Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0				
					Lane Equivalent Distance (in feet)				
					Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826				
FHWA Noise Model Calculations									
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten		
Autos:	70.20	3.48	0.46	-1.20	-4.86	0.000	0.000	0.000	
Medium Trucks:	81.00	-13.76	0.48	-1.20	-5.00	0.000	0.000	0.000	
Heavy Trucks:	85.38	-17.71	0.46	-1.20	-5.28	0.000	0.000	0.000	
Unmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL			
Autos:	73.0	71.1	69.3	63.2	71.9	72.5			
Medium Trucks:	66.5	65.0	58.7	57.1	65.6	65.8			
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2			
Vehicle Noise:	74.6	72.9	69.8	65.1	73.6	74.1			
Centerline Distance to Noise Contour (in feet)									
			70 dBA	65 dBA	60 dBA	55 dBA			
Ldn:			122	263	566	1,219			
CNEL:			131	282	608	1,310			

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL							
Scenario: 2040 + P Road Name: MacArthur Blvd. Road Segment: e/o Redhill Ave.				Project Name: The Bowery Job Number: 12282			
SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS			
Highway Data				Site Conditions (Hard = 10, Soft = 15)			
Average Daily Traffic (Adt): 31,580 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3,158 vehicles Vehicle Speed: 50 mph Near/Far Lane Distance: 106 feet				Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15			
Site Data				Vehicle Mix			
				VehicleType	Day	Evening	Night
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos: 77.5% 12.9% 9.6% 97.42% Medium Trucks: 84.8% 4.9% 10.3% 1.84% Heavy Trucks: 86.5% 2.7% 10.8% 0.74%			
				Noise Source Elevations (in feet)			
				Autos: 2.000 Medium Trucks: 4.000 Heavy Trucks: 8.006 Grade Adjustment: 0.0			
				Lane Equivalent Distance (in feet)			
				Autos: 45.826 Medium Trucks: 45.738 Heavy Trucks: 45.826			
FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.59	0.46	-1.20	-4.86	0.000	0.000
Medium Trucks:	81.00	-14.65	0.48	-1.20	-5.00	0.000	0.000
Heavy Trucks:	85.38	-18.61	0.46	-1.20	-5.28	0.000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)							
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL	
Autos:	72.1	70.2	68.4	62.3	71.0	71.6	
Medium Trucks:	65.6	64.1	57.8	56.2	64.7	64.9	
Heavy Trucks:	66.0	64.6	55.6	56.8	65.2	65.3	
Vehicle Noise:	73.7	72.0	69.0	64.2	72.7	73.2	
Centerline Distance to Noise Contour (in feet)							
				70 dBA	65 dBA	60 dBA	55 dBA
Ldn:				106	229	493	1,062
CNEL:				114	246	530	1,141

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APPENDIX 8.1:

ON-SITE OUTDOOR COMMON AREA TRAFFIC NOISE LEVEL CALCULATIONS

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

Scenario: Outdoor Common Areas
Road Name: Warner Ave.
Lot No: Bldg. A

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 6.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 110.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 120.0 feet		Autos: 2.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 60.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 165.747				
Barrier Elevation: 0.0 feet		Medium Trucks: 165.690				
Road Grade: 0.0%		Heavy Trucks: 165.691				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-5.27	0.00	33.64	-18.873	-21.873
Medium Trucks:	77.62	-13.19	-5.27	0.00	34.48	-18.890	-21.890
Heavy Trucks:	82.14	-17.15	-5.27	0.00	36.21	-18.924	-21.924

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.2	64.5	58.4	67.0	67.6
Medium Trucks:	59.2	57.7	51.3	49.7	58.2	58.4
Heavy Trucks:	59.7	58.3	49.3	50.5	58.9	59.0
Vehicle Noise:	69.2	67.4	64.8	59.5	68.1	68.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.2	47.3	45.6	39.5	48.1	48.8
Medium Trucks:	40.3	38.8	32.4	30.9	39.3	39.5
Heavy Trucks:	40.8	39.4	30.3	31.6	39.9	40.1
Vehicle Noise:	50.3	48.5	45.9	40.7	49.2	49.7

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	87	276	874	2,763

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

Scenario: Outdoor Common Areas
Road Name: Redhill Ave.
Lot No: Bldg. B

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 60 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
<div>Barrier Height: 6.0 feet</div> <div>Barrier Type (0-Wall, 1-Berm): 0.0</div> <div>Centerline Dist. to Barrier: 430.0 feet</div> <div>Centerline Dist. to Observer: 440.0 feet</div> <div>Barrier Distance to Observer: 10.0 feet</div> <div>Observer Height (Above Pad): 5.0 feet</div> <div>Pad Elevation: 60.0 feet</div> <div>Road Elevation: 0.0 feet</div> <div>Barrier Elevation: 0.0 feet</div> <div>Road Grade: 0.0%</div>		Autos: 77.5%		12.9%	9.6%	97.42%	
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%	
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%	
		Noise Source Elevations (in feet)					
		Autos: 2.000					
		Medium Trucks: 4.000					
		Heavy Trucks: 8.006		Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)					
Autos: 488.812							
Medium Trucks: 488.798							
Heavy Trucks: 488.798							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-9.97	0.00	44.39	-19.088	-22.088
Medium Trucks:	78.79	-13.60	-9.97	0.00	44.65	-19.093	-22.093
Heavy Trucks:	83.02	-17.56	-9.97	0.00	45.17	-19.103	-22.103

