

AutoNation

NOISE IMPACT ANALYSIS CITY OF NEWPORT BEACH

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09831-08 Noise Study



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LIST OF ABBREVIATED TERMS

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



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EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed AutoNation development ("Project"). The Project site is located at 320 to 600 West Coast Highway in the City of Newport Beach. The proposed Project consists of the development of up to 37,954 square feet of automobile sales land use in a single, three-story building. This noise impact analysis was prepared to satisfy the City of Newport Beach noise level standards and ensure that adequate noise mitigation measures are incorporated into the Project's development.

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the proposed Project will influence the traffic noise levels in surrounding offsite areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 17 roadway segments surrounding the Project site were estimated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in the *AutoNation Traffic Impact Analysis* prepared by Kunzman Associates, Inc.. (1) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing, Traffic Phasing Ordinance (TPO) Year 2019, and Cumulative Year 2019 conditions for both the with and without Project traffic conditions. The off-site traffic noise analysis shows that the Project noise level contributions will be *less than significant* under all of the with Project conditions.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the potential noise sources within the AutoNation site, this analysis estimates the Project-related operational (stationary-source) noise levels at the nearby noise-sensitive receiver locations. The Project-related operational noise sources are expected to include: service bay activities, car wash/detailing, car horns, car transport deliveries, parking lot car movements, car alarms, roll-up doors, and roof-top mechanical ventilation equipment.

The analysis shows that the Project-related operational noise levels will satisfy the City of Newport Beach exterior noise level standards at the off-site receiver locations in the Project study area. Further, this analysis demonstrates that the Project will not contribute an operational noise level impact to the existing ambient noise environment at any of the nearby sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the service bay activities, car wash/detailing, car horns, car transport deliveries, parking lot car movements, car alarms, roll-up doors, and roof-top mechanical ventilation equipment will be *less than significant*.

To further reduce the noise levels experienced by the nearby sensitive receiver locations, the use of car horns as a warning device shall be restricted. Substitute warning devices that do not rely



on audible warnings such as convex circular mirrors or other signaling devices shall be used at any on-site locations with sight distance limitations (blind corners).

CONSTRUCTION NOISE AND VIBRATION ANALYSIS

Construction noise represents a short-term increase on the ambient noise levels. Constructionrelated noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site. Using sample reference noise levels to represent the planned construction activities of the AutoNation site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Construction activities are regulated in the City of Newport Beach Municipal Code, Sections 10.26.035 (D) and (E), which indicate construction activities are considered exempt from the noise level standards if they occur between the permitted hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and on Saturdays between 8:00 a.m. and 6:00 p.m. (2) Therefore, if construction activities occur within the permitted hours of the Municipal Code, Project construction noise levels will be exempt from the noise ordinance standards, and the construction noise level impacts are considered *less than significant*. The construction noise analysis presents a conservative, worstcase approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from the center of construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will actually be experienced at each receiver location.

To describe the potential effects of Project-related construction noise levels, the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH) identifies an acceptable noise exposure level for construction workers over an 8-hour period. (3) For the purposes of this report, the NIOSH construction noise exposure level of 85 dBA Leq is used to describe the construction noise at the nearby sensitive receiver locations in relation to human health (i.e. hearing conservation, etc.) and not as a threshold of significance. Since the NIOSH construction-related noise level represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. The Project-related short-term construction noise levels are expected to approach 72.3 dBA Leq and will not exceed the 85 dBA Leq noise exposure level at all receiver locations. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (4)

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. Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 87 VdB at a distance of 25 feet. At distances ranging from 63 to 273 feet from the Project construction activities, construction vibration velocity levels are expected to approach 75.0 VdB. Based on the FTA vibration standards, the proposed Project site will not include or require equipment, facilities, or

activities that would result in a *barely perceptible* human response (annoyance) for infrequent events. Therefore, the vibration levels due to Project construction are considered *less than significant* impacts.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating close to the Project site perimeter. Moreover, construction at the Project site will be restricted to daytime hours consistent with City requirements thereby eliminating potential vibration impacts during the sensitive nighttime hours.

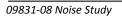
CONSTRUCTION NOISE AND VIBRATION ABATEMENT MEASURES

Though construction noise is temporary, intermittent and of short duration, and will not present any long-term impacts, the following mitigation measures would reduce any noise level increases produced by the construction equipment to the nearby noise-sensitive residential land uses.

- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and 8:00 a.m. to 6:00 p.m. on Saturdays, with no activity allowed on Sundays or national holidays (City of Newport Beach Municipal Code, Section 10.28.040). The Project construction supervisor shall ensure compliance with the note and the City shall conduct periodic inspection at its discretion.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site (i.e., to the center) during all Project construction.
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and 8:00 a.m. to 6:00 p.m. on Saturdays, with no activity allowed on Sundays or national holidays). The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

SUMMARY OF SIGNIFICANCE FINDINGS

The results of this AutoNation Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise impact before and after any needed mitigation measures.





Analysia	Report	Significance			
Analysis	Section	Without Mitigation	With Mitigation		
Off-Site Traffic Noise	7	Less than significant	n/a		
Operational Noise	9	Less than significant	n/a		
Construction Noise		Less than significant	n/a		
Construction Vibration	10	Less than significant	n/a		

TABLE ES-1: NOISE & VIBRATION IMPACT SIGNIFICANCE SUMMARY

"n/a" = No mitigation required since the impact will be less than significant.



1 INTRODUCTION

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

1.1 SITE LOCATION

The proposed AutoNation Project is located at 320 to 600 West Coast Highway in the City of Newport Beach, as shown on Exhibit 1-A. Existing residential land uses are located south of the Project site across West Coast Highway and north of the Project site on Kings Road at elevations roughly 50 to 60 feet higher than the proposed finished floor elevation and approximately 20 to 30 feet higher than the proposed roof elevation of the Project building. West of the Project site there is an existing McDonald's fast food restaurant, and east of the Project site lies existing commercial land uses.

1.2 PROJECT DESCRIPTION

The proposed Project consists of the development of up to 37,954 square feet of automobile sales land use in a single, three-story building, as shown on Exhibits 1-B, 1-C, and 1-D for each floor, respectively. The proposed Opening Year for the Project is 2018. Project-related stationary-source (operational) noise would be generated by the proposed land uses at the Project site. The on-site Project-related noise sources are expected to include: service bay activities, car wash/detailing, car horns, car transport deliveries, parking lot car movements, car alarms, roll-up doors, and roof-top mechanical ventilation equipment. The Project cross-sections indicate the neighboring residential homes located on the Kings Road will not have a direct line of sight to the majority of the Project-related noise source activities.

Pursuant to the Circulation Element of the City of Newport Beach General Plan, the Newport Beach Municipal Code, and the Master Plan of Arterial Highways (MPAH), the applicant is required to dedicate the southerly 12 feet of the Project site for streets and highway purposes to facilitate the widening of Coast Highway. The City is requiring the applicant to construct new street improvements including pavement, curb and gutter, sidewalk, drive approaches, and an additional northbound travel lane across the frontage of the Project site. The Project includes a 170-foot long median in West Coast Highway which is included in the construction noise analysis of this report.



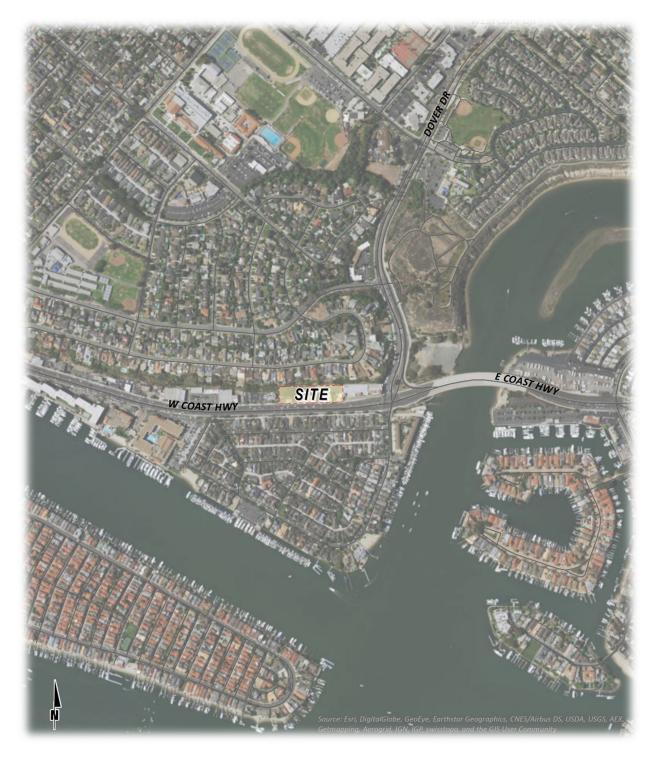


EXHIBIT 1-A: LOCATION MAP





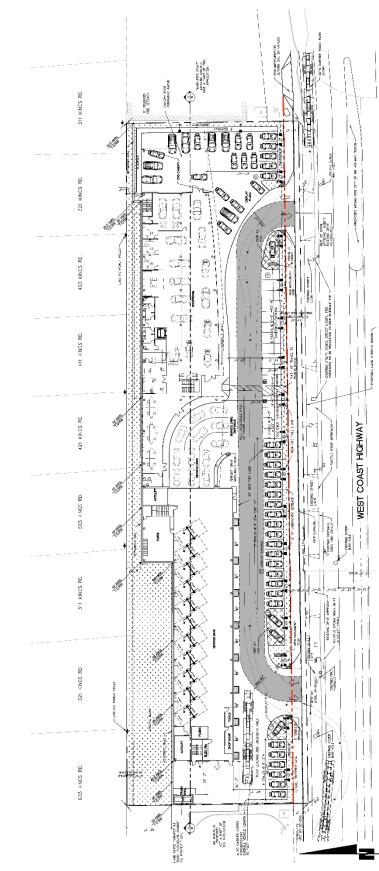
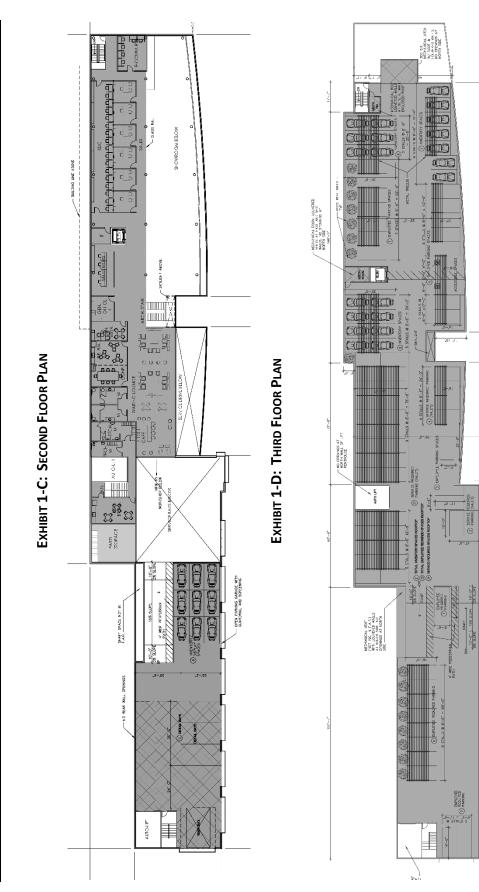


EXHIBIT 1-B: FIRST FLOOR PLAN



09831-08 Noise Study

1, 15% 3.0PK 10^{1−0^{−1}}

SX SLOPE

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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.

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE	
THRESHOLD OF PAIN		140			
NEAR JET ENGINE		130	INTOLERABLE OR		
		120	DEAFENING	HEARING LOSS	
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110			
LOUD AUTO HORN		100			
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	
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		DISTURBANCE	
QUIET SUBURBAN NIGHTTIME	LIBRARY	30			
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20	FAINT		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	NO EFFECT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0	VENT FAINT		

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (5) 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. (6) 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 (Leq). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

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

While sound pressure levels (e.g. Leq) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source, and also diminish as a result of intervening obstacles and barriers, air absorption, wind and other factors. Sound power is the acoustical energy emitted by the sound source, and is an absolute value that is not affected by the environment.

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined



path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor 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 receptor, 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 receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source.

2.3.3 ATMOSPHERIC EFFECTS

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

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for a particular observation point or receptor by controlling the noise source, transmission path, receptor, or all



three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to any and all of these three elements.

2.5 Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. 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. (7)

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. (8)

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 each individual'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. (9) 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. (9)

Despite this variability in behavior on an individual level, the population as a whole can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory



experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (7)

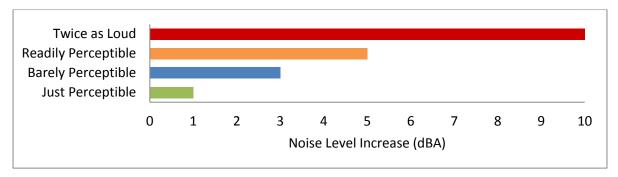


EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION

2.8 VIBRATION

According to the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (10), 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 groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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.

Human/Structural Response		Veloci Level	-	Typical Sources (50 ft from source)
Threshold, minor cosmetic damage fragile buildings	-	100	-	Blasting from construction projects
Difficulty with tasks such as reading a VDT screen	→	90	•	Bulldozers and other heavy tracked construction equipment
			-	Commuter rail, upper range
Residential annoyance, infrequent events (e.g. commuter rail)	→	80	•	Rapid transit, upper range
			-	Commuter rail, typical
Residential annoyance, frequent events (e.g. rapid transit)		70	÷	Bus or truck over bump Rapid transit, typical
Limit for vibration sensitive equipment. Approx. threshold for human perception of vibration		60	-	Bus or truck, typical
		50	←	Typical background vibration
		50	•	Typical background vibrati

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.



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 fairly 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 according to guidelines adopted by the Governor's Office of Planning and Research. (11) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including the potential environmental noise impacts.

3.2 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The 2014 State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507on Environmental Comfort. (12) 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 non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA Leq for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).



3.3 CITY OF NEWPORT BEACH GENERAL PLAN NOISE ELEMENT

The City of Newport Beach has adopted a Noise Element of the General Plan to include *noise control in the planning process in order to maintain compatible land use with environmental noise levels.* (13) The General Plan Noise Element identifies the following goals related to noise:

- **N1** Noise Compatibility Minimized Land use conflicts between various noise sources and other human activities.
- **N2** Minimized motor vehicle traffic and boat noise impacts on sensitive noise receptors.
- **N3** Protection of Newport Beach residents from the adverse noise impacts of commercial air carrier operations at John Wayne Airport as provided in the City Council Airport Policy.
- **N4** *Minimization of Non-Transportation-Related Noise – Minimized non-transportationrelated noise impacts on sensitive noise receptors.*
- **N 5** Minimized excessive construction-related noise.

3.3.1 LAND USE COMPATIBILITY

The policies included in the General Plan Noise Element consider land use compatibility and identify exterior noise level compatibility standards for transportation-related noise. The *Land Use Noise Compatibility Matrix*, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

According to the City's Land Use Noise Compatibility Matrix, noise-sensitive land use, such as residential, is *clearly compatible* with exterior noise levels below 60 dBA CNEL and *normally compatible* with noise levels below 65 dBA CNEL. Commercial auto dealership land use, such as the Project, is considered *clearly acceptable* with exterior noise levels below 70 dBA CNEL and *normally compatible* with exterior noise levels up to or greater than 80 dBA CNEL. Based on these guidelines, an exterior noise level of 65 dBA CNEL is generally considered the maximum exterior noise level for noise-sensitive receivers.

	Land Use Categories	Comr	nunity	Noise	Equivo	alent L	evel (ÇNEL)
C de maine		<55	55-60	60-65	65-70	70-75	75-80	>80
Categories Residential	Uses Single Family, Two Family, Multiple Family	A	A	B	С	C	D	D
Residential	Mixed Use	A	A	A	C	C	C	D
Residential	Mobile Home	A	A	В	C	C	D	D
Commercial Regional, District	Hotel, Motel, Transient Lodging	A	А	В	В	С	С	D
Commercial Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	В	В	с
Commercial Industrial Institutional	Office Building, Research and Development, Professional Offices, City Office Building	А	А	Α	В	В	С	D
Commercial Recreational Institutional Civic Center	Amphitheatre, Concert Hall Auditorium, Meeting Hall	В	В	С	С	D	D	D
Commercial Recreation	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	Α	A	В	В	D	D
Commercial General, Special Industrial, Institutional	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	В	В	В
Institutional	Hospital, Church, Library, Schools' Classroom	A	Α	В	С	С	D	D
Open Space	Parks	A	Α	Α	В	С	D	D
Open Space	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Habitat	A	Α	A	A	В	С	с
Agriculture	Agriculture	A	Α	A	Α	A	A	A

SOURCE: Newport Beach, 2006

Zone A: Clearly Compatible—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Zone B: Normally Compatible**—New construction or development should be undertaken only after detailed analysis of the noise reduction requirements and are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Zone C: Normally Incompatible—New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

Zone D: Clearly Incompatible—New construction or development should generally not be undertaken.

Source: City of Newport Beach General Plan Noise Element, Table N2.



3.4 CITY OF NEWPORT BEACH MUNICIPAL CODE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the AutoNation Project, stationary-source noise such as the expected service bay activities, car wash/detailing, car horns, car transport deliveries, parking lot car movements, car alarms, rollup doors, and roof-top mechanical ventilation equipment, and noise from construction activities are typically evaluated against standards established under the City's Municipal Code.

3.4.1 OPERATIONAL NOISE STANDARDS

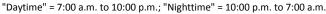
The City of Newport Beach Municipal Code, Chapter10.26 Community Noise Control, establishes the permissible exterior noise levels that may intrude into a neighboring property. According to Section 10.26.025(A) the exterior noise level at single-family residential land uses (Noise Zone 1) shall not exceed 55 dBA Leq during the daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA Leq during the nighttime hours (10:00 p.m. to 7:00 a.m.). (2) However, Section 10.26.025(C) states that if the existing ambient noise level exceeds the base noise level standards, the ambient shall be the standard. Since the lowest measured daytime ambient noise level of 58 dBA Leg at the nearby sensitive receiver locations, provided in Section 5 of this report, exceeds the daytime noise level standard of 55 dBA Leg, the base noise level standard is adjusted to the ambient noise level of 58 dBA Leq during the daytime hours, as shown on Table 3-1. For the purposes of this noise study, the Project-related operational noise levels shall not exceed the daytime ambient noise level standard of 58 dBA Leq, and the nighttime noise level standard of 50 dBA Leq. The City of Newport Beach Municipal Code, Chapter10.26 Community Noise Control, is included in Appendix 3.1.

City	Land Use	Time Period	Base Exterior Noise Level Standards (dBA Leq) ²	Exterior Noise Level Standards Based on Lowest Ambient Noise Levels (dBA Leq) ³
Newport	Residential (Noise Zone I)	Daytime	55	58
Beach ¹		Nighttime	50	50

	TABLE 3-1:	OPERATIONAL	NOISE	STANDARDS
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¹ Source: City of Newport Beach Municipal Code, Section 10.26.025 (Appendix 3.1).

² Leg represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. ³ Based on Section 10.26.025 (A) of the City of Newport Beach Municipal Code, when the ambient noise level exceeds the noise level standard, the ambient shall be the standard. Therefore, the lowest daytime ambient noise level measured at location L1, shown on Exhibit 5-A, is used to establish the daytime exterior noise level standard. The lowest nighttime ambient noise level at L1 does not exceed the 50 dBA Leg nighttime exterior noise level standard. See Table 5-1 and Appendix 5-2.





3.4.2 CONSTRUCTION NOISE STANDARDS

The City of Newport Beach has set restrictions to control noise impacts associated with the construction of the proposed Project. According to the City of Newport Beach Municipal Code Section 10.28.040, construction activities are considered exempt from the noise standards of the noise ordinance if limited to the hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and 8:00 a.m. to 6:00 p.m. on Saturdays, with no activity allowed on Sundays or national holidays. (14) Therefore, if construction activities occur within the permitted hours of the Municipal Code, Project construction noise levels are considered exempt from the noise ordinance standards. Table 3-2 shows the construction noise standards of the City of Newport Beach Municipal Code.