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.8	62.9	61.1	55.1	63.7	64.3
Medium Trucks:	55.2	53.7	47.3	45.8	54.3	54.5
Heavy Trucks:	55.5	54.1	45.0	46.3	54.6	54.8
Vehicle Noise:	65.7	63.9	61.4	56.0	64.6	65.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.7	43.8	42.0	36.0	44.6	45.2
Medium Trucks:	36.1	34.6	28.3	26.7	35.2	35.4
Heavy Trucks:	36.4	35.0	25.9	27.2	35.5	35.7
Vehicle Noise:	46.6	44.8	42.3	36.9	45.5	46.1

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	144	455	1,438	4,546

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

Scenario: Outdoor Common Areas
Road Name: Redhill Ave.
Lot No: Bldg. C

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 6.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 550.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 560.0 feet		Autos: 2.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 60.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 609.037				
Barrier Elevation: 0.0 feet		Medium Trucks: 609.026				
Road Grade: 0.0%		Heavy Trucks: 609.026				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-10.93	0.00	45.32	-19.106	-22.106
Medium Trucks:	78.79	-13.60	-10.93	0.00	45.53	-19.111	-22.111
Heavy Trucks:	83.02	-17.56	-10.93	0.00	45.94	-19.119	-22.119

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.8	61.9	60.2	54.1	62.7	63.3
Medium Trucks:	54.3	52.8	46.4	44.8	53.3	53.5
Heavy Trucks:	54.5	53.1	44.1	45.3	53.7	53.8
Vehicle Noise:	64.7	62.9	60.4	55.1	63.7	64.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.7	42.8	41.1	35.0	43.6	44.2
Medium Trucks:	35.2	33.6	27.3	25.7	34.2	34.4
Heavy Trucks:	35.4	34.0	25.0	26.2	34.6	34.7
Vehicle Noise:	45.6	43.8	41.3	36.0	44.6	45.1

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	147	464	1,468	4,644

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

Scenario: Outdoor Common Areas
Road Name: Warner Ave.
Lot No: Bldg. D

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 6.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 570.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 580.0 feet		Autos: 2.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 579.274				
Barrier Elevation: 0.0 feet		Medium Trucks: 579.263				
Road Grade: 0.0%		Heavy Trucks: 579.263				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-10.71	0.00	0.05	-5.500	-8.500
Medium Trucks:	77.62	-13.19	-10.71	0.00	0.05	-5.500	-8.500
Heavy Trucks:	82.14	-17.15	-10.71	0.00	0.04	-5.400	-8.400

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	60.8	59.0	53.0	61.6	62.2
Medium Trucks:	53.7	52.2	45.9	44.3	52.8	53.0
Heavy Trucks:	54.3	52.9	43.8	45.1	53.4	53.6
Vehicle Noise:	63.7	61.9	59.3	54.1	62.7	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.2	55.3	53.5	47.5	56.1	56.7
Medium Trucks:	48.2	46.7	40.4	38.8	47.3	47.5
Heavy Trucks:	48.9	47.5	38.4	39.7	48.0	48.2
Vehicle Noise:	58.2	56.4	53.9	48.6	57.2	57.7

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	121	382	1,208	3,821

APPENDIX 8.2:

ON-SITE BUILDING FAÇADE TRAFFIC NOISE LEVEL CALCULATIONS

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

Scenario: First Floor With Wall
Road Name: Warner Ave.
Lot No: Bldg. A

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 57.741				
Barrier Elevation: 0.0 feet		Medium Trucks: 57.671				
Road Grade: 0.0%		Heavy Trucks: 57.741				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-0.69	0.00	-4.85	0.000	0.000
Medium Trucks:	77.62	-13.19	-0.69	0.00	-5.00	0.000	0.000
Heavy Trucks:	82.14	-17.15	-0.69	0.00	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.8	69.0	63.0	71.6	72.2
Medium Trucks:	63.7	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	73.7	71.9	69.4	64.1	72.7	73.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.8	69.0	63.0	71.6	72.2
Medium Trucks:	63.7	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	73.7	71.9	69.4	64.1	72.7	73.2

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

Scenario: First Floor With Wall
Road Name: Warner Ave.
Lot No: Bldg. D

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 57.741				
Barrier Elevation: 0.0 feet		Medium Trucks: 57.671				
Road Grade: 0.0%		Heavy Trucks: 57.741				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-0.69	0.00	-4.85	0.000	0.000
Medium Trucks:	77.62	-13.19	-0.69	0.00	-5.00	0.000	0.000
Heavy Trucks:	82.14	-17.15	-0.69	0.00	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.8	69.0	63.0	71.6	72.2
Medium Trucks:	63.7	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	73.7	71.9	69.4	64.1	72.7	73.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.8	69.0	63.0	71.6	72.2
Medium Trucks:	63.7	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	73.7	71.9	69.4	64.1	72.7	73.2

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

Scenario: First Floor With Wall
 Road Name: Warner Ave.
 Lot No: Retail

Project Name: The Bowery
 Job Number: 12282
 Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 66.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 66.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 58.864				
Barrier Elevation: 0.0 feet		Medium Trucks: 58.796				
Road Grade: 0.0%		Heavy Trucks: 58.865				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-0.78	0.00	-4.86	0.000	0.000
Medium Trucks:	77.62	-13.19	-0.77	0.00	-5.00	0.000	0.000
Heavy Trucks:	82.14	-17.15	-0.78	0.00	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.7	68.9	62.9	71.5	72.1
Medium Trucks:	63.7	62.2	55.8	54.2	62.7	62.9
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	73.7	71.9	69.3	64.0	72.6	73.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.7	68.9	62.9	71.5	72.1
Medium Trucks:	63.7	62.2	55.8	54.2	62.7	62.9
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	73.7	71.9	69.3	64.0	72.6	73.1

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

Scenario: First Floor With Wall
 Road Name: Redhill Ave.
 Lot No: Retail

Project Name: The Bowery
 Job Number: 12282
 Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 91.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 91.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 85.965				
Barrier Elevation: 0.0 feet		Medium Trucks: 85.919				
Road Grade: 0.0%		Heavy Trucks: 85.965				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-2.42	0.00	-4.87	0.000	0.000
Medium Trucks:	78.79	-13.60	-2.42	0.00	-4.97	0.000	0.000
Heavy Trucks:	83.02	-17.56	-2.42	0.00	-5.19	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.3	70.4	68.7	62.6	71.2	71.8
Medium Trucks:	62.8	61.3	54.9	53.4	61.8	62.0
Heavy Trucks:	63.0	61.6	52.6	53.8	62.2	62.3
Vehicle Noise:	73.2	71.4	68.9	63.6	72.2	72.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.3	70.4	68.7	62.6	71.2	71.8
Medium Trucks:	62.8	61.3	54.9	53.4	61.8	62.0
Heavy Trucks:	63.0	61.6	52.6	53.8	62.2	62.3
Vehicle Noise:	73.2	71.4	68.9	63.6	72.2	72.7

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

Scenario: Second Floor With Wall
Road Name: Warner Ave.
Lot No: Bldg. A

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 14.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 58.898				
Barrier Elevation: 0.0 feet		Medium Trucks: 58.523				
Road Grade: 0.0%		Heavy Trucks: 57.974				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-0.78	0.00	-12.65	0.000	0.000
Medium Trucks:	77.62	-13.19	-0.75	0.00	-13.07	0.000	0.000
Heavy Trucks:	82.14	-17.15	-0.71	0.00	-13.91	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.7	68.9	62.9	71.5	72.1
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	73.7	71.9	69.3	64.0	72.6	73.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.7	68.9	62.9	71.5	72.1
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	73.7	71.9	69.3	64.0	72.6	73.1

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

Scenario: Second Floor With Wall
 Road Name: Redhill Ave.
 Lot No: Bldg. A

Project Name: The Bowery
 Job Number: 12282
 Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 138.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 138.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 14.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 135.233				
Barrier Elevation: 0.0 feet		Medium Trucks: 135.070				
Road Grade: 0.0%		Heavy Trucks: 134.833				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-4.39	0.00	-13.20	0.000	0.000
Medium Trucks:	78.79	-13.60	-4.38	0.00	-13.40	0.000	0.000
Heavy Trucks:	83.02	-17.56	-4.38	0.00	-13.80	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:	70.4	68.5	66.7	60.6	69.3	69.9
Medium Trucks:	60.8	59.3	52.9	51.4	59.9	60.1
Heavy Trucks:	61.1	59.7	50.6	51.9	60.2	60.4
Vehicle Noise:	71.3	69.4	67.0	61.6	70.2	70.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.7	60.6	69.3	69.9
Medium Trucks:	60.8	59.3	52.9	51.4	59.9	60.1
Heavy Trucks:	61.1	59.7	50.6	51.9	60.2	60.4
Vehicle Noise:	71.3	69.4	67.0	61.6	70.2	70.7

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

Scenario: Second Floor With Wall
Road Name: Redhill Ave.
Lot No: Bldg. B

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 223.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 223.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 14.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 221.298				
Barrier Elevation: 0.0 feet		Medium Trucks: 221.199				
Road Grade: 0.0%		Heavy Trucks: 221.054				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-6.53	0.00	-13.39	0.000	0.000
Medium Trucks:	78.79	-13.60	-6.53	0.00	-13.51	0.000	0.000
Heavy Trucks:	83.02	-17.56	-6.52	0.00	-13.76	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.6	58.5	67.1	67.7
Medium Trucks:	58.7	57.2	50.8	49.2	57.7	57.9
Heavy Trucks:	58.9	57.5	48.5	49.7	58.1	58.2
Vehicle Noise:	69.1	67.3	64.8	59.5	68.1	68.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.6	58.5	67.1	67.7
Medium Trucks:	58.7	57.2	50.8	49.2	57.7	57.9
Heavy Trucks:	58.9	57.5	48.5	49.7	58.1	58.2
Vehicle Noise:	69.1	67.3	64.8	59.5	68.1	68.6

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

Scenario: Second Floor With Wall
Road Name: Redhill Ave.
Lot No: Bldg. C

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 100.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 14.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 96.146				
Barrier Elevation: 0.0 feet		Medium Trucks: 95.917				
Road Grade: 0.0%		Heavy Trucks: 95.582				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-2.91	0.00	-13.02	0.000	0.000
Medium Trucks:	78.79	-13.60	-2.90	0.00	-13.29	0.000	0.000
Heavy Trucks:	83.02	-17.56	-2.88	0.00	-13.84	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.9	68.2	62.1	70.7	71.4
Medium Trucks:	62.3	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	62.6	61.2	52.1	53.4	61.7	61.9
Vehicle Noise:	72.7	70.9	68.5	63.1	71.7	72.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.9	68.2	62.1	70.7	71.4
Medium Trucks:	62.3	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	62.6	61.2	52.1	53.4	61.7	61.9
Vehicle Noise:	72.7	70.9	68.5	63.1	71.7	72.2