City	Permitted Hours of Construction Activity	
Newport Beach ¹	7:00 a.m. to 6:30 p.m. Mondays to Fridays; 8:00 a.m. to 6:00 p.m. on Saturdays; no activity on Sundays or national holidays	

TABLE 3-2: CONSTRUCTION NOISE STANDARDS

¹ Source: City of Newport Beach Municipal Code, Section 10.28.040 (Appendix 3.1).

3.4.3 CONSTRUCTION-RELATED HEARING CONSERVATION

The Occupational Safety and Health Administration (OSHA) requires hearing protection be provided by employers in workplaces where the noise levels may, over long periods of exposure to high noise levels, endanger the hearing of their employees. Standard 29 CFR, Part 1910 indicates the noise levels under which a hearing conservation program is required to be provided to workers exposed to high noise levels. (15) This analysis does not evaluate the noise exposure of construction workers within the Project site based on CEQA requirements, and instead, evaluates the Project-related construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (4)

To describe the potential effects of Project-related construction noise levels, the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH) identifies an acceptable noise exposure level for construction workers over an 8-hour period. (3) For the purposes of this report, the NIOSH construction noise level of 85 dBA Leq is used to describe the construction noise at the nearby sensitive receiver locations in relation to human health (i.e. hearing conservation, etc.). Since the NIOSH construction-related noise level represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. Therefore, the noise level of 85 dBA Leq over a period of eight hours or more is used for comparison purposes with the potential Project-related construction noise levels at the nearby sensitive receiver locations.



3.5 CONSTRUCTION VIBRATION STANDARDS

The City of Newport Beach has not identified or adopted vibration standards. However, the United States Department of Transportation Federal Transit Administration (FTA) provides guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines allow 80 VdB for residential uses and buildings where people normally sleep. (10)

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity. While not enforceable regulations within the City of Newport Beach, the FTA guidelines of 80 VdB for sensitive land uses provide the basis for determining the relative significance of potential Project-related vibration impacts.



4 SIGNIFICANCE CRITERIA

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

- A. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- B. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
- C. A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project; or
- D. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.
- E. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.
- F. For a project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

While the CEQA Guidelines and the City of Newport Beach 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 under CEQA Guideline A, they do not define the levels at which increases are considered substantial for use under Guidelines B, C, and D. CEQA Guidelines E and F apply to nearby public and private airports, however, the Project site is not located within two miles of a public airport or the vicinity of a private airstrip. Therefore, the potential impacts under CEQA guidelines E and F are considered to be *less than significant*, and are not further analyzed in this noise study.

Under CEQA Guidelines C and D, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers in order 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*. (16) Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. With this in mind, the Federal Interagency Committee on Noise (FICON) developed guidance to be used for the assessment of project-



generated increases in noise levels that take into account the ambient noise level. (17) 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).

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 even though the noise criteria might not be exceeded. Therefore, for the purpose of this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project related noise level increase is considered a significant impact when nearby noise-sensitive receivers are affected. According to 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 noise-sensitive receivers are affected, 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.

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	

 TABLE 4-1:
 SIGNIFICANCE OF NOISE LEVEL INCREASES

Source: Federal Interagency Committee on Noise (FICON), 1992.

Based on the significance of noise impacts outlined below on Table 4-2, noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development:

OFF-SITE TRAFFIC NOISE

- If the off-site traffic noise levels at nearby noise-sensitive land uses adjacent to roadways conveying Project traffic:
 - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
 - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
 - already exceed 65 dBA CNEL, and the Project creates a community noise level impact of greater than 1.5 dBA CNEL (FICON, 1992.).



OPERATIONAL NOISE

- If Project-related operational (stationary source) noise levels exceed the exterior daytime 58 dBA Leq and nighttime 50 dBA Leq noise level standards at adjacent land uses in the City of Newport Beach (City of Newport Beach Municipal Code, Section 10.26.025).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
 - are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Projectrelated noise level increase; or
 - range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase; or
 - already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities occur at any time other than the permitted hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and 8:00 a.m. to 6:00 p.m. on Saturdays, with no activity allowed on Sundays or national holidays (City of Newport Beach Municipal Code, Section 10.28.040).
- If short-term Project generated construction vibration levels exceed the FTA acceptable vibration standard of 80 VdB at sensitive receiver locations (FTA Transit Noise and Vibration Impact Assessment).

Analysis	Condition(c)	Significance Criteria		
	Condition(s)	Daytime	Nighttime	
Off-Site Traffic Noise ¹	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase		
	if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase		
	if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase		
Operational Noise ²	Exterior Noise Level Standards	58 dBA Leq	50 dBA Leq	
Construction Noise & Vibration	7:00 a.m. to 6:30 p.m. Mondays to Fridays; 8:00 a.m. to 6:00 p.m. on Saturdays; no activity on Sundays or national holidays. ³			
	Noise Level Threshold ³	n/a	No Nighttime Activity	
	Vibration Level Threshold ⁴	80 VdB	No Nighttime Activity	

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

¹ Source: FICON, 1992.

² Source: City of Newport Beach Municipal Code, Section 10.26.025 (Appendix 3.1).

³ Source: City of Newport Beach Municipal Code, Section 10.28.040 (Appendix 3.1).

⁴ Source: U.S. Department of Transportation Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.; "n/a" = Construction noise levels are exempt from the Municipal Code if activities occur within the permitted hours.





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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, five 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. The locations were selected based on actual conditions in the field and our ability to locate the noise meter to accurately reflect the ambient noise environment. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, June 8th, 2016. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (18)

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. To describe the existing noise environment, 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. 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 the potential Project-related noise level contributions.



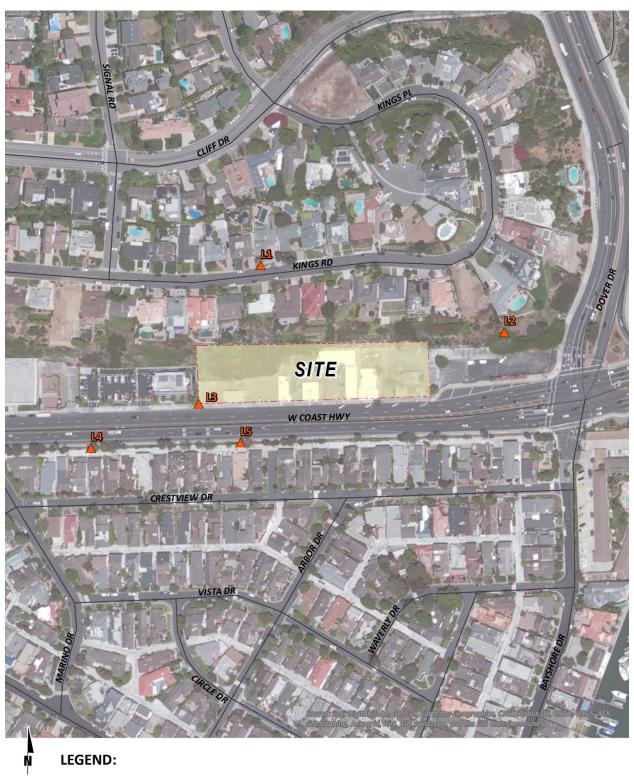


EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

A Noise Measurement Locations



5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (Leq). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. 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 north of the Project site on Kings Road adjacent to existing
 residential homes. The noise level measurements collected show an overall 24-hour exterior
 noise level of 57.8 dBA CNEL. The hourly noise levels measured at location L1 ranged from 55.0
 to 61.0 dBA Leq during the daytime hours and from 38.5 to 52.1 dBA Leq during the nighttime
 hours. The energy (logarithmic) average daytime noise level was calculated at 57.8 dBA Leq with
 an average nighttime noise level of 45.6 dBA Leq.
- Location L2 represents the noise levels on the hillside between the Project site and residential homes on Kings Road. The noise level measurements collected show an overall 24-hour exterior noise level of 61.6 dBA CNEL. The hourly noise levels measured at location L2 ranged from 56.1 to 60.7 dBA Leq during the daytime hours and from 45.4 to 58.0 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 59.3 dBA Leq with an average nighttime noise level of 52.7 dBA Leq.
- Location L3 represents the noise levels at the southwest corner of the Project site on West Coast Highway. The 24-hour CNEL indicates that the overall exterior noise level is 76.8 dBA CNEL. At location L3 the background ambient noise levels ranged from 71.3 to 75.1 dBA Leq during the daytime hours to levels of 59.2 to 72.6 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 73.2 dBA Leq with an average nighttime noise level of 69.0 dBA Leq.
- Location L4 represents the noise levels adjacent to an existing 8-foot high wall for the Bayshore residential community south of the Project site. The noise level measurements collected show an overall 24-hour exterior noise level of 75.8 dBA CNEL. The hourly noise levels measured at location L4 ranged from 70.6 to 75.5 dBA Leq during the daytime hours and from 59.5 to 73.0 dBA Leq during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 73.3 dBA Leq with an average nighttime noise level of 67.6 dBA Leq.
- Location L5 represents the noise levels adjacent to an existing 8-foot high wall for the Bayshore
 residential community south of the Project site. The 24-hour CNEL indicates that the overall
 exterior noise level is 80.5 dBA CNEL. At location L5 the background ambient noise levels ranged
 from 75.6 to 79.3 dBA Leq during the daytime hours to levels of 64.5 to 77.7 dBA Leq during the
 nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 77.7 dBA
 Leq with an average nighttime noise level of 72.3 dBA Leq.

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, L₁, L₂, L₅, L₈, L₂₅, L₅₀, L₉₀, L₉₅, and L₉₉ percentile noise levels observed during the daytime and nighttime periods.



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

Location ¹	Distance To Project	Description	Energy Average Hourly Noise Level (dBA Leq) ²		CNEL
Boundary		Daytime	Nighttime		
L1	195'	Located north of the Project site on Kings Road adjacent to existing residential homes.	57.8	45.6	57.8
L2	220'	Located on the hillside between the Project site and residential homes on Kings Road.	59.3	52.7	61.6
L3	0'	Located at the southwest corner of the Project site on West Coast Highway.	73.2	69.0	76.8
L4	290'	Located adjacent to an existing 8-foot high wall for the Bayshore residential community south of the Project site.	73.3	67.6	75.8
L5	100'	Located adjacent to an existing 8-foot high wall for the Bayshore residential community south of the Project site.	77.7	72.3	80.5

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

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

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



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

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts on roadway segments in the Project study area. Table 6-1 identifies the 17 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications according to the City of Newport Beach General Plan Circulation Element, and the posted vehicle speeds. Soft site conditions are used to analyze the traffic noise impacts within the Project study area to account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this off-site traffic noise analysis. (21)

The Existing, Traffic Phasing Ordinance (TPO) Year 2019, and Cumulative Year 2019 average daily traffic volumes used for this study are presented on Table 6-2 and were provided by the *AutoNation Traffic Impact Analysis* prepared by Kunzman Associates, Inc. (1) Table 6-3 presents the time of day vehicle splits by vehicle type, and Table 6-4 presents the total traffic flow distributions (vehicle mixes) used in this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model based on roadway types.

ID	Roadway	Segment	Adjacent Land Use ¹	Distance from Centerline to Nearest Adjacent Land Use (Feet) ²	Posted Speed Limit (mph) ³
1	Newport Bl.	n/o West Coast Hwy.	Residential	64'	45
2	Irvine Av.	n/o 19th St.	Residential	52'	40
3	Dover Dr.	n/o Westcliff Dr.	Residential	28'	45
4	Dover Dr.	s/o Westcliff Dr.	Residential	52'	45
5	Dover Dr.	s/o 16th St.	Residential	52'	45
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	64'	55
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	64'	55
8	17th St.	w/o Irvine Av.	Residential	52'	35
9	Westcliff Dr.	e/o Irvine Av.	Commercial	52'	35
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	64'	45
11	West Coast Hwy.	e/o Newport Bl.	Commercial	64'	40
12	West Coast Hwy.	e/o Tustin Av.	Commercial	64'	40
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	72'	40
14	West Coast Hwy.	e/o Bayside Dr.	Residential	72'	50
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	64'	50
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	64'	50
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	52'	35

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

¹ Source: City of Newport Beach General Plan, Figure LU-1.

² Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the City of Newport Beach Circulation Element.

³ Posted speed limits.

				Avera	age Daily T	raffic (1,0	00's) ¹	
ID	Roadway	Sogmont	Existing		TPO 2019		Cumulative 2019	
	Roddway	Segment	Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Newport Bl.	n/o West Coast Hwy.	9.8	9.9	10.6	10.7	10.7	10.8
2	Irvine Av.	n/o 19th St.	14.7	14.7	15.4	15.5	15.4	15.5
3	Dover Dr.	n/o Westcliff Dr.	4.7	4.7	4.9	5.0	4.9	5.0
4	Dover Dr.	s/o Westcliff Dr.	11.8	11.9	12.3	12.3	12.6	12.6
5	Dover Dr.	s/o 16th St.	13.4	13.4	14.2	14.2	14.4	14.5
6	Jamboree Rd.	n/o East Coast Hwy.	16.3	16.4	17.8	17.9	19.4	19.5
7	MacArthur Bl.	n/o East Coast Hwy.	10.5	10.6	10.9	10.9	12.1	12.2
8	17th St.	w/o Irvine Av.	10.2	10.2	10.7	10.7	11.8	11.8
9	Westcliff Dr.	e/o Irvine Av.	8.5	8.5	9.1	9.1	10.2	10.3
10	West Coast Hwy.	w/o Newport Bl.	13.3	13.4	14.8	14.9	16.9	16.9
11	West Coast Hwy.	e/o Newport Bl.	26.0	26.0	27.4	27.4	29.2	29.2
12	West Coast Hwy.	e/o Tustin Av.	25.8	25.9	28.2	28.3	29.8	29.9
13	West Coast Hwy.	e/o Dover Dr.	32.3	32.4	35.2	35.4	37.1	37.2
14	West Coast Hwy.	e/o Bayside Dr.	28.6	28.8	30.8	30.9	32.6	32.8
15	East Coast Hwy.	e/o Jamboree Rd.	20.5	20.5	22.0	22.2	24.5	24.6
16	East Coast Hwy.	w/o MacArthur Bl.	14.9	15.0	15.7	15.7	19.2	19.4
17	East Coast Hwy.	e/o MacArthur Bl.	15.5	15.5	16.1	16.2	19.4	19.5

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

¹ Source: AutoNation Porsche Dealership Traffic Impact Analysis, prepared by Kunzman Associates, Inc., June 2016.

"TPO" = Traffic Phasing Ordinance

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Time Period		Vehicle Type	
Time Period	Autos	Medium Trucks	Heavy Trucks
Daytime (7:00 a.m 7:00 p.m.)	77.5%	84.8%	86.5%
Evening (7:00 p.m 10:00 p.m.)	12.9%	4.9%	2.7%
Nighttime (10:00 p.m 7:00 a.m.)	9.6%	10.3%	10.8%
Total:	100.0%	100.0%	100.0%

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

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

6.3 VIBRATION ASSESSMENT

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

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation (10): $L_{VdB}(D) = L_{VdB}(25 \text{ ft}) - 30\log(D/25)$

Equipment	Vibration Decibels (VdB) at 25 feet
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large bulldozer	87

TABLE 6-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.



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 *AutoNation Traffic Impact Analysis*. (1) 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:

- <u>Existing Without / With Project Conditions</u>: This scenario refers to the existing present-day noise conditions, without and with buildout of the proposed Project.
- <u>Traffic Phasing Ordinance (TPO) Year 2019 Without / With Project Conditions</u>: This scenario refers to the background noise conditions at future TPO Year 2019 without and with the proposed Project. This scenario corresponds to Year 2019 conditions, and includes all cumulative projects identified in the Traffic Impact Analysis.
- <u>Cumulative Year 2019 Without / With Project</u>: This scenario refers to the background noise conditions at Cumulative Year 2019 without and with the proposed Project. This scenario corresponds to Year 2019 conditions, and includes all cumulative projects identified in the Traffic Impact Analysis.

7.1 TRAFFIC NOISE CONTOURS

To quantify the Project's traffic noise impacts on the surrounding areas, the changes in traffic noise levels on 17 roadway segments surrounding the Project were calculated based on the changes in the average daily traffic volumes. The noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. Based on the noise impact significance criteria described in Section 4, a significant off-site traffic noise level impact occurs if the without Project noise levels at nearby noise-sensitive receivers:

- are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase, or:
- range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase, or;
- already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA.

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 take into account the effect of any existing noise barriers or topography that may affect ambient noise levels. In addition, since the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contribution from any surrounding stationary noise sources within the Project study area. Tables 7-1 to 7-6 present a summary of the unmitigated exterior traffic noise levels for the 17 study area roadway segments analyzed from the without Project to the with Project conditions in each of the three timeframes: Existing, TPO



Year 2019, and Cumulative Year 2019 conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the six traffic scenarios.

ID	Road	Segment	Adjacent	CNEL at Nearest Adjacent		nce to Co n Center (Feet) ²	
	Noau	Jegment	Land Use ¹	Land Use (dBA)	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.0	RW	75	161
2	Irvine Av.	n/o 19th St.	Residential	67.4	RW	75	161
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.0	RW	38	82
4	Dover Dr.	s/o Westcliff Dr.	Residential	67.7	RW	79	169
5	Dover Dr.	s/o 16th St.	Residential	68.2	RW	85	184
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	70.4	68	147	316
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	68.5	RW	109	236
8	17th St.	w/o Irvine Av.	Residential	64.4	RW	RW	102
9	Westcliff Dr.	e/o Irvine Av.	Commercial	63.6	RW	RW	90
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	67.3	RW	91	197
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.0	RW	117	253
12	West Coast Hwy.	e/o Tustin Av.	Commercial	68.9	RW	117	252
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	69.8	RW	151	325
14	West Coast Hwy.	e/o Bayside Dr.	Residential	71.7	93	201	434
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	70.3	67	145	313
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	69.0	RW	118	253
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	66.2	RW	62	134

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

¹ Source: City of Newport Beach General Plan, Figure LU-1.

 $^{\rm 2}$ "RW" = Location of the respective noise contour falls within the right-of-way of the road.



ID	Road	Segment	Adjacent	CNEL at Nearest Adjacent	Distance to Contour from Centerline (Feet) ²		
	Noau	Jegment	Land Use ¹	Land Use (dBA)	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.0	RW	75	162
2	Irvine Av.	n/o 19th St.	Residential	67.4	RW	75	161
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.0	RW	38	82
4	Dover Dr.	s/o Westcliff Dr.	Residential	67.7	RW	79	170
5	Dover Dr.	s/o 16th St.	Residential	68.2	RW	85	184
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	70.4	68	147	317
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	68.5	RW	110	237
8	17th St.	w/o Irvine Av.	Residential	64.4	RW	RW	102
9	Westcliff Dr.	e/o Irvine Av.	Commercial	63.6	RW	RW	90
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	67.3	RW	92	198
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.0	RW	117	253
12	West Coast Hwy.	e/o Tustin Av.	Commercial	68.9	RW	117	252
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	69.8	RW	151	325
14	West Coast Hwy.	e/o Bayside Dr.	Residential	71.7	94	202	436
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	70.3	67	145	313
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	69.0	RW	118	254
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	66.2	RW	62	134

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

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



ID	Road	Segment	Adjacent	CNEL at Nearest Adjacent	Distance to Contour from Centerline (Feet) ²		
	Noau	Jegment	Land Use ¹	Land Use (dBA)	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.3	RW	79	169
2	Irvine Av.	n/o 19th St.	Residential	67.6	RW	77	166
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.2	RW	39	85
4	Dover Dr.	s/o Westcliff Dr.	Residential	67.9	RW	81	174
5	Dover Dr.	s/o 16th St.	Residential	68.5	RW	89	191
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	70.8	72	155	335
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	68.7	RW	112	242
8	17th St.	w/o Irvine Av.	Residential	64.6	RW	RW	105
9	Westcliff Dr.	e/o Irvine Av.	Commercial	63.9	RW	RW	94
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	67.8	RW	98	211
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.2	RW	122	262
12	West Coast Hwy.	e/o Tustin Av.	Commercial	69.3	RW	124	267
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	70.2	74	160	344
14	West Coast Hwy.	e/o Bayside Dr.	Residential	72.0	98	212	456
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	70.7	71	152	328
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	69.2	RW	122	262
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	66.3	RW	64	138

TABLE 7-3: TPO YEAR 2019 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

² "RW" = Location of the respective noise contour falls within the right-of-way of the road.