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

Scenario: Second Floor With Wall
Road Name: Warner Ave.
Lot No: Bldg. D

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 14.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 58.898				
Barrier Elevation: 0.0 feet		Medium Trucks: 58.523				
Road Grade: 0.0%		Heavy Trucks: 57.974				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-0.78	0.00	-12.65	0.000	0.000
Medium Trucks:	77.62	-13.19	-0.75	0.00	-13.07	0.000	0.000
Heavy Trucks:	82.14	-17.15	-0.71	0.00	-13.91	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.7	68.9	62.9	71.5	72.1
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	73.7	71.9	69.3	64.0	72.6	73.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.7	68.9	62.9	71.5	72.1
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	63.0
Heavy Trucks:	64.3	62.9	53.8	55.1	63.4	63.6
Vehicle Noise:	73.7	71.9	69.3	64.0	72.6	73.1

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

Scenario: Third Floor With Wall
Road Name: Warner Ave.
Lot No: Bldg. A

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 25.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 62.081				
Barrier Elevation: 0.0 feet		Medium Trucks: 61.368				
Road Grade: 0.0%		Heavy Trucks: 60.115				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-1.01	0.00	-20.63	0.000	0.000
Medium Trucks:	77.62	-13.19	-0.96	0.00	-21.34	0.000	0.000
Heavy Trucks:	82.14	-17.15	-0.87	0.00	-22.80	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:	72.4	70.5	68.7	62.7	71.3	71.9
Medium Trucks:	63.5	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	73.4	71.6	69.1	63.8	72.4	72.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.5	68.7	62.7	71.3	71.9
Medium Trucks:	63.5	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	73.4	71.6	69.1	63.8	72.4	72.9

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

Scenario: Third Floor With Wall
Road Name: Redhill Ave.
Lot No: Bldg. A

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 138.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 138.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 25.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 136.649				
Barrier Elevation: 0.0 feet		Medium Trucks: 136.327				
Road Grade: 0.0%		Heavy Trucks: 135.767				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-4.44	0.00	-22.61	0.000	0.000
Medium Trucks:	78.79	-13.60	-4.43	0.00	-22.96	0.000	0.000
Heavy Trucks:	83.02	-17.56	-4.41	0.00	-23.67	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:	70.3	68.4	66.7	60.6	69.2	69.8
Medium Trucks:	60.8	59.3	52.9	51.3	59.8	60.0
Heavy Trucks:	61.1	59.6	50.6	51.8	60.2	60.3
Vehicle Noise:	71.2	69.4	66.9	61.6	70.2	70.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.7	60.6	69.2	69.8
Medium Trucks:	60.8	59.3	52.9	51.3	59.8	60.0
Heavy Trucks:	61.1	59.6	50.6	51.8	60.2	60.3
Vehicle Noise:	71.2	69.4	66.9	61.6	70.2	70.7

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

Scenario: Third Floor With Wall
Road Name: Redhill Ave.
Lot No: Bldg. B

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 223.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 223.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 25.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 222.167				
Barrier Elevation: 0.0 feet		Medium Trucks: 221.968				
Road Grade: 0.0%		Heavy Trucks: 221.625				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-6.55	0.00	-23.31	0.000	0.000
Medium Trucks:	78.79	-13.60	-6.54	0.00	-23.53	0.000	0.000
Heavy Trucks:	83.02	-17.56	-6.54	0.00	-23.97	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.5	58.5	67.1	67.7
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	58.9	57.5	48.5	49.7	58.1	58.2
Vehicle Noise:	69.1	67.3	64.8	59.5	68.0	68.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.5	58.5	67.1	67.7
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	58.9	57.5	48.5	49.7	58.1	58.2
Vehicle Noise:	69.1	67.3	64.8	59.5	68.0	68.6

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

Scenario: Third Floor With Wall
 Road Name: Redhill Ave.
 Lot No: Bldg. C

Project Name: The Bowery
 Job Number: 12282
 Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 100.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 25.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 98.127				
Barrier Elevation: 0.0 feet		Medium Trucks: 97.678				
Road Grade: 0.0%		Heavy Trucks: 96.896				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-3.00	0.00	-21.93	0.000	0.000
Medium Trucks:	78.79	-13.60	-2.98	0.00	-22.40	0.000	0.000
Heavy Trucks:	83.02	-17.56	-2.94	0.00	-23.37	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:	71.8	69.9	68.1	62.0	70.7	71.3
Medium Trucks:	62.2	60.7	54.3	52.8	61.3	61.5
Heavy Trucks:	62.5	61.1	52.1	53.3	61.7	61.8
Vehicle Noise:	72.7	70.8	68.4	63.0	71.6	72.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.9	68.1	62.0	70.7	71.3
Medium Trucks:	62.2	60.7	54.3	52.8	61.3	61.5
Heavy Trucks:	62.5	61.1	52.1	53.3	61.7	61.8
Vehicle Noise:	72.7	70.8	68.4	63.0	71.6	72.1

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

Scenario: Third Floor With Wall
Road Name: Warner Ave.
Lot No: Bldg. D

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 25.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 62.081				
Barrier Elevation: 0.0 feet		Medium Trucks: 61.368				
Road Grade: 0.0%		Heavy Trucks: 60.115				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-1.01	0.00	-20.63	0.000	0.000
Medium Trucks:	77.62	-13.19	-0.96	0.00	-21.34	0.000	0.000
Heavy Trucks:	82.14	-17.15	-0.87	0.00	-22.80	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:	72.4	70.5	68.7	62.7	71.3	71.9
Medium Trucks:	63.5	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	73.4	71.6	69.1	63.8	72.4	72.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.5	68.7	62.7	71.3	71.9
Medium Trucks:	63.5	62.0	55.6	54.1	62.5	62.8
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	73.4	71.6	69.1	63.8	72.4	72.9