ID	Road	Segment	Adjacent	CNEL at Nearest Adjacent	Distance to Contour from Centerline (Feet) ²		
טו	Noau	Segment	Land Use ¹	Land Use (dBA)	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.4	RW	79	170
2	Irvine Av.	n/o 19th St.	Residential	67.6	RW	77	167
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.3	RW	40	86
4	Dover Dr.	s/o Westcliff Dr.	Residential	67.9	RW	81	174
5	Dover Dr.	s/o 16th St.	Residential	68.5	RW	89	191
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	70.8	72	156	336
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	68.7	RW	112	242
8	17th St.	w/o Irvine Av.	Residential	64.6	RW	RW	105
9	Westcliff Dr.	e/o Irvine Av.	Commercial	63.9	RW	RW	94
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	67.8	RW	99	212
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.2	RW	122	262
12	West Coast Hwy.	e/o Tustin Av.	Commercial	69.3	RW	124	268
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	70.2	74	160	345
14	West Coast Hwy.	e/o Bayside Dr.	Residential	72.0	98	212	457
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	70.7	71	153	330
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	69.2	RW	122	262
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	66.4	RW	64	138

TABLE 7-4: TPO YEAR 2019 WITH PROJECT CONDITIONS NOISE CONTOURS

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



ID	Road	Segment	Adjacent	CNEL at Nearest Adjacent		nce to Co n Center (Feet) ²	
	Noau	Jegment	Land Use ¹	Land Use (dBA)	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.4	RW	79	170
2	Irvine Av.	n/o 19th St.	Residential	67.6	RW	77	166
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.2	RW	39	85
4	Dover Dr.	s/o Westcliff Dr.	Residential	68.0	RW	82	177
5	Dover Dr.	s/o 16th St.	Residential	68.5	RW	90	193
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	71.2	76	165	355
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	69.1	RW	120	259
8	17th St.	w/o Irvine Av.	Residential	65.0	RW	52	112
9	Westcliff Dr.	e/o Irvine Av.	Commercial	64.4	RW	RW	102
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	68.4	RW	107	231
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.5	RW	127	273
12	West Coast Hwy.	e/o Tustin Av.	Commercial	69.5	RW	129	277
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	70.4	77	165	356
14	West Coast Hwy.	e/o Bayside Dr.	Residential	72.3	102	220	473
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	71.1	76	164	353
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	70.1	65	139	300
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	67.2	RW	72	156

TABLE 7-5: CUMULATIVE YEAR 2019 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

² "RW" = Location of the respective noise contour falls within the right-of-way of the road.



ID	Road	Segment	Adjacent	CNEL at Nearest Adjacent	Distance to Contour from Centerline (Feet) ²		
	Nobu	Jegment	Land Use ¹	Land Use (dBA)	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.4	RW	79	171
2	Irvine Av.	n/o 19th St.	Residential	67.6	RW	77	167
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.3	RW	40	86
4	Dover Dr.	s/o Westcliff Dr.	Residential	68.0	RW	82	177
5	Dover Dr.	s/o 16th St.	Residential	68.6	RW	90	194
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	71.2	77	165	356
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	69.1	RW	121	260
8	17th St.	w/o Irvine Av.	Residential	65.0	RW	52	112
9	Westcliff Dr.	e/o Irvine Av.	Commercial	64.4	RW	RW	102
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	68.4	RW	107	231
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.5	RW	127	273
12	West Coast Hwy.	e/o Tustin Av.	Commercial	69.6	RW	129	278
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	70.4	77	165	357
14	West Coast Hwy.	e/o Bayside Dr.	Residential	72.3	102	221	475
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	71.1	76	164	354
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	70.1	65	140	302
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	67.2	RW	73	156

TABLE 7-6: CUMULATIVE YEAR 2019 WITH PROJECT CONDITIONS NOISE CONTOURS

² "RW" = Location of the respective noise contour falls within the right-of-way of the road.



7.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVELS

Table 7-7 presents a comparison of the Existing without and with Project conditions CNEL noise levels. Table 7-1 presents the Existing without Project conditions noise level contours that are expected to range from 63.6 to 71.7 dBA CNEL. Table 7-2 shows the Existing with Project conditions noise level contours which are expected to range from 63.6 to 71.7 dBA CNEL. As shown on Table 7-7 the Project not is expected to generate an exterior noise level increase, and therefore, will satisfy the significance thresholds identified in Section 4 for the study area roadway segments. Therefore, the off-site Project-related traffic noise level increases are considered *less than significant* under Existing conditions.

7.3 TRAFFIC PHASING ORDINANCE (TPO) YEAR 2019 PROJECT TRAFFIC NOISE LEVELS

Table 7-8 presents a comparison of the TPO Year 2019 without and with Project conditions CNEL noise levels. Table 7-3 shows that the unmitigated exterior noise levels are expected to range from 63.9 to 72.0 dBA CNEL for TPO Year 2019 without Project conditions. Table 7-4 presents the TPO Year 2019 with Project conditions noise level contours that are expected to range from 63.9 to 72.0 dBA CNEL. As shown on Table 7-8 the Project is expected to generate an exterior noise level increase of up to 0.1 dBA CNEL, which is below the significance thresholds identified in Section 4 for all without Project ambient noise conditions. Therefore, the Project-related off-site traffic noise level increases are considered *less than significant* for TPO Year 2019 conditions.

7.4 CUMULATIVE YEAR 2019 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-9 presents a comparison of the Cumulative Year 2019 without and with Project conditions CNEL noise levels. Table 7-5 shows that the unmitigated exterior noise levels are expected to range from 64.4 to 72.3 dBA CNEL for Cumulative Year 2019 without Project conditions. Table 7-9 presents the Cumulative Year 2019 with Project conditions noise level contours that are expected to range from 64.4 to 72.3 dBA CNEL. As shown on Table 7-9 the Project is expected to generate an exterior noise level increase of up to 0.1 dBA CNEL, which is below the significance thresholds identified in Section 4 for all without Project ambient noise conditions. Therefore, the Project-related off-site traffic noise level increases are considered *less than significant* for Cumulative Year 2019 conditions.

	Road	Comment	Adjacent		L at Adja d Use (d		Threshold
ID	Kudu	Segment	Land Use ¹	Without Project	With Project	Project Addition	Exceeded? ²
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.0	66.0	0.0	No
2	Irvine Av.	n/o 19th St.	Residential	67.4	67.4	0.0	No
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.0	67.0	0.0	No
4	Dover Dr.	s/o Westcliff Dr.	Residential	67.7	67.7	0.0	No
5	Dover Dr.	s/o 16th St.	Residential	68.2	68.2	0.0	No
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	70.4	70.4	0.0	No
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	68.5	68.5	0.0	No
8	17th St.	w/o Irvine Av.	Residential	64.4	64.4	0.0	No
9	Westcliff Dr.	e/o Irvine Av.	Commercial	63.6	63.6	0.0	No
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	67.3	67.3	0.0	No
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.0	69.0	0.0	No
12	West Coast Hwy.	e/o Tustin Av.	Commercial	68.9	68.9	0.0	No
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	69.8	69.8	0.0	No
14	West Coast Hwy.	e/o Bayside Dr.	Residential	71.7	71.7	0.0	No
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	70.3	70.3	0.0	No
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	69.0	69.0	0.0	No
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	66.2	66.2	0.0	No

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

² Significance Criteria (Section 4).



	Road	Segment	Adjacent		L at Adja d Use (d		Threshold
ID	коас	Segment	Land Use ¹	Without Project	With Project	Project Addition	Exceeded? ²
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.3	66.4	0.1	No
2	Irvine Av.	n/o 19th St.	Residential	67.6	67.6	0.0	No
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.2	67.3	0.1	No
4	Dover Dr.	s/o Westcliff Dr.	Residential	67.9	67.9	0.0	No
5	Dover Dr.	s/o 16th St.	Residential	68.5	68.5	0.0	No
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	70.8	70.8	0.0	No
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	68.7	68.7	0.0	No
8	17th St.	w/o Irvine Av.	Residential	64.6	64.6	0.0	No
9	Westcliff Dr.	e/o Irvine Av.	Commercial	63.9	63.9	0.0	No
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	67.8	67.8	0.0	No
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.2	69.2	0.0	No
12	West Coast Hwy.	e/o Tustin Av.	Commercial	69.3	69.3	0.0	No
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	70.2	70.2	0.0	No
14	West Coast Hwy.	e/o Bayside Dr.	Residential	72.0	72.0	0.0	No
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	70.7	70.7	0.0	No
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	69.2	69.2	0.0	No
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	66.3	66.4	0.1	No

TABLE 7-8: TPO YEAR 2019 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

² Significance Criteria (Section 4).



	Road	Segment	Adjacent		L at Adja d Use (d		Threshold
ID	коаа		Land Use ¹	Without Project	With Project	Project Addition	Exceeded? ²
1	Newport Bl.	n/o West Coast Hwy.	Residential	66.4	66.4	0.0	No
2	Irvine Av.	n/o 19th St.	Residential	67.6	67.6	0.0	No
3	Dover Dr.	n/o Westcliff Dr.	Residential	67.2	67.3	0.1	No
4	Dover Dr.	s/o Westcliff Dr.	Residential	68.0	68.0	0.0	No
5	Dover Dr.	s/o 16th St.	Residential	68.5	68.6	0.1	No
6	Jamboree Rd.	n/o East Coast Hwy.	Residential	71.2	71.2	0.0	No
7	MacArthur Bl.	n/o East Coast Hwy.	Commercial/Office	69.1	69.1	0.0	No
8	17th St.	w/o Irvine Av.	Residential	65.0	65.0	0.0	No
9	Westcliff Dr.	e/o Irvine Av.	Commercial	64.4	64.4	0.0	No
10	West Coast Hwy.	w/o Newport Bl.	Private Institutions	68.4	68.4	0.0	No
11	West Coast Hwy.	e/o Newport Bl.	Commercial	69.5	69.5	0.0	No
12	West Coast Hwy.	e/o Tustin Av.	Commercial	69.5	69.6	0.1	No
13	West Coast Hwy.	e/o Dover Dr.	Recreation/Marine Comm.	70.4	70.4	0.0	No
14	West Coast Hwy.	e/o Bayside Dr.	Residential	72.3	72.3	0.0	No
15	East Coast Hwy.	e/o Jamboree Rd.	Residential	71.1	71.1	0.0	No
16	East Coast Hwy.	w/o MacArthur Bl.	Residential	70.1	70.1	0.0	No
17	East Coast Hwy.	e/o MacArthur Bl.	Commercial	67.2	67.2	0.0	No

¹ Source: City of Newport Beach General Plan, Figure LU-1. ² Significance Criteria (Section 4).



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8 **RECEIVER LOCATIONS**

To assess the potential for long-term operational and short-term construction noise impacts, the following eight receiver locations as shown on Exhibit 8-A were identified as representative locations for focused 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, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Sensitive receivers in the vicinity of the Project site include the existing single-family residential homes located at receiver locations R1 and R8. The closest sensitive receiver (i.e. residential land use) is represented by location R1 at a distance of approximately 37 feet north of the Project site boundary. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

- R1: Located approximately 37 feet north of the Project site, R1 represents existing residential homes on Kings Road. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R2: Location R2 represents existing residential homes on Kings Road located north of the Project site at a distance of roughly 54 feet.
- R3: Location R2 represents existing residential homes on Kings Road located north of the Project site at a distance of roughly 65 feet.
- R4: Location R4 represents an existing residential home located northeast of the Project site at a distance of roughly 109 feet. A 24-hour noise level measurement was taken near this location, L2, to describe the existing ambient noise environment.
- R5: Location R5 represents existing single-family residential homes which are situated approximately 273 feet southwest of the Project site boundary across West Coast Highway. A 24-hour noise level measurement was taken near this location, L4, to describe the existing ambient noise environment.
- R6: At a distance of approximately 116 feet south of the Project site, location R6 represents noise-sensitive residential homes across West Coast Highway. A 24-hour noise level measurement was taken near this location, L5, to describe the existing ambient noise environment.
- R7: Located approximately 115 feet south of the Project site, R7 represents the existing residential homes across West Coast Highway.



R8: Location R8 represents existing single-family residential homes which are situated approximately 119 feet south of the Project site boundary across West Coast Highway.



EXHIBIT 8-A: RECEIVER LOCATIONS



9 OPERATIONAL IMPACTS

This section analyzes the potential stationary-source operational noise impacts due to the Project's stationary noise sources on the off-site sensitive receiver locations identified in Section 8. Exhibits 9-A to 9-C identify the noise source locations used to assess the Project-related operational noise levels on each floor of the proposed three-story building.

9.1 OPERATIONAL NOISE STANDARDS

The City of Newport Beach Municipal Code, Chapter10.26 *Community Noise Control*, establishes the permissible exterior noise levels that may intrude into a neighboring property. According to Section 10.26.025(A) the exterior noise level at single-family residential land uses (Noise Zone 1) shall not exceed 55 dBA Leq during the daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA Leq during the nighttime hours (10:00 p.m. to 7:00 a.m.). (2) However, Section 10.26.025(C) states that if the existing ambient noise level exceeds the base noise level standards, *the ambient shall be the standard*. Since the lowest measured daytime ambient noise level of 58 dBA Leq at the nearby sensitive receiver locations, provided in Section 5 of this report, exceeds the daytime noise level of 58 dBA Leq during the daytime hours. For the purposes of this noise study, the Project-related operational noise levels shall not exceed the daytime ambient noise level standard of 58 dBA Leq, and the nighttime noise level standard of 50 dBA Leq. The City of Newport Beach Municipal Code, Chapter10.26 *Community Noise Control*, is included in Appendix 3.1.

9.2 OPERATIONAL NOISE SOURCES

Project-related stationary-source (operational) noise would be generated by the proposed land uses at the Project site. The on-site Project-related noise sources are expected to include: service bay activities, car wash/detailing, car horns, car transport deliveries, parking lot car movements, car alarms, roll-up doors, and roof-top mechanical ventilation equipment. The Project cross-sections indicate the neighboring residential homes located on the Kings Road will not have a direct line of sight to the majority of the Project-related noise source activities.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the AutoNation development, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA has the ability to analyze the noise level of multiple types of noise sources and calculates the noise levels at any location using the spatially accurate Project site plan. The program has the ability to analyze the noise level of multiple types of noise sources and to calculate the effects of topography, buildings and multiple barriers using the latest calculation standards to predict outdoor noise impacts.

Using the spatially accurate Project site plan and flown aerial imagery from Google Earth, a CadnaA noise prediction model of the Project study area was developed. The noise model

provides a spatially accurate three dimensional representation of the Project study area using the following key data inputs:

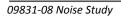
- Ground elevations (topography) in meters;
- Ground absorption;
- Reflections at buildings and barriers;
- Reference noise level sources by type (area, line, point, etc.), frequency spectral content, noise source height and attenuation rate;
- Multiple noise receiver locations and heights;
- Barrier analysis.

Based on these data inputs, the CadnaA noise prediction model will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level calculations at each receiver location and the partial noise level contributions by noise source. The reference sound power level (PWL) for each piece of equipment expected at the Project site is then input into the CadnaA noise prediction model. While sound pressure levels (e.g. Leq) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source, and also diminish as a result of intervening obstacles and barriers, air absorption, wind and other factors. Sound power is the acoustical energy emitted by the sound source, and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source and at a rate of 4.5 dBA for each doubling of distance from a line source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL₁):

$$SPL_2 = SPL_1 - 20log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location. Exhibits 9-A, 9-B, and 9-C show the locations of each noise source used in this analysis for the first, second, and third floor plans, respectively. Appendix 9.1 includes the CadnaA noise model inputs and calculation data.





9.4 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. Additional reference noise level measurements were obtained from a previous noise study for the Project site, the *AutoNation Newport Porsche Noise Impact Analysis*, prepared by Eilar Associates, Inc. in July 2015, to describe the potential Project-related operational noise sources. (22) Table 9-1 presents a summary of the operational noise source activities, separated by category of activity, used in this analysis to describe the daytime Project noise levels. No nighttime Project-related operational noise levels are expected at the Project site, since existing auto dealerships in the Project study area, including an existing Porsche dealership on East Coast Highway, do not operate during the City of Newport Beach Municipal Code nighttime hours of 10:00 p.m. to 7:00 a.m.

This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. Table 9-1 identifies the noise source, the duration of the reference noise level measurement, the distance from the source, the noise source height, and the reference hourly Leq noise levels. In addition, Table 9-1 provides the sound power levels (PWL) for input into the CadnaA noise prediction model. The sound power levels have been individually calibrated in the noise prediction model to accurately describe the reference hourly Leq noise levels. Based on the technical guidance provided for CadnaA, (23) each reference noise source is created in an individual CadnaA noise model with a receiver at the reference distance of the noise level measurement. The PWL of each noise source is then adjusted in each individual CadnaA noise model until the noise level at the given reference distance equals the measured reference noise level shown on Table 9-1. The calibrated PWLs are then input into the operational CadnaA noise model for each Project-related noise source.



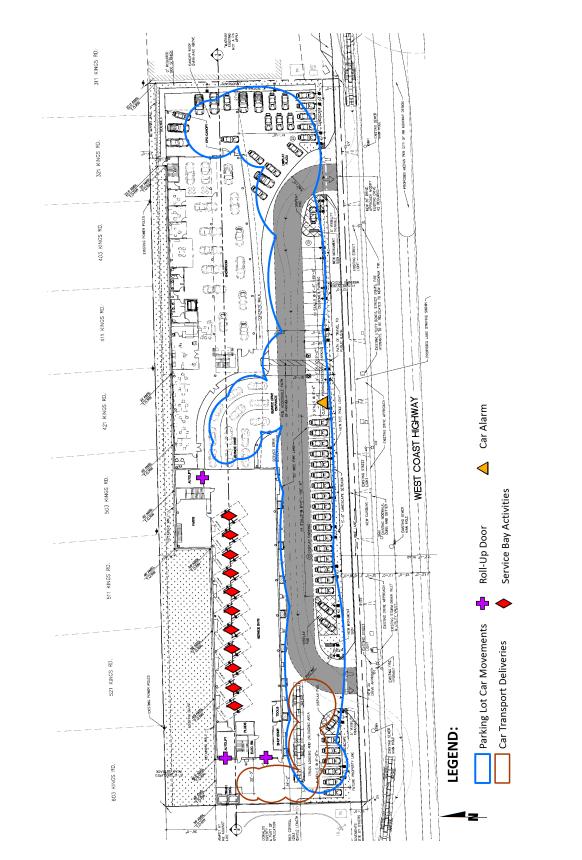


EXHIBIT 9-A: FIRST FLOOR OPERATIONAL NOISE SOURCES

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AutoNation Noise Impact Analysis

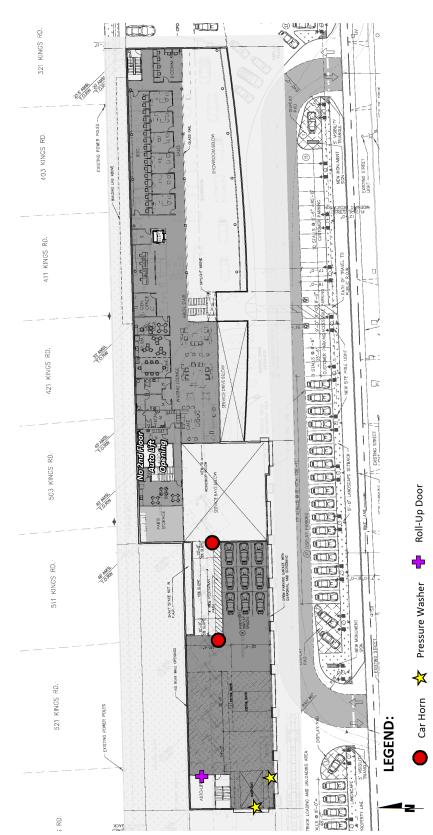
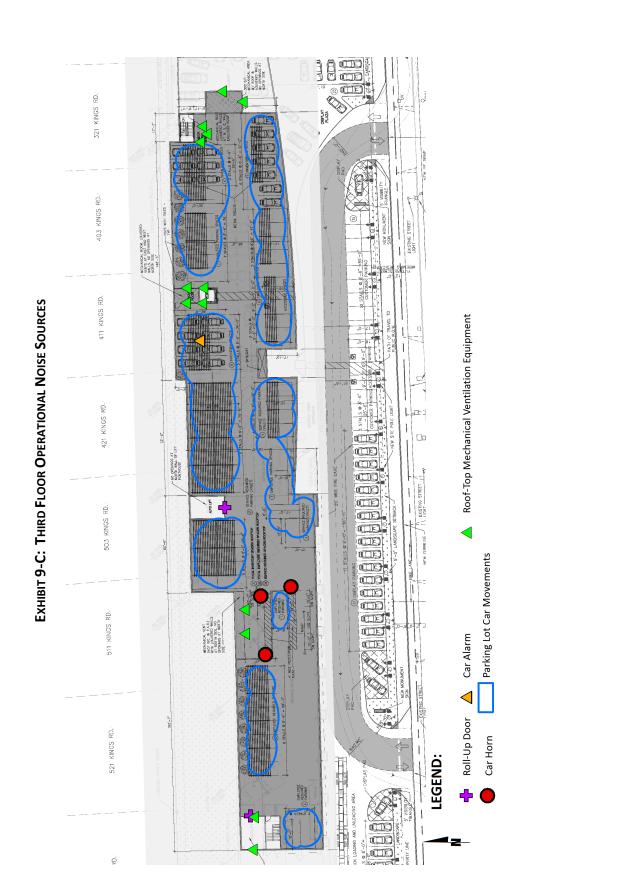


EXHIBIT 9-B: SECOND FLOOR OPERATIONAL NOISE SOURCES

09831-08 Noise Study

AutoNation Noise Impact Analysis



09831-08 Noise Study

C URBAN

	Duration	Ref.	Source	Hourly	Reference Noise Levels (dBA Leq)	e Noise BA Leq)	Sound Power
Noise Source	(hh:mm:ss)	Distance (Feet)	Height (Feet)	Activity (Mins) ⁶	@ Ref. Distance	@ 50 Feet ⁷	Level (PWL) ⁸
Service Bay Activities			Peak Ref	Peak Reference Noise Levels:	se Levels:	68.2	103.6
Service Bay Activities ¹	00:02:00	-08	8	60	66.5	62.1	n/a
Service Bay Fan ¹	00:01:30	10'	4'	60	75.2	61.2	n/a
Tire Changer ²		10'	4'	60	74.8	60.8	n/a
Service Lifts ²		10'	8	60	70.5	56.5	n/a
Impact Tools ²		10'	8'	60	81.4	67.4	n/a
Car Lift ³	00:00:34	15'	8	60	75.1	64.6	n/a
Air Impact Wrench ³	00:01:13	15'	5	60	78.7	68.2	103.6
Car Wash/Detailing			Peak Ref	Peak Reference Noise Levels:	se Levels:	68.4	97.2
Pressure Washer ¹	00:00:45	10'	5	30	82.4	68.4	97.2
Shop Vacuum, Car Idle & Horns ¹	00:01:30	10'	4'	30	75.5	61.5	n/a
Normal Detail Bay ²	-	10'	8'	30	0.69	55.0	n/a
Car Horns			Peak Ref	Peak Reference Noise Levels:	se Levels:	71.2	107.3
Car Horns ¹	00:00:10	20'	4'	30	79.2	71.2	107.3
Car Transport Deliveries			Peak Ref	Peak Reference Noise Levels:	se Levels:	78.7	112.4
Car Transport Deliveries ¹	00:01:05	,07	8'	20	84.7	78.7	112.4
Car Transport Deliveries ¹	00:00:16	20'	8'	20	80.8	74.8	n/a
Truck Backup Alarm & Air Brakes ⁴	00:01:00	50'	8'	20	71.6	71.6	n/a
Delivery Truck Car Transport Trailer ²		10'	8'	20	80.6	70.1	n/a
Parking Lot Car Movements			Peak Ref	Peak Reference Noise Levels:	se Levels:	62.7	95.5
Parking Lot Car Movements ¹	00:02:00	20'	4'	60	62.9	56.9	n/a
Car Wheels On Epoxy Sealed Concrete ²	ı	10'	4'	60	73.2	62.7	95.5
Car Alarms			Peak Ref	Peak Reference Noise Levels:	se Levels:	79.6	114.2
Car Alarm ²	ı	10'	4'	5	93.6	79.6	114.2

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

-	Duration	Ref.	Source	Hourly	Reference Noise Levels (dBA Leq)	e Noise BA Leq)	Sound Power
NOISE SOURCE	(hh:mm:ss)	Uistance (Feet)	Height (Feet)	Activity (Mins) ⁶	@ Ref. Distance	@ 50 Feet ⁷	Level (PWL) ⁸
Roll-Up Doors			Peak Ref	Peak Reference Noise Levels:	se Levels:	40.7	78.5
Roll-Up Door ¹	00:00:24	5'	10'	30	60.7	40.7	78.5
Roof-Top Mechanical Ventilation Equipment			Peak Ref	Peak Reference Noise Levels:	se Levels:	66.4	101.0
Roof-Top Air Conditioning Unit ⁵	96:00:00	5-	25'	39	77.2	57.2	n/a
Trane 12.5 Ton Air Conditioning Unit ²	-	-	-	68	92.0	66.4	101.0
Enclosed Compressor Room ²	-	10'	,17	30	74.0	0.03	u/a
¹ As measured by Urban Crossroads, Inc. at the Audi Mission Viejo dealership on 6/10/2016. ² Defension and a bathing from the analytic price and the Device 10, texterior Normet Device Inner Analytic Eiler Accordance for 10, 2015).	ijo dealership on 6	5/10/2016.	mort Dorcho	Moico Impost	Andreic Eilar A	of octoor	

Reference noise levels obtained from the previous noise study for the Project (AutoNation Newport Porsche Noise Impact Analysis, Eilar Associates, Inc. July 2015).

³ As measured by Urban Crossroads, Inc. at the Lake Forest Discount Tire Center on 6/19/2015.

⁴ As measured by Urban Crossroads, Inc. at a nighttime concrete pour at in the City of Redlands on 7/1/2015.

⁵ As measured by Urban Crossroads, inc. on 7/22/2015 at the Santee Walmart located at 170 Town Center Parkway.

⁶ Anticipated duration (minutes within the hour) of noise activity during peak hourly conditions expected at the Project site.

⁷ Reference noise levels at 50 feet represent the normalized noise source levels for comparison at a common distance.

⁸ Calculated using the CadnaA noise model at the reference distance to the noise source.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "n/a" = Highest reference noise level of the same reference noise source is used.



9.4.1 SERVICE BAY ACTIVITIES

The peak reference noise level measurement used to describe the service bay activities is the reference air impact wrench noise level of 68.2 dBA Leq at a distance of 50 feet. This reference noise level measurement was collected by Urban Crossroads, Inc. on June 19th, 2015 at the Lake Forest Discount Tire Center located at 22482 Muirlands Boulevard in the City of Lake Forest. The service bay activities are expected to occur during the full hour (60 minutes) of peak operating conditions.

9.4.2 CAR WASH/DETAILING

The highest reference noise level, shown on Table 9-1, for the car wash/detailing activities at the Project site is the reference pressure washer noise level of 68.4 dBA Leq at a normalized distance of 50 feet. To describe pressure washers at the Project site car wash/detailing area, a reference noise level measurement was collected at the Audi Mission Viejo dealership on June 10th, 2016. It is expected that pressure washers would be located in the second floor covered car wash/detailing area within the Project site. Pressure washers and car wash/detailing activities are expected to occur for 30 minutes during peak hour conditions.

9.4.3 CAR HORNS

Frequent and regular car horn activities were observed at the Audi Mission Viejo dealership to signal to other employees that a car was turning around a blind corner. Since the Project building includes a partially-covered second floor car wash area with a ramp to the uncovered third floor parking area, the use of car horns as a warning device may occur at the Project site. A reference noise level of 71.2 dBA Leq at a distance of 50 feet was collected to describe the potential noise levels from car horns, should they be used at the Project site. The car horns are anticipated to occur over roughly 30 minutes during the peak hour conditions of Project operation.

9.4.4 CAR TRANSPORT DELIVERIES

An additional noise level measurement was taken of a car transport delivery unloading activities to describe the car transport deliveries at the Project site. The exact schedule of Project car transport deliveries was unknown at the time of this analysis, and therefore, the estimated operational minutes of activity for car delivery is based on the observed conditions at the Audi Mission Viejo dealership. With an estimated one-minute unloading time per car for a total of approximately 20 cars per truck, the total operating time is expected to occur over 20 minutes during peak hour conditions. The highest of the car transport deliveries reference noise level measurements collected is used to represent the car transport deliveries at the Project site with a reference noise level of 78.7 dBA Leq at a distance of 50 feet.

9.4.5 PARKING LOT CAR MOVEMENTS

The highest parking lot car movement reference noise level of 62.7 dBA Leq at a distance of 50 feet was generated by car wheels on epoxy sealed concrete as measured by Eilar Associates, Inc. Parking lot car movements are expected to take place during the full hour (60 minutes) of peak hour operating conditions on the first and third floors of the Project building.



9.4.6 CAR ALARMS

An additional reference noise level is used from the previous noise study for the Project, prepared by Eilar Associates, Inc., to describe the potential car alarm noise at the Project site, should one be triggered intentionally or by accident. The reference car alarm noise level is 79.6 dBA Leq at a distance of 50 feet. The car alarm activity at the Project site is estimated to occur for only five minutes during the peak hour conditions, since the alarms are usually shut off shortly after sounding and occur on an infrequent basis.

9.4.7 ROLL-UP DOORS

A roll-up door was measured at the Audi Mission Viejo dealership to represent multiple roll-up doors within the Project's proposed facilities. At a distance of 50 feet, the reference noise level is 40.7 dBA Leq at a noise source height of 10 feet. The roll-up doors at the Project site are anticipated to remain open during business hours, especially at the service bays, however, to analyze the worst-case Project operational conditions, they are estimated to open and close for a duration of 30 minutes during peak hour conditions.

9.4.8 ROOF-TOP MECHANICAL VENTILATION EQUIPMENT

The previous noise study for the Project prepared by Eilar Associates, Inc. used a Trane 12.5-ton air conditioning unit to model the roof-top mechanical equipment at the Project site. Based on the reference noise levels previously shown on Table 9-1, the Trane 12.5-ton unit has the highest reference noise level, and therefore, represents the worst-case conditions for roof-top mechanical equipment in this report. At the time this noise analysis was prepared, the exact mechanical equipment planned for use at the Project site was unknown, however, this reference noise level represents a worst-case roof-top mechanical ventilation equipment noise level of 66.4 dBA Leg at a distance of 50 feet. Further, all mechanical equipment will be enclosed on the roof of the building with louvered walls and no openings facing the sensitive residential receivers to the north. The louvers used in the rooftop mechanical ventilation rooms are estimated to have the transmission loss (TL) values of a 40 to 50% open, 6-inch Vibron Acoustic Louver (VAL) model from Kinetics Noise Control, Inc. (24) This louver model represents the most conservative of the Kinetics Noise Control, Inc. models as it has a larger open area, thinner width, and lower TL values than the other models. The additional attenuation provided by the louvers is then added to the CadnaA noise models for each mechanical room louver planned at the Project site. The roof-top mechanical ventilation equipment is expected to operate for 39 minutes of peak hour conditions based on peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F.



9.5 OPERATIONAL NOISE LEVELS

Based upon the reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each of the sensitive receiver locations. The operational noise levels shown on Table 9-2 accounts for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. With geometric spreading, sound levels attenuate (or decrease) at a rate of 6 dB for each doubling of distance from a point source and 4.5 dB for each doubling of distance from a line source.

Table 9-2 presents the exterior noise levels including the barrier attenuation provided by the planned parapet wall on the third floor of the Project building, which is based on the architectural elevations for the Project prepared by Stantec Architecture. Table 9-2 indicates that the typical hourly Project noise levels are expected to range from 45.6 to 58.0 dBA Leq at the sensitive receiver locations. To demonstrate compliance with local noise standards, the Project-only operational noise levels are evaluated against the City of Newport Beach Municipal Code daytime noise level standard of 58 dBA Leq, as previously shown on Table 3-1. The Project-related operational noise levels approaching 58.0 at one receiver location will satisfy the City of Newport Beach Municipal Code noise level standards, and therefore, represents a *less than significant* noise impact. The operational noise level calculation results from the CadnaA noise prediction model are included in Appendix 9.1. Exhibit 9-D shows the Project-related operational noise level contour boundaries at the receiver heights and elevations. Exhibit 9-E shows cross section view of the operational noise level contour boundaries at receiver location R2.

To further reduce the noise levels experienced by the nearby sensitive receiver locations, the use of car horns as a warning device shall be restricted. Substitute warning devices that do not rely on audible warnings such as convex circular mirrors or other signaling devices shall be used at any on-site locations with sight distance limitations (blind corners).



Receiver Location ¹	Total Project-Only Noise Levels (dBA Leq) ²	Noise Level Standard (dBA Leq) ³	Threshold Exceeded? ⁴
R1	52.2	58	No
R2	57.5	58	No
R3	58.0	58	No
R4	51.8	58	No
R5	49.4	58	No
R6	55.6	58	No
R7	50.4	58	No
R8	45.6	58	No

TABLE 9-2: PROJECT OPERATIONAL NOISE LEVELS (DBA LEQ)

¹ See Exhibit 9-A for the noise receiver locations.

² CadnaA noise model results as shown in Appendix 9.1.

³ Daytime exterior noise level standard as shown on Table 3-1.

⁴ Do the estimated Project operational noise source activities exceed the noise level threshold?





EXHIBIT 9-D: OPERATIONAL NOISE LEVEL CONTOUR BOUNDARIES AT RECEIVER LOCATIONS

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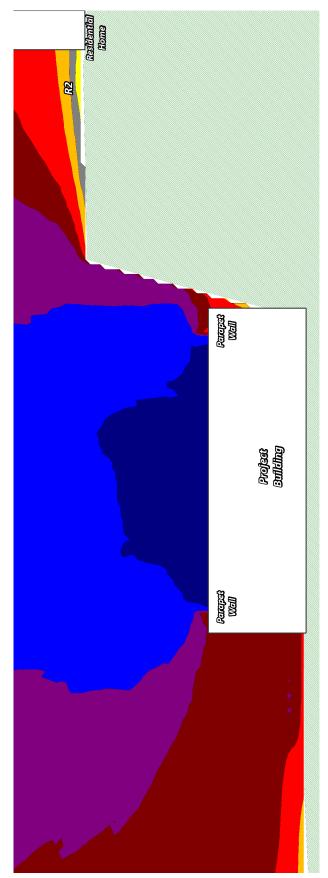


EXHIBIT 9-E: OPERATIONAL NOISE LEVELS AT RECEIVER LOCATION R2

LEGEND:





9.6 PROJECT OPERATIONAL NOISE CONTRIBUTION

To describe the Project operational noise level contributions, the Project operational noise levels were combined with the existing ambient noise levels measurements for the off-site receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (5) Instead, they must be logarithmically added using the following base equation:

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

Where SPL1, SPL2, etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions. Noise levels that would be experienced at receiver locations when Project-source noise is added to the ambient conditions are presented on Table 9-3 for the daytime hours.

As indicated in Table 9-3, the Project will contribute an operational noise level increase of up to 3.1 dBA Leq during the daytime hours at the existing sensitive receiver locations potentially impacted by the operation of the Project. Since the Project-related operational noise level contributions will not exceed the significance criteria discussed in Section 4, the increases at the sensitive receiver locations are considered *less than significant* impacts. On this basis, Project operational stationary-source noise would not result in a substantial temporary/periodic, or permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.

Receiver Location ¹	Total Project Operational Noise Level (dBA Leq) ²	Measurement Location ³	Reference Ambient Noise Levels (dBA Leq) ⁴	Combined Project and Ambient (dBA Leq)⁵	Project Contribution ⁶	Threshold Exceeded? ⁷
R1	52.2	L1	57.8	58.9	1.1	No
R2	57.5	L1	57.8	60.7	2.9	No
R3	58.0	L1	57.8	60.9	3.1	No
R4	51.8	L2	59.3	60.0	0.7	No
R5	49.4	L4	73.3	73.3	0.0	No
R6	55.6	L5	77.7	77.7	0.0	No
R7	50.4	L5	77.7	77.7	0.0	No
R8	45.6	L5	77.7	77.7	0.0	No

TABLE 9-3: DAYTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS (DBA LEQ)

¹ See Exhibit 8-A for the sensitive receiver locations.

² Total Project operational noise levels as shown on Table 9-2.

³ Reference noise level measurement locations as shown on Exhibit 5-A. ⁴ Daytime ambient noise levels as shown on Table 5-1.

⁵ Represents the combined ambient conditions plus the Project activities.

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

⁷ Significance Criteria as defined in Section 4.



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10 CONSTRUCTION IMPACTS

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

10.1 CONSTRUCTION NOISE STANDARDS

The City of Newport Beach has set restrictions to control noise impacts associated with the construction of the proposed Project. According to the City of Newport Beach Municipal Code Section 10.28.040, construction activities are considered exempt from the noise standards of the noise ordinance if limited to the hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and 8:00 a.m. to 6:00 p.m. on Saturdays, with no activity allowed on Sundays or national holidays. (14) Therefore, if construction activities occur within the permitted hours of the Municipal Code, Project construction noise levels are considered exempt from the noise ordinance standards. Table 3-2 shows the construction noise standards of the City of Newport Beach Municipal Code.

10.2 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 six stages:

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 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 *AutoNation Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (25) Exhibit 10-A shows the distance from each of the nearby sensitive receiver locations to the center of Project construction activities.





EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS



10.3 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 sixteen 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.

ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA Leq)	Reference Noise Levels @ 50 Feet (dBA Leq) ⁶
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	Residential Framing ³	30'	66.7	62.3
7	Water Truck Pass-By & Backup Alarm ⁴	30'	76.3	71.9
8	Dozer Pass-By ⁴	30'	84.0	79.6
9	Two Scrapers & Water Truck Pass-By ⁴	30'	83.4	79.0
10	Two Scrapers Pass-By ⁴	30'	83.7	79.3
11	Scraper, Water Truck, & Dozer Activity ⁴	30'	79.7	75.3
12	Concrete Mixer Truck Movements ⁵	50'	71.2	71.2
13	Concrete Paver Activities ⁵	30'	70.0	65.6
14	Concrete Mixer Pour & Paving Activities ⁵	30'	70.3	65.9
15	Concrete Mixer Backup Alarms & Air Brakes⁵	50'	71.6	71.6
16	Concrete Mixer Pour Activities ⁵	50'	67.7	67.7

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

¹As 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.

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

⁴ As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations within an industrial construction site located in the City of Ontario.

⁵ Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.

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



10.4 CONSTRUCTION NOISE ANALYSIS

Tables 10-2 to 10-7 show the Project construction stages and the reference construction noise levels used for each stage. Table 10-8 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations in the City of Newport Beach. Based on the reference construction noise levels, the Project-related construction noise levels when the peak reference noise level is operating at a single point nearest the sensitive receiver location will range from 59.8 to 72.3 dBA Leq at the sensitive receiver locations.

Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA Leq)
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Dozer Pass-By	79.6
Peak Reference Noise Level at 50 Feet (dBA Leq):	79.6

TABLE 10-2: DEMOLITION EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA Leq) ³	Estimated Noise Barrier Attenuation (dBA Leq) ⁴	Construction Noise Level (dBA Leq)
R1	76'	-3.6	-5.0	70.9
R2	65'	-2.3	-5.0	72.3
R3	68'	-2.7	-5.0	71.9
R4	129'	-8.2	-5.0	66.3
R5	273'	-14.7	-5.0	59.8
R6	65'	-2.3	-5.0	72.3
R7	63'	-2.0	-5.0	72.6
R8	94'	-5.5	-5.0	69.1

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

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

 $^{\rm 3}$ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA Leq)
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Dozer Pass-By	79.6
Peak Reference Noise Level at 50 Feet (dBA Leq):	79.6

TABLE 10-3: SITE PREPARATION EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA Leq) ³	Estimated Noise Barrier Attenuation (dBA Leq) ⁴	Construction Noise Level (dBA Leq)
R1	76'	-3.6	-5.0	70.9
R2	65'	-2.3	-5.0	72.3
R3	68'	-2.7	-5.0	71.9
R4	129'	-8.2	-5.0	66.3
R5	273'	-14.7	-5.0	59.8
R6	65'	-2.3	-5.0	72.3
R7	63'	-2.0	-5.0	72.6
R8	94'	-5.5	-5.0	69.1

 $^{1}\,\mathrm{Reference}$ construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$ 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.

Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA Leq)
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Dozer Pass-By	79.6
Peak Reference Noise Level at 50 Feet (dBA Leq):	79.6

TABLE 10-4: GRADING EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA Leq) ³	Estimated Noise Barrier Attenuation (dBA Leq) ⁴	Construction Noise Level (dBA Leq)
R1	76'	-3.6	-5.0	70.9
R2	65'	-2.3	-5.0	72.3
R3	68'	-2.7	-5.0	71.9
R4	129'	-8.2	-5.0	66.3
R5	273'	-14.7	-5.0	59.8
R6	65'	-2.3	-5.0	72.3
R7	63'	-2.0	-5.0	72.6
R8	94'	-5.5	-5.0	69.1

 $^{1}\,\mathrm{Reference}$ construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$ 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.

Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA Leq)
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Peak Reference Noise Level at 50 Feet (dBA Leq):	68.2

TABLE 10-5: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA Leq) ³	Estimated Noise Barrier Attenuation (dBA Leq) ⁴	Construction Noise Level (dBA Leq)
R1	76'	-3.6	-5.0	59.5
R2	65'	-2.3	-5.0	60.9
R3	68'	-2.7	-5.0	60.5
R4	129'	-8.2	-5.0	54.9
R5	273'	-14.7	-5.0	48.4
R6	65'	-2.3	-5.0	60.9
R7	63'	-2.0	-5.0	61.2
R8	94'	-5.5	-5.0	57.7

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

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

 $^{\rm 3}$ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA Leq)
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
Peak Reference Noise Level at 50 Feet (dBA Leq):	71.6

TABLE 10-6: PAVING EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA Leq) ³	Estimated Noise Barrier Attenuation (dBA Leq) ⁴	Construction Noise Level (dBA Leq)
R1	76'	-3.6	-5.0	63.0
R2	65'	-2.3	-5.0	64.3
R3	68'	-2.7	-5.0	63.9
R4	129'	-8.2	-5.0	58.4
R5	273'	-14.7	-5.0	51.9
R6	65'	-2.3	-5.0	64.3
R7	63'	-2.0	-5.0	64.6
R8	94'	-5.5	-5.0	61.1

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.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA Leq)
Construction Vehicle Maintenance Activities	67.5
Peak Reference Noise Level at 50 Feet (dBA Leq):	67.5

TABLE 10-7: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) ²	Distance Attenuation (dBA Leq) ³	Estimated Noise Barrier Attenuation (dBA Leq) ⁴	Construction Noise Level (dBA Leq)
R1	76'	-3.6	-5.0	58.8
R2	65'	-2.3	-5.0	60.2
R3	68'	-2.7	-5.0	59.8
R4	129'	-8.2	-5.0	54.2
R5	273'	-14.7	-5.0	47.7
R6	65'	-2.3	-5.0	60.2
R7	63'	-2.0	-5.0	60.5
R8	94'	-5.5	-5.0	57.0

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

 $^{\rm 2}$ Distance from the nearest point of construction activity to the nearest receiver.

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

⁴ Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

10.5 CONSTRUCTION NOISE THRESHOLDS OF SIGNIFICANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the center of Project construction activity. As shown on Table 10-8, the unmitigated construction noise levels are expected to range from 59.8 to 72.3 dBA Leq at the receiver locations in the City of Newport Beach. To control noise impacts associated with the construction of the proposed Project, the City of Newport Beach has established limits to the hours of operation. The City of Newport Beach Municipal Code indicates that construction activities are considered exempt from the standards of the noise ordinance if limited to the hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and 8:00 a.m. to 6:00 p.m. on Saturdays, with no activity allowed on Sundays or national holidays. (14) Therefore, if construction activities occur within the permitted hours of the Municipal Code, Project construction noise levels are considered exempt from the noise ordinance standards, and the construction noise level impacts are considered *less than significant*. The construction noise analysis presents a conservative, worst-case approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from the center of construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities



and likely overstates the construction noise levels which will actually be experienced at each receiver location.

To describe the potential effects of Project-related construction noise levels, the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH) identifies an acceptable noise exposure level for construction workers over an 8-hour period. (3) For the purposes of this report, the NIOSH construction noise level of 85 dBA Leq is used to describe the construction noise at the nearby sensitive receiver locations in relation to human health (i.e. hearing conservation, etc.) and not as a threshold of significance. Since the NIOSH construction-related noise level represents the energy average of the noise source over a given time period, they are expressed as Leq noise levels. The Project-related short-term construction noise level at all receiver locations. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (4)

	Construction Phase Hourly Noise Level (dBA Leq)						
Receiver Location ¹	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Peak Activity ²
R1	70.9	70.9	70.9	59.5	63.0	58.8	70.9
R2	72.3	72.3	72.3	60.9	64.3	60.2	72.3
R3	71.9	71.9	71.9	60.5	63.9	59.8	71.9
R4	66.3	66.3	66.3	54.9	58.4	54.2	66.3
R5	59.8	59.8	59.8	48.4	51.9	47.7	59.8
R6	72.3	72.3	72.3	60.9	64.3	60.2	72.3
R7	72.6	72.6	72.6	61.2	64.6	60.5	72.6
R8	69.1	69.1	69.1	57.7	61.1	57.0	69.1

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

² Estimated construction noise levels during peak operating conditions.



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 building, the vibration is usually short-term and is not of sufficient magnitude to cause building damage. It is not expected that heavy equipment such as large bulldozers would operate close enough to any residences to cause a vibration impact.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-5 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-9 presents the expected Project related vibration levels at each of the sensitive receiver locations.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 87 VdB at a distance of 25 feet. At distances ranging from 63 to 273 feet from the Project construction activities, construction vibration velocity levels are expected to approach 75.0 VdB, as shown on Table 10-9. Based on the FTA vibration standards, the proposed Project site will not include or require equipment, facilities, or activities that would result in a *barely perceptible* human response (annoyance) for infrequent events. Therefore, the vibration levels due to Project construction are considered *less than significant* impacts.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating close to the Project site perimeter. Moreover, construction at the Project site will be restricted to daytime hours consistent with City requirements thereby eliminating potential vibration impacts during the sensitive nighttime hours.





	Distance to Construction Activity (Feet)	Receiver Vibration Levels (VdB) ²					
Receiver ¹		Small Bulldozer	Jackhammer	Loaded Trucks	Large Bulldozer	Peak Vibration	Threshold Exceeded? ³
R1	76'	43.5	64.5	71.5	72.5	72.5	No
R2	65'	45.6	66.6	73.6	74.6	74.6	No
R3	68'	45.0	66.0	73.0	74.0	74.0	No
R4	129'	36.6	57.6	64.6	65.6	65.6	No
R5	273'	26.9	47.9	54.9	55.9	55.9	No
R6	65'	45.6	66.6	73.6	74.6	74.6	No
R7	63'	46.0	67.0	74.0	75.0	75.0	No
R8	94'	40.7	61.7	68.7	69.7	69.7	No

TABLE 10-9: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

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

² Based on the Vibration Source Levels of Construction Equipment included on Table 6-5.

³ Does the Peak Vibration exceed the FTA maximum acceptable vibration standard of 80 VdB?

10.6.1 SOIL EXPORT TRUCK HAUL TRIPS

The Project will require approximately 9,000 cubic yards of soil export. It is expected that the soil export will occur at the same time as the grading activity phase of Project construction. To describe the potential vibration impacts from the truck haul trips associated with soil export activities this analysis relies on the FTA vibration threshold of 80 VdB, previously discussed in Section 3. Since truck haul deliveries transiting on site will be travelling at very low speeds, vibration levels for the AutoNation heavy truck activity at normal traffic speeds will not exceed 65 VdB, as previously shown on Exhibit 2-C. Since truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement condition it is expected that delivery truck vibration impacts at nearby homes will not exceed the FTA vibration threshold of 80 VdB, and therefore, will be *less than significant*.

10.7 CONSTRUCTION NOISE AND VIBRATION ABATEMENT MEASURES

Though construction noise is temporary, intermittent and of short duration, and will not present any long-term impacts, the following mitigation measures would reduce any noise level increases produced by the construction equipment to the nearby noise-sensitive residential land uses.

- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and 8:00 a.m. to 6:00 p.m. on Saturdays, with no activity allowed on Sundays or national holidays (City of Newport Beach Municipal Code, Section 10.28.040). The Project construction supervisor shall ensure compliance with the note and the City shall conduct periodic inspection at its discretion.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with



manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site (i.e., to the center) during all Project construction.
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment (between the hours of 7:00 a.m. to 6:30 p.m. on Mondays to Fridays, and 8:00 a.m. to 6:00 p.m. on Saturdays, with no activity allowed on Sundays or national holidays). The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.



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12 CERTIFICATION

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

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EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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



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APPENDIX 3.1:

CITY OF NEWPORT BEACH MUNICIPAL CODE



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Chapter 10.26 COMMUNITY NOISE CONTROL

Sections:

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10.26.005 Declaration of Policy.

A. In order to control unnecessary, excessive and annoying noise in the City of Newport Beach, it is declared to be the policy of the City to prohibit such noise generated from or by all sources as specified in this chapter.

B. It is determined that certain noise levels are detrimental to the public health, welfare and safety and contrary to public interest, therefore, the City Council of the City of Newport Beach does ordain and declare that creating, maintaining, causing or allowing to be created, caused or maintained, any noise in a manner prohibited by, or not in conformity with, the provisions of this chapter, is a public nuisance and may be punished as a public nuisance. The ordinance codified in this chapter is effective thirty (30) days from adoption, however, all fixed noise sources existing at the date of adoption shall have ninety (90) days from the date of adoption to achieve compliance with this chapter. (Ord. 95-38 § 11 (part), 1995)

10.26.010 Definitions.

The following words, phrases and terms as used in this chapter shall have the meanings as indicated here:

"Agricultural property" means a parcel of real property which is undeveloped for any use other than agricultural purposes.

"Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

"A-weighted sound level" means the total sound level meter with a reference pressure of twenty (20) micropascals using the A-weighted network (scale) at slow response. The unit of measurement shall be defined

as DBA.

"Code Enforcement Officer" means the Code Enforcement Officer of the City or his duly authorized deputy.

"Commercial property" means a parcel of real property which is used as either in part or in whole for commercial purposes.

"Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

"Decibel (Db)" means a unit which denotes the ratio between two quantities which are proportional to power: the number of decibels corresponding to the ratio of two amounts of power is ten times the logarithm to the base ten of this ratio.

"Dwelling unit" means any area within a structure on any parcel which:

- 1. Contains separate or independent living facilities for one or more persons, with an area or equipment for sleeping, sanitation and food preparation, and which has independent exterior access to ground level; or
- 2. Is being utilized for residential purposes by one or more persons separately or independently from occupants of other areas within the structure.

"Emergency machinery, vehicle, work or alarm" means any machinery, vehicle, work or alarm used, employed, performed or operated in an effort to protect, provide or restore safety conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

"Equivalent, noise, level, leq." means the sound level corresponding to a steady state noise level over a given measurement period with the same amount of acoustic energy as the actual time varying noise level. Also known as the energy average noise level during the measurement period. The measurement period shall be fifteen (15) minutes under the terms of this chapter.

"Fixed noise source" means a stationary device which creates sounds while fixed or motionless including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

"Grading" means any excavating of filling of earth material or any combination thereof conducted at a site to prepare said site for construction or other improvements thereon.

"Health care institution" means any hospital, convalescent home or other similar facility excluding residential.

"Hertz (HZ)" means the unit which describes the frequency of a function periodic in time which is the reciprocal of the period.

"Impulsive noise" means a noise of short duration usually less than one second and of high intensity, with an abrupt onset and rapid decay.

"Industrial property" means a parcel of real property which is used either in part or in whole for manufacturing purposes.

"Intruding noise level" means the total sound level, in decibels, created, caused, maintained or originating from an alleged offensive source at a specified location while the alleged offensive source is in operation.

"Licensed" means the issuance of a formal license or permit by the appropriate jurisdictional authority, or where no permits or licenses are issued, the sanctioning of the activity by the jurisdiction as noted in public record.

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"Major roadway" means any street, avenue, boulevard or highway used for motor vehicle traffic which is owned or controlled by a public government entity.

"Mobile noise source" means any noise source other than a fixed noise source.

"Person" means any individual, firm, partnership, association, corporation, company or organization of any kind, including public agencies.

"Residential property" means a parcel of real property which is used either in part or in whole for residential purposes, other than transient uses such as hotels and motels, and residential care facilities. Residential property includes the residential portion of mixed use properties.

"Simple tone noise" means a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished. If measured, simple tone noise shall exist if the one-third octave band sound pressure levels in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two continuous one-third octave bands as follows: five Db for frequencies of five hundred (500) Hertz (Hz) and above or, by fifteen (15) Db for frequencies less than or equal to one hundred twenty-three (123) Hz.

"Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 or most recent revision thereof for Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

"Sound pressure level" of a sound, in decibels, means twenty (20) times the logarithm to the base ten of the ratio of the pressure of the sound to a reference pressure which shall be explicitly stated.

"Vibration" means any movement of the earth, ground or other similar surface created by a temporal and spatial oscillation device or equipment located upon, affixed in conjunction with that surface. (Ord. 95-38 § 11 (part), 1995)

10.26.015 Decibel Measurement Criteria.

Any decibel measurement made pursuant to the provisions of this chapter shall be based on a reference sound pressure of twenty (20) micropascals as measured with a sound level meter using the A-weighted network (scale) at slow response. (Ord. 95-38 § 11 (part), 1995)

10.26.020 Designated Noise Zones.

The properties hereinafter described assigned to the following noise zones:

N	oise Zone I	_	All single-, two- and multiple-family residential properties;
N	oise Zone II	—	All commercial properties;
N	oise Zone III	—	The residential portion of mixed-use properties;
N	oise Zone IV	_	All manufacturing or industrial properties.

The actual use of the property shall be the determining factor in establishing whether a property is in Noise Zone I, II, III or IV provided that the actual use is a legal use in the City of Newport Beach. (Ord. 95-38 § 11 (part), 1995)

10.26.025 Exterior Noise Standards.

A. The following noise standards, unless otherwise specifically indicated, shall apply to all property with a designated noise zone:

		ALLOWABLE EXTERIOR NOISE LEVEL (Equivalent Noise Level, Leq)		
NOISE ZONE	TYPE OF LAND USE	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.	
I	Single-, two-or multiple-family residential	55 DBA	50 DBA	
П	Commercial	65 DBA	60 DBA	
111	Residential portions of mixed-use properties	60 DBA	50 DBA	
IV	Industrial or manufacturing	70 DBA	70 DBA	

If the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

B. It is unlawful for any person at any location within the incorporated area of the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property, to exceed either of the following:

1. The noise standard for the applicable zone for any fifteen-minute period;

2. A maximum instantaneous noise level equal to the value of the noise standard plus twenty (20) DBA for any period of time (measured using A-weighted slow response).

C. In the event the ambient noise level exceeds the noise standard, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

D. The Noise Zone III standard shall apply to that portion of residential property falling within one hundred (100) feet of a commercial property, if the intruding noise originates from that commercial property.

E. If the measurement location is on boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply. (Ord. 95-53 § 1, 1995; Ord. 95-38 § 11 (part), 1995)

10.26.030 Interior Noise Standards.

A. The following noise standard, unless otherwise specifically indicated, shall apply to all residential property within all noise zones:

		ALLOWABLE INTERIOR NOISE LEVEL (Equivalent Noise Level, Leq)		
NOISE ZONE	TYPE OF LAND USE	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.	
L	Residential	45 DBA	40 DBA	
111	Residential portions of	45 DBA	40 DBA	

mixed-use properties

If the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

B. It shall be unlawful for any person at any location within the incorporated area of the City to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such a person which causes the noise level when measured on any other property, to exceed either of the following:

1. The noise standard for the applicable zone for any fifteen-minute period;

2. A maximum instantaneous noise level equal to the value of the noise standard plus twenty (20) DBA for any period of time (measured using A-weighted slow response).

C. In the event the ambient noise level exceeds the noise standard, the noise standard applicable to said category shall be increased to reflect the maximum ambient noise level.

D. The Noise Zone III standard shall apply to that portion of residential property falling within one hundred (100) feet of a commercial property, if the intruding noise originates from that commercial property.

E. If the measurement location is on a boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply. (Ord. 95-53 § 2, 1995; Ord. 95-38 § 11 (part), 1995)

10.26.035 Exemptions.

The following activities shall be exempted from the provisions of this chapter:

A. Any activity conducted on public property, or on private properly with the consent of the owner, by any public entity, or its officers, employees, representatives, agents, subcontractors, permittees, licensees, or lessees, which are consistent with, and in furtherance of, the governmental functions or services the public entity has authorized, or responsible, to perform, activities which are exempt from the provisions of this chapter include, without limitation, sporting and recreational activities which are sponsored or co-sponsored by the City of Newport Beach or the Newport Mesa Unified School District;

B. Occasional outdoor gatherings, public dances, show, sporting and entertainment events, provided said events are conducted pursuant to a permit or license issued by the appropriate jurisdiction relative to the staging of said events;

C. Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within forty-five (45) minutes in any hour of its being activated;

D. Noise sources associated with construction, repair, remodeling, demolition or grading of any real property. Such activities shall instead be subject to the provisions of Chapter <u>10.28</u> of this title;

E. Noise sources associated with construction, repair, remodeling, demolition or grading of public rights-of-way or during authorized seismic surveys;

F. All mechanical devices, apparatus or equipment associated with agriculture operations provided that:

1. Operations do not take place between eight p.m. and seven a.m. on weekdays, including Saturday, or at any time Sunday or a federal holiday, or

2. Such operations and equipment are utilized for the protection or salvage of agricultural crops during

periods of potential or actual frost damage or other adverse weather conditions, or

3. Such operations and equipment are associated with agricultural pest control through pesticide application, provided the application is made in accordance with permits issued by or regulations enforced by the California Department of Agriculture;

G. Noise sources associated with the maintenance of real property. Such activities shall instead be subject to the provisions of Chapter <u>10.28</u> of this title;

H. Any activity to the extent regulation thereof has been preempted by state or federal law. NOTE: Preemption may include motor vehicle, aircraft in flight, and railroad noise regulations;

 Any noise sources associated with people and/or music associated with a party at a residential property.
 Such noise is difficult to measure under the terms of this chapter and instead shall be subject to the provisions of Chapters <u>10.28</u> and <u>10.58</u> of this title;

J. Any noise sources associated with barking dogs or other intermittent noises made by animals on any properly within the City of Newport Beach. Such noise is difficult to measure under the terms of this chapter and instead shall be subject to the provisions of Chapter <u>7.20</u> of this Code;

K. Any noise sources associated with the operation of a permanently installed heating, venting and air conditioning (HVAC) equipment on a residential property permitted under the provisions of Section <u>10.26.045(B)</u> and (C);

L. Any noise sources specifically identified and mitigated under the provisions of a use permit, modification permit, development agreement or planned community district development plan adopted prior to the date of adoption of this chapter. (Ord. 95-53 § 3, 1995; Ord. 95-38 § 11 (part), 1995)

10.26.040 Schools, Day Care Centers, Churches, Libraries, Museums, Health Care Institutions—Special Provisions.

It is unlawful for any person to create any noise which causes the noise level at any school, day care center, hospital or similar health care institution, church, library or museum while the same is in use, to exceed the noise standards specified in Section <u>10.26.025</u> prescribed for the assigned Noise Zone I (residential uses). (Ord. 95-38 § 11 (part), 1995)

10.26.045 Heating, Venting and Air Conditioning—Special Provisions.

A. New HVAC Equipment. New permits for heating, venting and air conditioning (HVAC) equipment in or adjacent to residential areas shall be issued only where installations can be shown by computation, based on the sound rating of the proposed equipment, not to exceed an A-weighted sound pressure level of fifty (50) DBA or not to exceed an A-weighted sound pressure level of fifty-five (55) dBA and be installed with a timing device that will deactivate the equipment during the hours of ten p.m. to seven a.m. The method of computation used shall be that specified in "Standard Application of Sound Rated Outdoor Unitary Equipment," Standard 275, Air conditioning and Refrigeration Institute, 1984 or latest revision thereof.