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

Scenario: Fourth Floor With Wall
Road Name: Warner Ave.
Lot No: Bldg. A

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 35.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 66.438				
Barrier Elevation: 0.0 feet		Medium Trucks: 65.468				
Road Grade: 0.0%		Heavy Trucks: 63.668				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-1.30	0.00	-26.55	0.000	0.000
Medium Trucks:	77.62	-13.19	-1.24	0.00	-27.50	0.000	0.000
Heavy Trucks:	82.14	-17.15	-1.12	0.00	-29.46	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:	72.1	70.2	68.4	62.4	71.0	71.6
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.9	62.5	53.4	54.7	63.0	63.2
Vehicle Noise:	73.2	71.4	68.8	63.5	72.1	72.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.1	70.2	68.4	62.4	71.0	71.6
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.9	62.5	53.4	54.7	63.0	63.2
Vehicle Noise:	73.2	71.4	68.8	63.5	72.1	72.6

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

Scenario: Fourth Floor With Wall
Road Name: Redhill Ave.
Lot No: Bldg. A

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 138.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 138.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 35.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 138.683				
Barrier Elevation: 0.0 feet		Medium Trucks: 138.221				
Road Grade: 0.0%		Heavy Trucks: 137.378				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-4.50	0.00	-30.45	0.000	0.000
Medium Trucks:	78.79	-13.60	-4.48	0.00	-30.94	0.000	0.000
Heavy Trucks:	83.02	-17.56	-4.46	0.00	-31.91	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	60.7	59.2	52.8	51.3	59.8	60.0
Heavy Trucks:	61.0	59.6	50.5	51.8	60.1	60.3
Vehicle Noise:	71.2	69.3	66.9	61.5	70.1	70.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	60.7	59.2	52.8	51.3	59.8	60.0
Heavy Trucks:	61.0	59.6	50.5	51.8	60.1	60.3
Vehicle Noise:	71.2	69.3	66.9	61.5	70.1	70.6

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

Scenario: Fourth Floor With Wall
Road Name: Redhill Ave.
Lot No: Bldg. B

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 223.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 223.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 35.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 223.423				
Barrier Elevation: 0.0 feet		Medium Trucks: 223.137				
Road Grade: 0.0%		Heavy Trucks: 222.616				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-6.57	0.00	-31.88	0.000	0.000
Medium Trucks:	78.79	-13.60	-6.56	0.00	-32.18	0.000	0.000
Heavy Trucks:	83.02	-17.56	-6.55	0.00	-32.79	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.5	58.5	67.1	67.7
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	58.9	57.5	48.4	49.7	58.1	58.2
Vehicle Noise:	69.1	67.3	64.8	59.4	68.0	68.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.3	64.5	58.5	67.1	67.7
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	58.9	57.5	48.4	49.7	58.1	58.2
Vehicle Noise:	69.1	67.3	64.8	59.4	68.0	68.5

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

Scenario: Fourth Floor With Wall
Road Name: Redhill Ave.
Lot No: Bldg. C

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,200 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 4,020 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 100.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 35.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 100.941				
Barrier Elevation: 0.0 feet		Medium Trucks: 100.305				
Road Grade: 0.0%		Heavy Trucks: 99.140				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.12	3.63	-3.12	0.00	-29.07	0.000	0.000
Medium Trucks:	78.79	-13.60	-3.09	0.00	-29.73	0.000	0.000
Heavy Trucks:	83.02	-17.56	-3.04	0.00	-31.06	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.7	68.0	61.9	70.5	71.1
Medium Trucks:	62.1	60.6	54.2	52.7	61.1	61.4
Heavy Trucks:	62.4	61.0	52.0	53.2	61.6	61.7
Vehicle Noise:	72.5	70.7	68.3	62.9	71.5	72.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.7	68.0	61.9	70.5	71.1
Medium Trucks:	62.1	60.6	54.2	52.7	61.1	61.4
Heavy Trucks:	62.4	61.0	52.0	53.2	61.6	61.7
Vehicle Noise:	72.5	70.7	68.3	62.9	71.5	72.0

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

Scenario: Fourth Floor With Wall
Road Name: Warner Ave.
Lot No: Bldg. D

Project Name: The Bowery
Job Number: 12282
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,800 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 3,980 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 60 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 2.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 4.000				
Observer Height (Above Pad): 35.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 66.438				
Barrier Elevation: 0.0 feet		Medium Trucks: 65.468				
Road Grade: 0.0%		Heavy Trucks: 63.668				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	69.34	4.05	-1.30	0.00	-26.55	0.000	0.000
Medium Trucks:	77.62	-13.19	-1.24	0.00	-27.50	0.000	0.000
Heavy Trucks:	82.14	-17.15	-1.12	0.00	-29.46	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:	72.1	70.2	68.4	62.4	71.0	71.6
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.9	62.5	53.4	54.7	63.0	63.2
Vehicle Noise:	73.2	71.4	68.8	63.5	72.1	72.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.1	70.2	68.4	62.4	71.0	71.6
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.9	62.5	53.4	54.7	63.0	63.2
Vehicle Noise:	73.2	71.4	68.8	63.5	72.1	72.6

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APPENDIX 8.3:

INTERIOR NOISE LEVEL CALCULATIONS

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INTERIOR NOISE REDUCTIONS

Project Name: The Bowery

Job Number: 12282

Floor Plan: A1

Analyst: B. Lawson

Room: Bedroom

(1) Transmission Loss Calculations (Exterior Wall)

Exterior Wall Assembly	Source	Wall Area	STC	Transmission Loss (dB) by Frequency (Hz)						Fractional Area S/(10^(TL/10))						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	dB
Stucco	David Harris p. 371	69.0	46	27	42	44	46	49	54	0.1377	0.0044	0.0027	0.0017	0.0009	0.0003	
Windows/Doors		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	ABC	30.0	26	21	17	25	32	37	38	0.2383	0.5986	0.0949	0.0189	0.0060	0.0048	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
										0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Totals		99								0.0038	0.0061	0.0010	0.0002	0.0001	0.0001	
Composite Exterior Wall Sound Transmission Loss 10*LOG(1/t)										24.20	22.15	30.06	36.80	41.60	42.94	38.28

(2) Room Effects (Absorption)

Room Surface/ Material	Source	Area	NRC	Absorption Coefficients by Frequency (Hz)						Absorption (Sabins)						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	
Floor - Carpet	David Harris p. 347	121.0	0.30	0.15	0.17	0.12	0.32	0.52	0.30	18.15	20.57	14.52	38.7	62.9	36.3	
Floor - Vinyl	David Harris p. 347	0.0	0.05	0.02	0.03	0.05	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
Ceiling - Drywall	David Harris p. 348	121.0	0.50	0.10	0.08	0.05	0.03	0.03	0.03	12.10	9.68	6.05	3.63	3.63	3.63	
Walls - Drywall	David Harris p. 348	396.0	0.50	0.10	0.08	0.05	0.03	0.03	0.03	39.60	31.68	19.80	11.88	11.88	11.88	
Totals		638								69.85	61.93	40.37	54.23	78.43	51.81	71.32
Room Effect	10*log (Room Absorption in Sabins)/(Exterior Wall Area)									-1.51	-2.04	-3.90	-2.61	-1.01	-2.81	-1.42

(3) Adjustment Factor

Sound Source Adjustment Factor	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00
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(4) Calculated Interior Noise Reduction (dBA)

	125	250	500	1000	2000	4000	dBA
(Transmission Loss + Room Effects + Adjustment Factor)	16.69	14.12	20.17	28.19	34.59	34.13	
Octave Band Frequency Correction Factors for A-Weighted Sound Levels	16.10	8.60	3.20	0.00	-1.20	-1.00	
A-Weighted Sound Levels	32.79	22.72	23.37	28.19	33.39	33.13	
Noise Reduction (dBA)	32.67	22.59	23.24	28.07	33.26	33.00	30.7

INTERIOR NOISE REDUCTIONS

Project Name: The Bowery

Job Number: 12282

Floor Plan: A3

Analyst: B. Lawson

Room: Bedroom

(1) Transmission Loss Calculations (Exterior Wall)

Exterior Wall Assembly	Source	Wall Area	STC	Transmission Loss (dB) by Frequency (Hz)						Fractional Area S/(10^(TL/10))						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	dB
Stucco	David Harris p. 371	78.0	46	27	42	44	46	49	54	0.1556	0.0049	0.0031	0.0020	0.0010	0.0003	
Windows/Doors		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	ABC	30.0	26	21	17	25	32	37	38	0.2383	0.5986	0.0949	0.0189	0.0060	0.0048	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
										0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Totals		108								0.0036	0.0056	0.0009	0.0002	0.0001	0.0000	
Composite Exterior Wall Sound Transmission Loss	10*LOG(1/t)									24.38	22.53	30.42	37.14	41.90	43.29	38.61

(2) Room Effects (Absorption)

Room Surface/ Material	Source	Area	NRC	Absorption Coefficients by Frequency (Hz)						Absorption (Sabins)						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	
Floor - Carpet	David Harris p. 347	120.0	0.30	0.15	0.17	0.12	0.32	0.52	0.30	18.0	20.4	14.4	38.4	62.4	36.0	
Floor - Vinyl	David Harris p. 347	0.0	0.05	0.02	0.03	0.05	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
Ceiling - Drywall	David Harris p. 348	120.0	0.50	0.10	0.08	0.05	0.03	0.03	0.03	12.00	9.60	6.00	3.60	3.60	3.60	
Walls - Drywall	David Harris p. 348	396.0	0.50	0.10	0.08	0.05	0.03	0.03	0.03	39.60	31.68	19.80	11.88	11.88	11.88	
Totals		636								69.6	61.68	40.2	53.88	77.88	51.48	70.8
Room Effect	10*log (Room Absorption in Sabins)/(Exterior Wall Area)									-1.91	-2.43	-4.29	-3.02	-1.42	-3.22	-1.83

(3) Adjustment Factor

Sound Source Adjustment Factor	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00
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(4) Calculated Interior Noise Reduction (dBA)

	125	250	500	1000	2000	4000	dBA
(Transmission Loss + Room Effects + Adjustment Factor)	16.47	14.09	20.13	28.12	34.48	34.07	
Octave Band Frequency Correction Factors for A-Weighted Sound Levels	16.10	8.60	3.20	0.00	-1.20	-1.00	
A-Weighted Sound Levels	32.57	22.69	23.33	28.12	33.28	33.07	
Noise Reduction (dBA)	32.45	22.57	23.21	27.99	33.16	32.95	30.6