B. Existing HVAC Equipment.

1. HVAC equipment legally installed prior to April 22, 1981, shall be permitted to operate with an exterior noise limit of sixty-five (65) dBA until January 1, 1998.

2. HVAC equipment legally installed prior to April 22, 1981, shall be exempted from the interior noise level standard as specified in Section <u>10.26.030</u> of this chapter until January 1, 1998.

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3. HVAC equipment legally installed after April 22, 1981, and prior to the date of adoption of this chapter shall not exceed a maximum exterior noise limit of fifty-five (55) dBA during the ninety-day compliance period set forth in Section <u>10.26.005</u>.

C. In the event that HVAC equipment cannot meet the requirements set forth in this chapter, then the exterior noise limit for such equipment may be raised to sixty-five (65) dBA and exempted from the interior noise level standard as specified in Section <u>10.26.030</u> of this chapter, provided that the applicant obtains the written consent of all the owners of the affected properties. (Ord. 95-38 § 11 (part), 1995)

10.26.050 Sound-Amplifying Equipment.

Loudspeakers, sound amplifiers, public address systems or similar devices used to amplify sounds shall be subject to the provisions of Chapter <u>10.32</u> of this title. Such sound-amplifying equipment shall not be construed to include electronic devices, including but not limited to, radios, tape players, tape recorders, compact disc players, electric keyboards, music synthesizers, record players or televisions, which are designed and operated for personal use, or used entirely within a building and are not designed or used to convey the human voice, music or any other sound to an audience outside such building, or which are used in vehicles and heard only by occupants of the vehicle in which installed, which shall be subject to the provisions of Chapter <u>10.28</u> of this title. (Ord. 95-38 § 11 (part), 1995)

10.26.055 Noise Level Measurement.

A. The location selected for measuring exterior noise levels in a residential area shall be at any part of a private yard, patio, deck or balcony normally used for human activity and identified by the owner of the affected property as suspected of exceeding the noise level standard. This location may be the closest point in the private yard or patio, or on the deck or balcony, to the noise source, but should not be located in nonhuman activity areas such as trash container storage areas, planter beds, above or contacting a property line fence, or other areas not normally used as part of the yard, patio, deck or balcony. The location selected for measuring exterior noise levels in a nonresidential area shall be at the closest point to the noise source. The measurement microphone height shall be five feet above finish elevation or, in the case of a deck or balcony, the measurement microphone height shall be five feet above the finished floor level.

B. The location selected for measuring interior noise levels shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor, or within the frame of a window opening, nearest the noise source. The measurements shall be made with windows in an open position. (Ord. 95-38 § 11 (part), 1995)

10.26.065 Proposed Developments.

Each department whose duty it is to review and approve new projects or changes to existing projects that result or may result in the creation of noise shall consult with the Code Enforcement Officer prior to any such approval. If at any time the Code Enforcement Officer has reason to believe that a standard, regulation, action, proposed standard, regulation or action of any department respecting noise does not conform to the provisions as specified in this chapter, the Code Enforcement Officer may request such department to consult with him on the advisability of revising such standard or regulation to obtain uniformity. (Ord. 95-38 § 11 (part), 1995)

10.26.070 Prima Facie Violation.

Any noise exceeding the noise level standard as specified in Section <u>10.26.025</u> and <u>10.26.030</u> of this chapter, shall be deemed to be prima facie evidence of a violation of the provisions of this chapter. (Ord. 95-38 § 11 (part), 1995)

10.26.075 Violations.

Any persons violating any of the provisions of this chapter shall be deemed guilty of an infraction. (Ord. 95-38 § 11 (part), 1995)

10.26.080 Violations—Additional Remedies—Injunctions.

A. As an additional remedy, the operation or maintenance of any device, instrument, vehicle or machinery in violation of any provisions of this chapter which operation or maintenance causes or creates sound levels exceeding the allowable standards as specified in this chapter shall be deemed and is declared to be a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction.

B. Any violation of this chapter is declared to be a public nuisance and may be abated in accordance with law. The expense of this chapter is declared to be public nuisance and may be by resolution of the City Council declared to be a lien against the property on which such nuisance is maintained, and such lien shall be made a personal obligation of the property owner. (Ord. 95-38 § 11 (part), 1995)

10.26.085 City Manager Waiver.

The City Manager is authorized to grant a temporary waiver to the provisions of this chapter for a period of time not to exceed thirty (30) days if such temporary waiver would be in the public interest and there is no feasible and prudent alternative to the activity, or the method of conducting the activity, for which the temporary waiver is sought. (Ord. 95-38 § 11 (part), 1995)

10.26.090 Noise Abatement Programs.

A. In circumstances which adopted community-wide noise standards and policies prove impractical in controlling noise generated from a specific source, the City Council may establish a noise abatement program which recognizes the characteristics of the noise source and affected property and which incorporates specialized mitigation measures.

B. Noise abatement programs shall set forth in detail the approved terms, conditions and requirements for achieving maximum compliance with noise standards and policies. Said terms, conditions and requirements may include, but shall not be limited to, limitations, restrictions, or prohibitions on operating hours, location of operations, and the types of equipment. (Ord. 95-38 § 11 (part), 1995)

10.26.095 Manner of Enforcement.

A. The City Code Enforcement Officer is directed to enforce the provisions of this chapter and may issue citations for any violation of the provisions of this chapter or violations of this chapter may be prosecuted or enforced in the same manner as other infractions pursuant to this Code; provided, however, that in the event of an initial violation of the provisions of this chapter, a written notice may be given to the alleged violator which specifies the time by which the condition shall be corrected.

B. No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his/her duty.

C. In the event the alleged violator cannot be located in order to serve any notice, the notice shall be deemed to be given upon mailing such notice by registered or certified mail to the alleged violator at his last known address or at the place where the violation occurred in which event the specified time period for abating the violation or applying for a variance shall commence at the date of the day following the mailing of such notice. (Ord. 95-38 § 11 (part), 1995)

10.26.100 Severability.

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If any provision, clause, sentence, or paragraph of this chapter, or the application thereof to any person or circumstance shall be held invalid, such invalidity shall not affect the other provisions of this chapter which can be given effect without the invalid provisions or application and, to this end, the provisions of this chapter are hereby declared to be severable. (Ord. 95-38 § 11 (part), 1995)

The Newport Beach Municipal Code is current through Ordinance 2016-5, passed April 12, 2016.

Disclaimer: The City Clerk's Office has the official version of the Newport Beach Municipal Code. Users should contact the City Clerk's Office for ordinances passed subsequent to the ordinance cited above.

Chapter 10.28 LOUD AND UNREASONABLE NOISE*

Sections:

10.28.005Policy.10.28.007Loud and Unreasonable Noise is Prohibited.10.28.010Loud and Unreasonable Noise.10.28.020Loud and Raucous Noise from Sound-Making or Amplifying Devices Prohibited.10.28.040Construction Activity—Noise Regulations.10.28.045Real Property Maintenance—Noise Regulations.10.28.050Exceptions.

* Sound-amplifying equipment—See Chapter <u>10.32</u>.

Prior history: 1949 Code § 4208; Ords. 1191, 1802, 87-11, 87-17 and 93-7.

10.28.005 Policy.

It is found and declared as follows:

A. The making, allowing, creation or maintenance of loud and unreasonable, unnecessary, or unusual noises which are prolonged, unusual, annoying, disturbing and/or unreasonable in their time, place and use are a detriment to public health, comfort, convenience, safety, general welfare and the peace and quiet of the City and its inhabitants.

B. The necessity in the public interest for the provisions and prohibitions contained and enacted is to declare as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions contained and enacted are in pursuance of and for the purpose of securing and promoting the public health, comfort, convenience, safety, general welfare and property and the peace and quiet of the City and its inhabitants. (Ord. 2001-4 § 1, 2001)

10.28.007 Loud and Unreasonable Noise is Prohibited.

It is unlawful for any person or property owner to make, continue, cause or allow to be made any loud, unreasonable, unusual, penetrating or boisterous noise, disturbance or commotion which annoys, disturbs, injures or endangers the comfort, repose, health, peace and quiet within the limits of the City, and the acts and things listed in this chapter, among others, are declared to be loud, disturbing, injurious and unreasonable noises in violation of this Chapter, but shall not be deemed to be exclusive. (Ord. 2001-4 § 2, 2001)

10.28.010 Loud and Unreasonable Noise.

It is unlawful for any person or property owner to willfully make, allow, continue or cause to be made, allowed, or continued, any loud and unreasonable, unnecessary, or disturbing noise, including, but not limited to, yelling, shouting, hooting, whistling, singing, playing music, or playing a musical instrument, which disturbs the peace, comfort, quiet or repose of any area or which causes discomfort or annoyance to any reasonable person of normal sensitivities in the area, after a peace or code enforcement officer has first requested that the person or property owner cease and desist from making or continuing, or causing to make or continue, such loud, unreasonable, unnecessary, excessive or disturbing noise.

The factors, standards, and conditions which should be considered in determining whether a violation of the provisions of this section has been committed, include, but are not limited to, the following:

A. The level of the noise;

- B. Whether the nature of the noise is usual or unusual;
- C. Whether the origin of the noise is natural or unnatural;
- D. The level and intensity of the background (ambient) noise, if any;
- E. The proximity of the noise to residential or commercial sleeping areas;
- F. The nature and zoning of the area within which the noise emanates;
- G. The density of inhabitation of the area within which the noise emanates;
- H. The time of day and night the noise occurs;
- I. The duration of the noise;
- J. Whether the noise is constant, or recurrent or intermittent; and
- K. Whether the noise is produced by a commercial or noncommercial activity;

L. If the noise is produced by a commercial activity, whether the use is lawful under the provisions of Title <u>20</u> of this Code and whether the noise is one that could reasonably be expected from the commercial activity.

M. Penalties. Any person who violates any provision of this section is guilty of a misdemeanor, unless the violation is deemed an infraction pursuant to the provisions of Section <u>1.04.010</u> of this Code. (Ord. 2001-4 § 3 (part), 2001: Ord. 95-38 § 3 (part), 1995)

10.28.020 Loud and Raucous Noise from Sound-Making or Amplifying Devices Prohibited.

A. It is unlawful for any person to cause, allow or permit the emission or transmission of any loud or raucous noise from any sound-making or sound-amplifying device in his possession or under his control:

- 1. Upon any private property; or
- 2. Upon any public street, alley, sidewalk or thoroughfare; or
- 3. In or upon any public park, beach or other public place or property.

B. The words "loud and raucous noise," as used herein, shall mean any sound or any recording thereof when amplified or increased by any electrical, mechanical or other device to such volume, intensity or carrying power as to unreasonably interfere with the peace and quiet of other persons within or upon any one or more of such places or areas, or as to unreasonably annoy, disturb, impair or endanger the comfort, repose, health, or safety of other persons within or upon any one or more or more such places or areas.

C. The word "unreasonably," as used herein, shall include, but not be limited to, consideration of the hour, place, nature and circumstances of the emission or transmission of any such loud and raucous noise.

D. Penalties. Any person who violates any provision of this section is guilty of a misdemeanor unless the violation is deemed an infraction pursuant to the provisions of Section <u>1.04.010</u> of this Code. (Ord. 2001-4 § 3 (part), 2001: Ord. 95-38 § 3 (part), 1995)

10.28.040 Construction Activity—Noise Regulations.

A. Weekdays and Saturdays. No person shall, while engaged in construction, remodeling, digging, grading, demolition, painting, plastering or any other related building activity, operate any tool, equipment or machine in a manner which produces loud noise that disturbs, or could disturb, a person of normal sensitivity who works or

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resides in the vicinity, on any weekday except between the hours of seven a.m. and six-thirty p.m., nor on any Saturday except between the hours of eight a.m. and six p.m.

B. Sundays and Holidays. No person shall, while engaged in construction, remodeling, digging, grading, demolition, painting, plastering or any other related building activity, operate any tool, equipment or machine in a manner which produces loud noise that disturbs, or could disturb, a person of normal sensitivity who works or resides in the vicinity, on any Sunday or any federal holiday.

C. No landowner, construction company owner, contractor, subcontractor, or employer shall permit or allow any person or persons working under their direction and control to operate any tool, equipment or machine in violation of the provisions of this section.

D. Exceptions.

1. The provisions of this section shall not apply to emergency construction work performed by a private party when authorized by the Community Development Director or his or her designee.

2. The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City of Newport Beach, or its employees, contractors or agents, unless:

a. The City Manager or department director determines that the maintenance, repair or improvement is immediately necessary to maintain public services;

b. The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours;

c. The City Council has approved project specifications, contract provisions, or an environmental document that specifically authorizes construction during hours of the day which would otherwise be prohibited pursuant to this section.

E. Penalties. Any person who violates any provision of this section is guilty of a misdemeanor unless the violation is deemed an infraction pursuant to the provisions of Section <u>1.04.010</u> of this Code. (Ord. 2013-11 § 35, 2013; Ord. 2001-4 § 3 (part), 2001: Ord. 95-38 § 3 (part), 1995)

10.28.045 Real Property Maintenance—Noise Regulations.

A. Weekdays and Saturdays. No person shall, while engaged in maintenance of real property, operate any tool, equipment or machine in a manner which produces loud noise that disturbs, or could disturb, a person of normal sensitivity who works or resides in the vicinity, except between the hours of seven a.m. and six-thirty p.m., Monday through Friday, nor on any Saturday, except between the hours of eight a.m. and six p.m.

B. Sundays and Holidays. No person shall, while engaged in maintenance of real property, operate any tool, equipment or machine in a manner which produces loud noise that disturbs, or could disturb, a person of normal sensitivity who works or resides in the vicinity, on any Sunday or any federal holiday.

C. No landowner, gardener, property maintenance service, contractor, subcontractor or employer shall permit or allow any person or persons working under their direction and control to operate any tool, equipment or machine in violation of the provisions of this section.

D. After January 1, 1996, mechanical blowers, as defined in Section <u>6.04.055</u>, shall not be operated at a noise level that exceeds an A-weighted sound pressure level of seventy (70) dBA, as measured at a distance of fifty (50) feet. After January 1, 1999, such equipment shall <u>not</u> be operated at a noise level that exceeds an A-

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weighted sound pressure level of sixty-five (65) dBA, as measured from a distance of fifty (50) feet.

- E. Exceptions. The provisions of this section shall not apply to the following:
 - 1. Emergency property maintenance authorized by the Building Director;

2. The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City of Newport Beach, or its employees, contractors or agents, unless:

a. The City Manager or department director determines that the maintenance, repair or improvement is immediately necessary to maintain public service,

b. The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours,

c. The City Council has approved project specifications, contract provisions, or an environmental document that specifically authorizes construction during hours of the day which would otherwise be prohibited pursuant to this section;

3. Greens maintenance on golf courses conducted between the hours of six a.m. and eight p.m. and all other types of golf course maintenance between the hours of seven a.m. and eight p.m., provided no maintenance activity commences before six a.m.

F. Penalties. Any person who violates any provision of this section is guilty of a misdemeanor unless the violation is deemed an infraction pursuant to the provisions of Section <u>1.04.010</u> of this Code. (Ord. 2001-4 § 3 (part), 2001: Ord. 95-38 § 3 (part), 1995)

10.28.050 Exceptions.

The provisions of Sections <u>10.28.040</u> and <u>10.28.045</u> shall not be construed to prohibit such work at different hours by or under the direction of any other public agency in cases of necessity or emergency. (Ord. 2001-4 § 3 (part), 2001: Ord. 95-38 § 3 (part), 1995)

The Newport Beach Municipal Code is current through Ordinance 2016-5, passed April 12, 2016.

Disclaimer: The City Clerk's Office has the official version of the Newport Beach Municipal Code. Users should contact the City Clerk's Office for ordinances passed subsequent to the ordinance cited above.

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APPENDIX 5.1:

STUDY AREA PHOTOS



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JN:09831 AutoNation



L1 33, 37' 1.875000", 117, 54' 35.326500"

L1_E 33, 37' 1.875000", 117, 54' 35.326500"



L1_N 33, 37' 1.875000", 117, 54' 35.326500"

L2 33, 36' 58.716400", 117, 54' 26.702200"



L2_E 33, 36' 58.716400", 117, 54' 26.702200"

L2_NW 33, 36' 58.716400", 117, 54' 26.702200"

JN:09831 AutoNation



L2_W 33, 36' 58.716400", 117, 54' 26.702200"

L3 33, 36' 58.469200", 117, 54' 38.732300"



L3_S 33, 36' 58.469200", 117, 54' 38.732300"

L3_W 33, 36' 58.469200", 117, 54' 38.732300"



L4 33, 36' 58.469200", 117, 54' 34.612400"

L4_E 33, 36' 58.675200", 117, 54' 34.942000"

JN:09831 AutoNation



L4_NE 33, 36' 58.675200", 117, 54' 34.942000"

L4_NE2 33, 36' 58.469200", 117, 54' 34.612400"



L4_NE3 33, 36' 58.469200", 117, 54' 34.612400"

L4_NW 33, 36' 58.469200", 117, 54' 34.612400"



L5 33, 36' 58.263200", 117, 54' 38.402700"

L5_NE 33, 36' 58.263200", 117, 54' 38.402700"

JN:09831 AutoNation



Site1 33, 36' 58.208300", 117, 54' 31.481300"

Site2 33, 36' 58.606500", 117, 54' 33.458800"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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	24-TOUL		57.8					7.24	23)	/000/	38.0	44.0	42.3	35.0	40.0 26.6	0.00		37.U 36.0	35.0	35.0	35.0	40.0	44.0	43.0	44.0 44.0	43.0	43.0	43.0	43.0	44.0	43.0	41.0	39.0	38.0	37.0 37.0	
	ni:264	Night	45.6					7 . 94	21 22		105%	40 N	45.0	43.5	35.0	0.1.4 0.5 o	0.00		37.0	35.0	35.0	35.0	41.0	45.0	45.0	45.0	44.0	44.0	44.0	45.0	45.0	44.0	42.0	40.0	40.0	37.0 37.0	
Enormy Aug	ciieryy Averuge Led	nay '	57.8					95	19 20		/000 I	40 U	46.0	44.2	35.0	42.U 27 A	t://		37.0 37.0	37.0	35.0	36.0	42.0	46.0	45.0	45.0	45.0	45.0	45.0 45.0	45.0	45.0	45.0	43.0	41.0	40.0	38.0 37.0	
1000		Analyst: A. Wolfe	Date: 6/8/2016				9.6	95 5	17 18			44 U	50.0	47.7	37.0	1.00	T.CC		38.U 37 D	37.0	37.0	37.0	41.0	50.0	49.0	40.0 49.0	48.0	48.0	49.0 E0.0	48.0	50.0	48.0	46.0 4F 0	44.0	44.0	41.0 39.0	1
	. And a start	Anaiyst:	Date:				۲. ۲.		15 16		1 75%	48.0	56.0	52.7	37.0	40.0	6.04		39.0	38.0	37.0	39.0	43.0	55.0	53.0	54.0	54.0	55.0	55.0 E.e. 0	52.0	55.0	53.0	49.0 E0.0	49.0	48.0	43.0 42.0	
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oise Level		Road adjacent to existing					б.		9 10	9	/oC 1	65 D	70.0	66.7	41.0	0.60	Hourk	, inom	44.U	49.0	41.0	43.0	63.0	66.0	65.0	0.00	68.0	68.0	68.0	68.0	67.0	66.0	66.0 66.0	65.0	66.0	52.0 55.0	
24-Hour N							ع . ی	·SS //	8		110/	66.0	71.0	68.6	41.0	0.00	7:10		46.U	53.0	41.0	44.0	65.0	68.0	66.0 25 0	0.10	70.0	71.0	69.0	20.07	68.0	0.09	69.0 69.0	67.0	67.0	54.0 58.0	
		Project site o					H	6. 44.9	ی د		lmin	37.7	43.5	Average:	34.7	0.66	verage.		5.75 7.45	34.7	34.7	34.7	0.7c 39.0	42.8	42.6	42.9	42.7	42.2	43.1	42.5	42.6	42.9	40.7 20 E	39.4	37.7	37.6 35.9	
	=	L1 - Located north of the Project site on Kings	nomes.)				0.8£	4				88.5		55.7 72 F	n		c [2./c	59.1	63.6	55.7	0.60	80.3	70.0	74.6	78.4	82.4	75.3	76.6	74.6	86.9	75.7	78.7	73.8	72.5 65.1	
	Project ivarine: Autoivation		residential nomes.	Hourly Leq dBA Readings (unadjusted)				41°3				55 ()	61.0	57.8	38.5	1.2C	0.04		40.0	41.2	38.5	39.0	52.1	57.5	55.3	57.6	58.6	59.5	58.4	22.5 57.5	57.7	59.6	56.1 56.0	55.2	55.0	46.1	
	רי טופנו ואמוזי	Location:		g dBA Reading				0.04	- c		Hour		Max	Energy Average:	Min	Fnerøy Average:	by rectably.	¢	⊃ -	- 2	æ	4 1	n u	7	∞ (1 ^ر	11	12	13	15	16	17	18	20	21	22 23	e e
				Hourly Led				Hou 40.0	35.C		Time Derioe		Day	Ener	Night	Enar					Night								VeU	Cay						Night	

JN: 9831 Energy Average Leg 24-Hour	ect site and residential homes on Analyst: A. Wolfe Day Night CNEL	Date: 6/8/2016 59.3 52.7 61.6					2 2 2 3 3 3 3 3 3	7	S			Hour Beginning	11% 12% 12% 12% 122% 120% 190% 195% 199%	62.0 60.0 59.0 56.0 54.0 49.0 48.0	68.0 65.0 63.0 61.0 59.0 56.0 55.0	65.2 62.9 61.6 58.6 56.5 52.9 51.7	53.0 50.0 49.0 45.0 41.0 40.0 40.0	64.0 62.0 61.0 58.0 56.0 51.0 49.0	57.3 54.6 53.3 50.0 46.9 43.1 42.4	Hourly Simman			540 J.C. J.C. J.C. J.C. J.C. J.C. J.C. J.C	53.0 50.0 49.0 45.0 41.0 40.0 40.0	54.0 52.0 50.0 47.0 43.0	59.0 57.0 56.0 53.0 51.0 45.0 44.0	61.0 58.0 56.0 51.0 49.0		65.0 62.0 62.0 60.0 50.0 53.0 54.0 54.0 53.0 54.0 53.0 53.0 54.0 55.0 55.0 54.0 55.0 55.0 55.0 55		64.0 62.0 61.0 59.0 57.0 54.0 53.0	64.0 62.0 61.0 59.0 57.0 53.0	66.0 64.0 63.0 59.0 57.0 53.0 52.0	68.0 65.0 63.0 59.0 57.0 53.0 52.0	65.0 63.0 61.0 58.0 56.0 53.0 52.0	65.0 63.0 62.0 59.0 57.0 53.0 52.0	65.0 62.0 61.0 58.0 56.0 53.0 52.0	66.0 63.0 61.0 58.0 55.0 52.0 50.0	65.0 63.0 62.0 57.0 55.0 51.0 49.0	68.0 64.0 61.0 57.0 54.0 50.0 49.0	62.0 60.0 59.0 56.0 54.0 49.0 48.0	64.0 62.0 58.0 57.0 53.0 51.0 46.0 45.0 43.0 63.0 60.0 55.0 51.0 48.0 48.0 43.0 43.0	
utoNation	L2 - Located on the hillside between the Project site and residential homes on	Kings Road.	adjusted)					1	17 17))) / (/ (/ (/ / /))) / (/ / (/ / / /	0 0 0		Lea Lmax Lmin	68.3	84.9	Average:	60.4	79.8	52.7 Average:			68 F	68.7	60.4	61.9	70.0	72.3	60.4 73.1 50.9	C.67	70 1	71.2	72.0	59.4 73.9 47.6	80.3	74.9	73.2	75.8	73.3	78.1	84.9	68.3 <u>-</u> 2 -	2.40.5 2.40.5 4.0.5 5.4 2.1 2.2 5.4 5.4 2.1 2.2 5.4 5.4 5.4 5.4 5.4 5.4 5.4 5.4 5.4 5.4	0.67
Project Name: AutoNation		Location: Kir	Hourly Leq dBA Readings (unadjusted)	85.0	A8			50.0	40.0				Time Period Hour		Day Max	Energy Average:	Min	Night Max	Energy Average:		c	D ←		Night 3	4	Ŋ	9	- 0	ο σ	, C	11	12	13	Day 14	15	16	17	18	19	20	21	Night 22	

24-Hour	CNEL	76.8		<u><u> </u></u>	23	%661	52.0	62.0 E6.0	48.0	52.0	49.1		48.0	48.0	48.0	48.0	50.0 52.0	57.0	57.0	57.0	59.0 59.0	58.0	60.0	0.66	55.0	62.0	59.0	53.0 53.0	52.0	51.0 49.0	0.01
Energy Average Leq	Night	0.69		9.17 9.27	21 22	195%	56.0	0.69 C 1 2	48.0	54.0	49.9		49.0	48.0	46.0	48.0	51.0 54.0	61.0	62.0	62.0	64.0 63.0	63.0	63.0 	61.0	62.0	65.0	63.0 E0.0	57.0	56.0	53.0 50.0	
Energy Av	Day	73.2		2.27 2.57	 19 20	%061	59.0	66.U	64.0 48.0	57.0	50.3		49.0	48.0	46.0 48.0	48.0	51.0 57.0	64.0	65.0	65.0	66.0 66.0	65.0	65.0 62.0	62.U 64.0	65.0	66.0	66.0 62.0	0.20 60.0	59.0	54.0 50.0)
JN: 9831	<i>Analyst:</i> A. Wolfe	6/8/2016		£.27	17 18	150%	0.69	70.0	49.0	70.0	57.2		55.0	53.0	49.0	51.0	61.0 70.0	73.0	72.0	72.0	71.0 71.0	71.0	70.0	71.0	71.0	70.0	71.0	0.07 70.0	69.0	66.0 61.0	24-2
	Analyst:	Date:		72.9	15 16	125%	72.0	/5.U 72 E	51.0 51.0	74.0	63.1		64.0	62.0 52.0	51.0	56.0	68.0 74.0	75.0	75.0	75.0	74.0 74.0	73.0	72.0	73.0	73.0	72.0	74.0	73.0	73.0	71.0 69.0	2
our Noise Level Measurement Summary				£'TZ 9'TZ	13 14	18%	74.0	75 7	64.0	76.0	70.2		70.0	69.0	64.0 64.0	67.0	73.0 76.0	77.0	77.0	77.0	76.0 76.0	75.0	74.0	75.0	75.0	74.0	77.0	76.0	75.0	73.0 73.0	2
Measurem		st Highway.		8.27	11 12 Hour Beginning		75.0	0.8/	/0.3 66.0	77.0	71.8	Hourly Summary	72.0	70.0	0.00 66.0	0.69	74.0	78.0	78.0	77.0	77.0	75.0	75.0 0	0.6/	76.0	75.0	77.0	76.0	76.0	74.0	2 · · ·
iise Level I		e on West Coa		<i>μ.</i> μγ γ.μγ	9 10	12%	76.0	0.67	0.69	78.0	73.9	Hourly S	74.0	73.0	0.11	71.0	76.0	0.67	79.0	79.0	0.97	77.0	76.0	0.77	78.0	77.0	79.0	0.9.0 78.0	77.0	77.0 76.0) · · · ·
24-Hour No		L3 - Located at the southwest corner of the Project site on West Coast Highway.		τ·s∠ 	7 8	11%	78.0	82.0	71.0	80.0	75.4		75.0	74.0	71.0	73.0	77.0 80.0	0.02	81.0	81.0	81.0 79.0	78.0	78.0 	/8.U 80.0	80.0	79.0	82.0	0.28 79.0	78.0	79.0 79.0	2 2 2
2		est corner of 1		6.8a	 5 6	Lmin	51.5	ל.לל ההביבי	Avelage.	50.7	Average:		48.3	48.0	48.0	47.9	49.6 50.6	55.0	53.3	52.7	54.5 55.5	54.2	53.9	53.9 54.4	52.2	55.2	54.3 E1.6	52.4	51.5	50.7 48 5	2
		at the southw		6.29	 4	Lmax	81.5	100.4	79.3	101.4	AVE		92.4	94.5	79.3	89.3	86.2 87.6	83.8	9.66	98.0	100.4 84.8	86.5	89.3	80.b 89.1	93.9	91.2	93.3 00 F	5.08 89.5	81.5	101.4 97.8)
AutoNation		L3 - Located	(unadjusted)	6.03	 2 3	Lea	71.3	1.c/ C C2	73.2 59.2	72.6	69.0		66.8	6.99	59.2	62.9	68.3 77.6	74.2	75.1	74.4	74.7 72.8	72.1	71.6	72.9	73.3	72.1	73.9 73.5	c.e/ 72.3	71.6	71.7	
Project Name: AutoNation		Location:	Hourly Leq dBA Readings (unadjusted)	8.99	0 1	Hour	Min	Energy Average:	Average.	light Max	Average:		0		νm	4	л ч	2	~ 00	ō (11	12	13	14 15	16	17	18	20	21	22 23	2
			Hourly Leg c	0.000000000000000000000000000000000000		Time Period	Day	Energy		Night	Energy				Night)							ć	лау						Night	

	lour	ΕL	ø.								<u> </u>		% %	o o	Ĺ.	o. 0	o o	Ŀ.		o. (o o	. O	0.	o c	o o	0.	o i	o o	0.	o d	o a		0.	o d	o o	0.	0.0	D.
	24-Hour	CNEL	75.8		-		0.6						، 3667	48.U 58.0	53.1	41.0	48.0	42		41.0	41.0	41.0	41.0	43.0	58.0	56.0	54.0	54.0 54.0	51.0	53.0	53.0 51.0	51.0	57.0	56.0	48.U 51.0	49.	47.0	43
	e Leq	Night	67.6		-		9.07			- - - - -			L95%	52.U 62.0	57.8	41.0	51.0	43.9		42.0	41.0 41.0	41.0	41.0	44.0 51.0	61.0	62.0	59.0	58.0 58.0	57.0	58.0	56.0	57.0	60.0	60.0 77 0	54.0	52.0	50.0	44.0
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	Energy	Dαy	73.3		_	0	.27			- -	Ì		تونى 190%	54.0 64.0	61.2	41.0	54.0	44.9		42.0	42.0	41.0	42.0	45.0 54.0	64.0	64.0	63.0	63.0 63.0	61.0	62.0	60.0 60.0	61.0	62.0	63.0	57.0	54.0	51.0	4b.U
		.e	16			8	.27			6	ç		% %		.7	0. 0	о, <i>г</i>	.1		0. 0		0.	0.		<u>,</u> 0	0.	0. 0		0.	0. 0		. o.	0.	<u>o</u>	. 0	0.	0. 0	0.
	JN: 9831	Analyst: A. Wolfe	Date: 6/8/2016			4	εz				Ì		L50%	67.0 74.0	70.7	42.0	69.0	53.1		51.0	46.0 44.0	42.0	45.0	58.0	74.0	73.0	72.0	71.0	71.0	71.0	71.0	70.0	71.0	71.0	0.99.0 68.0	67.0	63.0	ðč
	:Nr	Analyst:	Date:		_	+	.27			1			L25%	76.0	73.7	47.0	/4.0	60.8		61.0	52.0	47.0	53.0	67.0 74.0	76.0	75.0	75.0	74.0 74.0	74.0	73.0	74.0 74.0	74.0	74.0	74.0	72.0	71.0	69.0 0.63	66.0
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our Noise Level Measurement Summary		ıtial			_	Ŧ	.27			÷		8	% "	o o	8.	0. 0		.2	У	0. 0		0.	0.	o, c	0.0	0.	0. (0.	0.0		. O.	0.	0. 0		.0	0. 0	0.
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Level N		L4 - Located adjacent to an existing 8-foot high wall for the Bayshore residential				ε.	7 2			Ę			L2%	0.77 80.0	78.2	70.0	/9.0	/4.3	Hourly :	74.0	71.0	70.0	73.0	79.0 79.0	80.0	79.0	79.0	0.9/ 78.0	77.0	78.0	78.0 78.0	78.0	79.0	78.0	77.0	77.0	77.0	/6.0
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Hour		nigh wall)			5.6	52			•	D		L1%	/8.U 81.0	79.9	73.0	80.U	/5.9		75.0	73.0	73.0	75.0	78.0 80.0	81.0	81.0	81.0	0.18 79.0	79.0	80.0	80.0 81.0	79.0	81.0	80.0	0.67	78.0	78.0	11.0
24-H(g 8-foot l	, ei		_	6'1				-	•		in	ن ن		rù o	بر			o ı	· «	. ∞	Ŀ	<u>م</u>	i Γ	0.	ون ،	. 9	.6	ni r	o m	و م	4.	rù r	و ہ	.1	Ļ, r	9.
		າ existin _ິ	oject sit		_	0	8.4						Lmin	45.b 54.5	Average:	40.5		Average:		41.0	40.7	40.8	40.5	42.7	54.5	50.0	49.9	48.6	47.6	49.5	49.0 49.3	47.9	52.4	52.5	42.6 47.6	47.1	45.1	42.6
		ent to ar	community south of the Project site.		_			6.1a)				Lmax	د.د 8 100.1		81.8		AVE		85.8 87 0	85.2	81.8	82.9	90.0 87 7	87.6	99.7	98.7	100.1 92.4	91.4	85.3 01.2	91.3 94.1	87.7	92.8	87.8	89.7 85.3	85.3	86.9 225	94.5
	n	ed adjac	ty south	d)	_			5.9	S	(ר						+																					
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	Project Name: AutoNation	-	Location:	IBA Read			7	.49		<	þ		Hour	Max	Energy Average:	Min	A rest of Max	Energy Average:		, 0		i m	4	5 9		8	ິ ທີ່	11	12	13	14 15	16	17	18	20	2:	22	7
	4			Hourly Leq dBA Readings (unadjusted)	85.0 -				POU				Time Period	Day	Energy	Night		Energy				Night									ЛdУ						Night	

P	Project Name: AutoNation	AutoNation		2	24-Hour Noi	ise Level I	our Noise Level Measurement Summary	ent Summa		JN: 9831	Energy Average Leq	erage Leq	24-Hour
		L5 - Located a	djacent to an	L5 - Located adjacent to an existing 8-foot hig	t high wall for	h wall for the Bayshore residential	eresidential		Analyst:	Analyst: A. Wolfe	Day	Night	CNEL
	Location:	community south of the Project site.	uth of the Pr	oject site.)				Date:	Date: 6/8/2016	7.77	72.3	80.5
Hourly Leg di	Hourly Leq dBA Readings (unadjusted)	unadjusted)											
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b) p	۲. ۲.		8		.8T	.e7	5°22	C.77 E.77	5°LL	5°22)°82	2.97 2.87	75.6 74.1	4.51
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NuoH 35.0													
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Day	Min May	75.6 79.3	87.5 105 2	48.5 57 5	83.0 85.0	82.0 84.0	81.0 83.0	80.0 82.0	76.0 80.0	72.0 78.0	59.0 69.0	56.0 66.0	52.0 63.0
Energy A	Energy Average:	7.77		Average:	83.7	82.7	81.7	80.8	78.3	75.3	66.7	63.5	58.1
Night	Min	64.5	∞		78.0	76.0	70.0	66.0	52.0	47.0	43.0	43.0	43.0
	Max	77.7	97.4	50.2	85.0	84.0	83.0	82.0	79.0	74.0	58.0	55.0	52.0
Energy A	Energy Average:	72.3	Ave	Average:	81.1	79.4	76.6	74.1	65.6	58.0	48.3	47.1	45.9
						Hourly :	Hourly Summary						
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Night	m	64.5	84.8	42.9	78.0	76.0	70.0	66.0	52.0	47.0	44.0	44.0	43.0
	4 1	66.8 	87.5	43.5	79.0	78.0	74.0	70.0	57.0	50.0	45.0	44.0	44.0
	u م	73.0	91.4	45.7 50.2	85.0 85.0	81.0 84.0	80.0 83.0	/8.0 82.0	79.0 79.0	63.0 74.0	50.0 58.0	49.0 55.0	47.0 52.0
	7	79.0	88.9	55.4	84.0	84.0	83.0	82.0	80.0	78.0	67.0	64.0	60.09
	8	78.4	96.5	56.4	84.0	83.0	82.0	81.0	79.0	76.0	68.0	66.0	61.0
	о (78.6 70 3	99.2 105 2	53.8 57 5	84.0 84.0	83.0 83.0	82.0 82.0	82.0 81.0	79.0	76.0	68.0 69.0	64.0 66.0	58.0 61.0
	11	77.5	93.3	55.8	83.0	83.0	81.0	81.0	78.0	76.0	0.09	66.0	61.0
	12	77.3	90.4	55.8	83.0	82.0	81.0	80.0	78.0	75.0	69.0	66.0	60.0
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Vay	15 15	1.77 2.77	91.4 96.1	53.1 53.1	83.U 84.0	82.U 83.0	82.0 82.0	81.0	0.8/ 79.0	76.0	67.U 68.D	63.U 64.0	57.0 57.0
	16	77.4	87.5	51.4	84.0	83.0	82.0	81.0	78.0	75.0	68.0	65.0	55.0
	17 10	78.0	94.3	57.2	84.0 01.0	83.0	82.0	81.0 21.0	79.0	76.0	68.0	66.0	63.0
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	20	76.2	91.3	50.6	83.0	82.0	81.0	0.08	77.0	73.0	61.0	57.0	54.0
	21	75.6	88.9	48.5	83.0	82.0	81.0	80.0	76.0	72.0	59.0	56.0	52.0
Night	22 23	74.1 73.4	91.5 97.4	48.0 45.3	83.0 83.0	82.0 81.0	0.08 79.0	0.07 0.77	74.0 71.0	68.0 63.0	55.0 49.0	52.0 48.0	50.0 46.0