INTERIOR NOISE REDUCTIONS

Project Name: The Bowery

Job Number: 12282

Floor Plan: B2

Analyst: B. Lawson

Room: Bedroom

(1) Transmission Loss Calculations (Exterior Wall)

Exterior Wall Assembly	Source	Wall Area	STC	Transmission Loss (dB) by Frequency (Hz)						Fractional Area S/(10^(TL/10))						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	dB
Stucco	David Harris p. 371	69.0	46	27	42	44	46	49	54	0.1377	0.0044	0.0027	0.0017	0.0009	0.0003	
Windows/Doors		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	ABC	30.0	26	21	17	25	32	37	38	0.2383	0.5986	0.0949	0.0189	0.0060	0.0048	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
										0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Totals		99								0.0038	0.0061	0.0010	0.0002	0.0001	0.0001	
Composite Exterior Wall Sound Transmission Loss 10*LOG(1/t)										24.20	22.15	30.06	36.80	41.60	42.94	38.28

(2) Room Effects (Absorption)

Room Surface/ Material	Source	Area	NRC	Absorption Coefficients by Frequency (Hz)						Absorption (Sabins)						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	
Floor - Carpet	David Harris p. 347	143.0	0.30	0.15	0.17	0.12	0.32	0.52	0.30	21.45	24.31	17.16	45.76	74.36	42.90	
Floor - Vinyl	David Harris p. 347	0.0	0.05	0.02	0.03	0.05	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
Ceiling - Drywall	David Harris p. 348	143.0	0.50	0.10	0.08	0.05	0.03	0.03	0.03	14.30	11.44	7.15	4.29	4.29	4.29	
Walls - Drywall	David Harris p. 348	432.0	0.50	0.10	0.08	0.05	0.03	0.03	0.03	43.20	34.56	21.60	12.96	12.96	12.96	
Totals		718								78.95	70.31	45.91	63.01	91.61	60.15	84.10
Room Effect	10*log (Room Absorption in Sabins)/(Exterior Wall Area)									-0.98	-1.49	-3.34	-1.96	-0.34	-2.16	-0.71

(3) Adjustment Factor

Sound Source Adjustment Factor	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00
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(4) Calculated Interior Noise Reduction (dBA)

	125	250	500	1000	2000	4000	dBA
(Transmission Loss + Room Effects + Adjustment Factor)	17.22	14.67	20.72	28.84	35.26	34.78	
Octave Band Frequency Correction Factors for A-Weighted Sound Levels	16.10	8.60	3.20	0.00	-1.20	-1.00	
A-Weighted Sound Levels	33.32	23.27	23.92	28.84	34.06	33.78	
Noise Reduction (dBA)	33.20	23.14	23.80	28.72	33.93	33.65	31.3

INTERIOR NOISE REDUCTIONS

Project Name: The Bowery

Job Number: 12282

Floor Plan: B5

Analyst: B. Lawson

Room: Bedroom

(1) Transmission Loss Calculations (Exterior Wall)

Exterior Wall Assembly	Source	Wall Area	STC	Transmission Loss (dB) by Frequency (Hz)						Fractional Area S/(10^(TL/10))						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	dB
Stucco	David Harris p. 371	67.5	46	27	42	44	46	49	54	0.1347	0.0043	0.0027	0.0017	0.0008	0.0003	
Windows/Doors		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	ABC	36.0	26	21	17	25	32	37	38	0.2860	0.7183	0.1138	0.0227	0.0072	0.0057	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
										0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Totals		103.5								0.0041	0.0070	0.0011	0.0002	0.0001	0.0001	
Composite Exterior Wall Sound Transmission Loss	10*LOG(1/t)									23.91	21.56	29.49	36.27	41.10	42.39	37.75

(2) Room Effects (Absorption)

Room Surface/ Material	Source	Area	NRC	Absorption Coefficients by Frequency (Hz)						Absorption (Sabins)						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	
Floor - Carpet	David Harris p. 347	138.0	0.30	0.15	0.17	0.12	0.32	0.52	0.30	20.70	23.46	16.56	44.16	71.76	41.40	
Floor - Vinyl	David Harris p. 347	0.0	0.05	0.02	0.03	0.05	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
Ceiling - Drywall	David Harris p. 348	138.0	0.50	0.10	0.08	0.05	0.03	0.03	0.03	13.80	11.04	6.90	4.14	4.14	4.14	
Walls - Drywall	David Harris p. 348	423.0	0.50	0.10	0.08	0.05	0.03	0.03	0.03	42.30	33.84	21.15	12.69	12.69	12.69	
Totals		699								76.8	68.34	44.61	60.99	88.59	58.23	81.14
Room Effect	10*log (Room Absorption in Sabins)/(Exterior Wall Area)									-1.30	-1.80	-3.66	-2.30	-0.68	-2.50	-1.06

(3) Adjustment Factor

Sound Source Adjustment Factor	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00
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(4) Calculated Interior Noise Reduction (dBA)

	125	250	500	1000	2000	4000	dBA
(Transmission Loss + Room Effects + Adjustment Factor)	16.61	13.76	19.83	27.98	34.43	33.89	
Octave Band Frequency Correction Factors for A-Weighted Sound Levels	16.10	8.60	3.20	0.00	-1.20	-1.00	
A-Weighted Sound Levels	32.71	22.36	23.03	27.98	33.23	32.89	
Noise Reduction (dBA)	32.59	22.23	22.90	27.85	33.10	32.76	30.5

INTERIOR NOISE REDUCTIONS

Project Name: The Bowery

Job Number: 12282

Floor Plan: S1

Analyst: B. Lawson

Room: Bedroom

(1) Transmission Loss Calculations (Exterior Wall)

Exterior Wall Assembly	Source	Wall Area	STC	Transmission Loss (dB) by Frequency (Hz)						Fractional Area S/(10^(TL/10))						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	dB
Stucco	David Harris p. 371	69.0	46	27	42	44	46	49	54	0.1377	0.0044	0.0027	0.0017	0.0009	0.0003	
Windows/Doors		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	ABC	30.0	26	21	17	25	32	37	38	0.2383	0.5986	0.0949	0.0189	0.0060	0.0048	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
										0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Totals		99								0.0038	0.0061	0.0010	0.0002	0.0001	0.0001	
Composite Exterior Wall Sound Transmission Loss 10*LOG(1/t)										24.20	22.15	30.06	36.80	41.60	42.94	38.28

(2) Room Effects (Absorption)

Room Surface/ Material	Source	Area	NRC	Absorption Coefficients by Frequency (Hz)						Absorption (Sabins)						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	
Floor - Carpet	David Harris p. 347	136.5	0.30	0.15	0.17	0.12	0.32	0.52	0.30	20.48	23.21	16.38	43.68	71.0	40.95	
Floor - Vinyl	David Harris p. 347	0.0	0.05	0.02	0.03	0.05	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
Ceiling - Drywall	David Harris p. 348	136.5	0.50	0.10	0.08	0.05	0.03	0.03	0.03	13.65	10.92	6.83	4.10	4.10	4.10	
Walls - Drywall	David Harris p. 348	211.5	0.50	0.10	0.08	0.05	0.03	0.03	0.03	21.15	16.92	10.58	6.35	6.35	6.35	
Totals		484.5								55.275	51.045	33.78	54.12	81.42	51.39	73.7
Room Effect	10*log (Room Absorption in Sabins)/(Exterior Wall Area)									-2.53	-2.88	-4.67	-2.62	-0.85	-2.85	-1.28

(3) Adjustment Factor

Sound Source Adjustment Factor	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00
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(4) Calculated Interior Noise Reduction (dBA)

	125	250	500	1000	2000	4000	dBA
(Transmission Loss + Room Effects + Adjustment Factor)	15.67	13.28	19.39	28.18	34.75	34.09	
Octave Band Frequency Correction Factors for A-Weighted Sound Levels	16.10	8.60	3.20	0.00	-1.20	-1.00	
A-Weighted Sound Levels	31.77	21.88	22.59	28.18	33.55	33.09	
Noise Reduction (dBA)	31.65	21.75	22.47	28.06	33.42	32.97	30.4

INTERIOR NOISE REDUCTIONS

Project Name: The Bowery

Job Number: 12282

Floor Plan: S2

Analyst: B. Lawson

Room: Living

(1) Transmission Loss Calculations (Exterior Wall)

Exterior Wall Assembly	Source	Wall Area	STC	Transmission Loss (dB) by Frequency (Hz)						Fractional Area S/(10^(TL/10))						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	dB
Stucco	David Harris p. 371	58.9	46	27	42	44	46	49	54	0.1175	0.0037	0.0023	0.0015	0.0007	0.0002	
Windows/Doors		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	ABC	30.0	26	21	17	25	32	37	38	0.2383	0.5986	0.0949	0.0189	0.0060	0.0048	
	Milgard	24.5	29	19	17	26	33	39	29	0.3084	0.4888	0.0615	0.0123	0.0031	0.0308	
		0.0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
										0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Totals		113.4								0.0059	0.0096	0.0014	0.0003	0.0001	0.0003	
Composite Exterior Wall Sound Transmission Loss	10*LOG(1/t)									22.32	20.17	28.54	35.40	40.63	35.00	35.05

(2) Room Effects (Absorption)

Room Surface/ Material	Source	Area	NRC	Absorption Coefficients by Frequency (Hz)						Absorption (Sabins)						
				125	250	500	1000	2000	4000	125	250	500	1000	2000	4000	
Floor - Carpet	David Harris p. 347	214.2	0.30	0.15	0.17	0.12	0.32	0.52	0.30	32.13	36.41	25.70	68.54	111.38	64.26	
Floor - Vinyl	David Harris p. 347	0.0	0.05	0.02	0.03	0.05	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	
Ceiling - Drywall	David Harris p. 348	214.2	0.50	0.10	0.08	0.05	0.03	0.03	0.03	21.42	17.14	10.71	6.43	6.43	6.43	
Walls - Drywall	David Harris p. 348	532.8	0.50	0.10	0.08	0.05	0.03	0.03	0.03	53.28	42.62	26.64	15.98	15.98	15.98	
Totals		961.2								106.83	96.174	63.054	90.954	133.79	86.67	126.02
Room Effect	10*log (Room Absorption in Sabins)/(Exterior Wall Area)									-0.26	-0.72	-2.55	-0.96	0.72	-1.17	0.46

(3) Adjustment Factor

Sound Source Adjustment Factor	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00
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(4) Calculated Interior Noise Reduction (dBA)

	125	250	500	1000	2000	4000	dBA
(Transmission Loss + Room Effects + Adjustment Factor)	16.06	13.45	19.99	28.44	35.35	27.84	
Octave Band Frequency Correction Factors for A-Weighted Sound Levels	16.10	8.60	3.20	0.00	-1.20	-1.00	
A-Weighted Sound Levels	32.16	22.05	23.19	28.44	34.15	26.84	
Noise Reduction (dBA)	32.04	21.93	23.06	28.32	34.02	26.71	29.7