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS



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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 Centerline Dist. to Barrier: 64.0 feet Meauy Trucks: 86.5% 2.7% 10.3% 1.84 Centerline Dist. to Dasriver: 64.0 feet Noise Source Elevations (in feet) Noise Source Elevations (in feet) Noise Source (in feet) Medium Trucks: 2.297 Observer Height View: -90.0 feet Medium Trucks: 52.984 Heavy Trucks: 53.000 Road Grade: 0.0% Left View: -90.0 degrees Finite Road Fresnel Barrier Atten Berrier Atten Autos: 68.46 -2.04 -0.50 -1.20 -4.70 0.000 0.0 Medium Trucks: 79.45 -19.28 -0.48 -1.20 -5.31 0.000 0.0 Medium Trucks: 79.45 -19.28 -0.48 -1.20 -5.31 0.000 0.0 Medium Trucks:		FH	WA-RD-77-108	HIGHW	AY NO	DISE PR	EDICTIO	N MOE	DEL			
Road Segment: n/o West Coast Hwy. Site Specific INPUT DATA NOISE MODEL INPUTS Site Specific INPUT DATA NOISE MODEL INPUTS Average Daily Traffic (Adi): 9,800 vehicles Autos: 15 Average Daily Traffic (Adi): 9,800 vehicles Autos: 15 Vehicle Speced: 45 mph Vehicle Speced: 45 mph Vehicle Type Day Evening Night Daily Evening Night Night Dailet Night <t< th=""><th>Scenari</th><th>o: Existing W</th><th>ithout Project</th><th></th><th></th><th></th><th>Project N</th><th>ame: A</th><th>utoNa</th><th>ation</th><th></th><th></th></t<>	Scenari	o: Existing W	ithout Project				Project N	ame: A	utoNa	ation		
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Noise Barrier Atten Barrier Atten <td></td> <td></td> <td>0.0</td> <td></td> <td></td> <td>H</td> <td>leavy Truc</td> <td>cks: 8</td> <td>36.5%</td> <td>2.7%</td> <td>10.8%</td> <td>0.749</td>			0.0			H	leavy Truc	cks: 8	36.5%	2.7%	10.8%	0.749
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Right View: 90.0 degrees Heavy Trucks: 53.000 FHWA Noise Model Calculations VehicleType REIMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 68.46 -2.04 -0.50 -1.20 -4.70 0.000 0.0 Medium Trucks: 79.45 -19.28 -0.48 -1.20 -4.88 0.000 0.0 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Deak Hou Leq Devining Leq Night Ldn CNEL VehicleType E42.5 57.0 50.6 49.1 57.5 55 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Medium Trucks: 59.3 57.9 48.9 50.1 55.5 56 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (in feet) To dBA 60 dBA 56 dBA 60 dBA 56 dBA Ldn:<	F											
FHWA Noise Model Calculations Fritte Road Frank Road Frank Road Barrier Atten Berm Atten Autos: 68.46 -2.04 -0.50 -1.20 -4.70 0.000 0.0 Medium Trucks: 79.45 -19.28 -0.48 -1.20 -4.88 0.000 0.0 Heavy Trucks: 84.25 -23.23 -0.48 -1.20 -5.31 0.000 0.0 Untitigated Noise Levels (without Topo and barrier attenuation) - - - - - - - - - - - - 0.00 0.0 VehicleType Leg Peak Hour Leg Day Leg Evening Leg Night Ldn CNEL Autos: 64.7 62.8 61.1 55.0 63.6 64 Medium Trucks: 59.3 57.9 48.9 50.1 58.5 56 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (in feet) - <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 68.46 -2.04 -0.50 -1.20 -4.70 0.000 0.0 Medium Trucks: 79.45 -19.28 -0.48 -1.20 -4.88 0.000 0.0 Heavy Trucks: 84.25 -23.23 -0.48 1.20 -5.31 0.000 0.0 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn CNEL Autos: 64.7 62.8 61.1 55.0 63.6 64 Medium Trucks: 59.3 57.9 48.9 50.1 58.5 55 Heavy Trucks: 59.3 57.9 48.9 50.1 58.5 56 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (In feet)		Right View:	90.0 degre	es		Heav	y Trucks:	53.0	00			
Autos: 68.46 -2.04 -0.50 -1.20 -4.70 0.000 0.0 Medium Trucks: 79.45 -19.28 -0.48 -1.20 -4.78 0.000 0.0 Heavy Trucks: 84.25 -23.23 -0.48 -1.20 -5.31 0.000 0.0 Unnitigated Noise Levels (without Top on and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 64.7 62.8 61.1 55.0 63.6 64 Medium Trucks: 59.3 57.9 48.9 50.1 58.5 55 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (in feet)	FHWA Noise Mode	el Calculation	IS									
Medium Trucks: 79.45 -19.28 -0.48 -1.20 -4.88 0.000 0.0 Heavy Trucks: 84.25 -23.23 -0.48 -1.20 -5.31 0.000 0.0 Unmitigated Noise Levels (without Topo and barrier attenuation) Use Evening Leq Reining Leq Night Ldn CNEL VehicleType Leq Peak Hour Leq Dev Leq Evening Leq Night Ldn CNEL Autos: 64.7 62.8 61.1 55.0 63.6 64 Medium Trucks: 59.3 57.0 50.6 49.1 57.5 55 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (In feet) To dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322						Finite						
Heavy Trucks: 84.25 -23.23 -0.48 -1.20 -5.31 0.000 0.0 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Day Leq Evening Leq Night Ldn CNEL VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Matos: 64.7 62.8 61.1 55.0 63.6 64 Medium Trucks: 59.3 57.9 48.9 50.1 58.5 56 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (in feet) T0 dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322		68.46								0.0	00	0.00
Unitigated Noise Levels (without Top and barrier attenuation) Leq Night Ldn CNEL VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 64.7 62.8 61.1 55.0 63.6 64 Medium Trucks: 58.5 57.0 50.6 49.1 57.5 55 Heavy Trucks: 59.3 57.9 48.9 50.1 58.5 56 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (in feet) TO dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322												0.00
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 64.7 62.8 61.1 55.0 63.6 64 Medium Trucks: 58.5 57.0 50.6 49.1 57.5 55 Heavy Trucks: 59.3 57.9 48.9 50.1 58.5 56 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (In feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322	Heavy Trucks:	84.25	-23.23		-0.48		-1.20	-	5.31	0.0	00	0.00
Autos: 64.7 62.8 61.1 55.0 63.6 64 Medium Trucks: 58.5 57.0 50.6 49.1 57.5 57 Heavy Trucks: 59.3 57.9 48.9 50.1 58.5 56 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322	-			1								
Medium Trucks: 58.5 57.0 50.6 49.1 57.5 57.6 Heavy Trucks: 59.3 57.9 48.9 50.1 58.5 58.5 Vehicle Noise: 66.6 64.8 61.7 57.0 66.5 66.6 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322		1 1 1	1 1		eq Ev	· ·	Leq Ni	•				
Heavy Trucks: 59.3 57.9 48.9 50.1 58.5 56 Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322		-										64.
Vehicle Noise: 66.6 64.8 61.7 57.0 65.5 66 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322												57.
Zenterline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322												58.
70 dBA 65 dBA 60 dBA 55 dBA Ldn: 32 69 150 322						61.7		57.0		65.5		66.
Ldn: 32 69 150 322	Centerline Distanc	e to Noise C	ontour (in feet)	70 d	DA I	ee de	24	6	O dBA	55	dD A
				l das				2/4	0			
GIVEL. 30 75 161 346											-	
			CI	VEL.	35		/5			101	3	940

	FHWA-	RD-77-108 HI	GHWAY	NOISE PR	REDICTI		DEL			
Scenario: Ex	xisting Withou	ut Project			Project	Name: I	AutoN	ation		
Road Name: In	vine Av.				Job N	Imber: 9	9831			
Road Segment: n/	o 19th St.									
	CIFIC INPU	T DATA						L INPUT	S	
Highway Data				Site Con	ditions	'Hard =	10, Se	oft = 15)		
Average Daily Traffi	ic (Adt): 14,7	00 vehicles					Autos:	15		
Peak Hour Perce	entage:	10%		Me	dium Tru	cks (2 A	(xles):	15		
Peak Hour V	/olume: 1,4	70 vehicles		He	avy Truc	ks (3+ A	(xles):	15		
Vehicle		40 mph		Vehicle I	Nix					
Near/Far Lane Di	stance:	48 feet		Veh	icleType		Day	Evening	Night	Daily
Site Data					A	utos:	77.5%	12.9%	9.6%	97.42
Barrier I	Heiaht:	0.0 feet		Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-		0.0		F	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.74
Centerline Dist. to	,	52.0 feet		Noise So		vation	e (in f	oot)		
Centerline Dist. to Ob	oserver: 5	52.0 feet		110/30 00	Autos		000			
Barrier Distance to Ob	oserver:	0.0 feet		Modiu	n Trucks		297			
Observer Height (Abov	e Pad):	5.0 feet			y Trucks		006	Grade Ad	iustment	. 0.0
Pad Ele	evation:	0.0 feet			·				,	
Road Ele	evation:	0.0 feet		Lane Eq				feet)		
	Grade:	0.0%			Autos					
		0.0 degrees			n Trucks					
Righ	ht View: 9	0.0 degrees		Heav	y Trucks	: 46.2	228			
FHWA Noise Model Ca	lculations									
VehicleType RI	EMEL Tra	affic Flow	Distance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atter
Autos:	66.51	0.23		38	-1.20		-4.66		000	0.00
Medium Trucks:	77.72	-17.00	0.		-1.20		-4.87		000	0.00
Heavy Trucks:	82.99	-20.96	0.	41	-1.20		-5.41	0.0	000	0.00
Unmitigated Noise Lev		Topo and bar	1	,						
,, , , ,	Peak Hour	Leq Day		Evening	Leq	· ·		Ldn		NEL
Autos:	65.9	64.		62.3		56.2		64.8		65
Medium Trucks:	59.9	58.4		52.1		50.5		59.0		59
Heavy Trucks:	61.2	59.	-	50.8		52.0		60.4		60
Vehicle Noise:	67.9	66.3	2	62.9		58.4		66.9	9	67
Centerline Distance to	Noise Conto	our (in feet)								(0.4
				dBA 32	65 o 7		6	60 dBA		dBA 24
		Ldr	1.	3Z		J		150	3	24

	FHV	VA-RD-77-108	HIGH	TWAY	NOISE PH	REDICTION	ON MC	DEL			
		thout Project				Project I			ation		
Road Name:						Job Nu	imber:	9831			
Road Segment:	n/o westcii	ff Dr.									
	ECIFIC IN	PUT DATA							L INPUT	S	
Highway Data					Site Con	ditions (Hard =	: 10, S	oft = 15)		
Average Daily Tra	ffic (Adt):	4,700 vehicles						Autos:	15		
Peak Hour Per	centage:	10%				dium Tru	•				
Peak Hour	Volume:	470 vehicles			He	avy Truc	ks (3+ .	Axles):	15		
	e Speed:	45 mph		-	Vehicle I	Mix					
Near/Far Lane I	Distance:	12 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data						Α	utos:	77.5%	12.9%	9.6%	6 97.42
Barrie	r Height:	0.0 feet			Me	edium Tru	ucks:	84.8%	4.9%	10.3%	6 1.849
Barrier Type (0-Wall,		0.0			ŀ	leavy Tru	ucks:	86.5%	2.7%	10.8%	6 0.74
Centerline Dist. t		28.0 feet		-	Noise So	ource Ele	evation	is (in f	eet)		
Centerline Dist. to C	Observer:	28.0 feet				Autos		000	,		
Barrier Distance to (Observer:	0.0 feet			Mediu	n Trucks		297			
Observer Height (Abo	,	5.0 feet				v Trucks	-	006	Grade Ad	ljustmer	nt: 0.0
	levation:	0.0 feet		-		,				, 	
	levation:	0.0 feet		_	Lane Eq				feet)		
	d Grade:	0.0%				Autos		.803			
	.eft View:	-90.0 degree				n Trucks		.483			
Ri	ght View:	90.0 degree	s		Heav	y Trucks	: 27	.514			
FHWA Noise Model C		-									
	REMEL	Traffic Flow	Dis	stance	Finite		Fres		Barrier At		erm Atter
Autos:	68.46	-5.23		3.7	-	-1.20		-4.46		000	0.00
Medium Trucks:	79.45	-22.47		3.8	-	-1.20		-4.86		000	0.00
Heavy Trucks:	84.25	-26.42		3.7	-	-1.20		-5.83	0.	000	0.00
Unmitigated Noise Le			barri					1			0.15
VehicleType Lee Autos:	q Peak Hou 65	1 1	3.9	Leq E	vening 62.1	Leq N	vignt 56.		Ldn 64.		CNEL 65
Medium Trucks:	59		53.9 58.1		51.7		50.		64. 58.		58
Heavy Trucks:	59		58.1 59.0		51.7		50 51.:		58. 59.		58 59
Vehicle Noise:	67		9.0 5.9		62.7		51.		59. 66.	-	59
					02.7		58.	0	00.	U	67
Centerline Distance t	o Noise Co	ontour (in feet)	1	70	dBA	65 0	IRA		60 dBA	5	5 dBA
		,	.dn:		7	36			77	5	166
			IFI :		8	38	-		82		178
		01			-	00	-		-		

	FHV	VA-RD-77-108	HIGHW	AY NO	OISE PF	REDICTIO	ON MOI	DEL			
Scenario: I Road Name: I Road Segment: s	Dover Dr.	thout Project ff Dr.				Project I Job Nu	Vame: / mber: §		ation		
SITE SPI	ECIFIC IN	PUT DATA				N	DISE N	IODE	L INPUTS	5	
Highway Data				S	Site Con	ditions (Hard =	10, Sc	oft = 15)		
Average Daily Trai	ffic (Adt): 1	1,800 vehicle	5					Autos:	15		
Peak Hour Per		10%			Me	dium Tru	cks (2 A	xles):	15		
Peak Hour	Volume:	1,180 vehicle	5		He	avy Truci	ks (3+ A	xles):	15		
Vehicle	e Speed:	45 mph		14	ehicle l	Mix					
Near/Far Lane L	Distance:	48 feet		V				Dav	Evening	Night	Daily
Site Data					ven	icleType		Day 77.5%	•	9.6%	
						Al dium Tru		77.5% 84.8%		9.6%	97.42%
	Height:	0.0 feet				leavy Tru		04.0% 86.5%		10.3%	0.74%
Barrier Type (0-Wall,		0.0			r	leavy III	ICKS.	00.3%	2.170	10.0%	0.74%
Centerline Dist. to		52.0 feet		N	loise Sc	ource Ele	vations	s (in fe	et)		
Centerline Dist. to C		52.0 feet				Autos	: 0.0	000			
Barrier Distance to C		0.0 feet			Mediur	n Trucks	2.2	297			
Observer Height (Abo	,	5.0 feet			Heav	y Trucks	: 8.0	006	Grade Adj	ustment.	0.0
	levation:	0.0 feet					Distant		41		
	levation:	0.0 feet		L	ane Eq	uivalent			eet)		
	d Grade:	0.0%				Autos					
-	eft View:	-90.0 degree				n Trucks					
Rig	ght View:	90.0 degree	es		Heav	y Trucks	: 46.2	228			
FHWA Noise Model C	alculation	s									
VehicleType F	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	68.46	-1.23		0.38		-1.20		-4.66	0.0	00	0.000
Medium Trucks:	79.45	-18.47		0.41		-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	84.25	-22.43		0.41		-1.20		-5.41	0.0	00	0.000
Unmitigated Noise Le	evels (with	out Topo and	barrier	attenu	uation)						
VehicleType Leo	q Peak Hou	r Leq Day	L	.eq Ev	ening	Leq N	light		Ldn	CI	VEL
Autos:	66	.4	64.5		62.7		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	o Noise Co	ontour (in feet)								
				70 di	BA	65 d	BA	6	0 dBA	55	dBA
			Ldn:	34	Ļ	73	3		158	3	40
		CI	VEL:	36	6	79)		169	3	64

Wednesday, June 08, 2016

Wednesday, June 08, 2016

	FHWA-F	RD-77-108 HIG	HWAY	NOISE PR	REDICTION		EL			
Scenario: Exi Road Name: Do Road Segment: s/o	ver Dr.	t Project			Project Na Job Num					
SITE SPEC	IFIC INPU	T DATA			NO	SE MO	DEL INF	PUTS		
Highway Data				Site Con	ditions (Ha	ard = 1	0, Soft = 1	5)		
Average Daily Traffic Peak Hour Perce Peak Hour Vo	ntage: 1	00 vehicles 10% 40 vehicles			dium Truck avy Trucks	s (2 Ax	,			
Vehicle S	Speed: 4	45 mph	-	Vehicle I	Mix					
Near/Far Lane Dis	tance: 4	48 feet	-		icleType	D	ay Ever	nina N	light	Daily
Site Data					Auto		.,		•	7.429
Barrier H	loight:	0.0 feet		Me	edium Truci	ks: 84	1.8% 4	.9% 1	0.3%	1.849
Barrier Type (0-Wall, 1-		0.0		ŀ	leavy Truc	ks: 80	6.5% 2	.7% 1	0.8%	0.749
Centerline Dist. to E		2.0 feet	F	Noise So	ource Eleva	ations	(in feet)			
Centerline Dist. to Obs Barrier Distance to Obs Observer Height (Above Pad Ele Road Ele Road 1	server: Pad): vation: vation:	2.0 feet 0.0 feet 5.0 feet 0.0 feet 0.0 feet 0.0%	-	Heav	Autos: m Trucks: my Trucks: uivalent Di Autos:	0.00 2.29 8.00 stance 46.40	7 6 Grad (in feet)	e Adjus	tment: 0).0
Lefi Right	t View: -9 t View: 9	0.0 / degrees 0.0 degrees			n Trucks: ny Trucks:	46.20 46.22	9			
FHWA Noise Model Cal										
			istance			Fresnei		er Atten	Berm	
Autos:	68.46	-0.68	0.3		-1.20		.66	0.000		0.00
Medium Trucks: Heavy Trucks:	79.45 84.25	-17.92 -21.87	0.4		-1.20 -1.20		.87 .41	0.000		0.00
			-		1.20			0.000		0.00
Unmitigated Noise Leve VehicleType Leg F	Peak Hour		1		Log Nie	the	Ldn		CNE	-
Autos:	Peak Hour 67.0	Leq Day 65.1		vening 63.3	Leq Nig	57.2	LUN	65.9	GNE	:L 66.
Medium Trucks:	60.7	59.2		52.9		51.3		59.8		60
Heavy Trucks:	61.6	59.2 60.2		52.9		52.4		59.8 60.7		60.
Vehicle Noise:	68.8	67.1		63.9		59.2		67.8		68
Centerline Distance to I	Voise Conto	ur (in feet)								
Concernine Distance IO I		a. In leely	70	dBA	65 dB/	4	60 dBA	ł I	55 dE	ЗA
		Ldn:		7			172		370	<u> </u>
		Lun.	9	1	80		172		3/0	

	ne: Jamboree Rd. Job N SPECIFIC INPUT DATA SPECIFIC INPUT DATA SITE CONDITION SPECIFIC INPUT DATA SITE CONDITION SPECIFIC INPUT DATA SITE CONDITION Traffic (Adt): 16,300 vehicles Percentage: 10% Medium Tr Heavy Tru hicle Speed: 55 mph rrier Height: 0.0 feet Medium Tr Heavy Tru kall, 1-Berm): 0.0 st. to Barrier: 64.0 feet to Observer: 0.0 feet Aute Medium Truck dat Elevation: 0.0 feet Aute Medium Truck dat Elevation: 0.0 feet Road Grade: 0.0% Right View: 90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Read Calculations Read Calculations Read - 17.94 -0.48 -120 86.40 -21.89 -0.48 -120 86.4 -21.89 -0.48 -120 86.40 -21.89 -0.48 -120 86.40 -21.89 -0.48 -120 86.40 -21.89 -0.48 -120 86.40 -21.89 -0.48 -120 86.40 -21.89 -0.48 -120 86.40 -21.89 -0.48 -120 86.40 -21.89 -20.48 -20 86.4 -20 86		DDEL								
Scenario: Existir	ng Wit	hout Project				Projec	t Name:	AutoN	ation		
Road Name: Jambo	oree R	d.				Job I	Vumber:	9831			
Road Segment: n/o Ea	ist Co	ast Hwy.									
	C IN	PUT DATA							L INPUT	S	
Highway Data					Site Con	ditions	(Hard	= 10, S	oft = 15)		
Average Daily Traffic (A	<i>dt):</i> 1	6,300 vehicles	5					Autos:	15		
Peak Hour Percenta	ge:	10%			Mee	dium Ti	rucks (2	Axles).	15		
Peak Hour Volur	ne:	1,630 vehicles	5		Hea	avy Tru	ıcks (3+	Axles).	15		
Vehicle Spe	ed:	55 mph			Vehicle I	<i>li</i> v					
Near/Far Lane Distan	ce:	72 feet		-			e	Dav	Evening	Night	Daily
Site Data							Autos:	77.5%	•		97.42
Borrior Hole	h4.	0.0 feet			Me	dium 1	rucks:	84.8%	4.9%	10.3%	
Barrier Type (0-Wall, 1-Ber										10.8%	
Centerline Dist, to Barr				Ļ						/ 0	
Centerline Dist. to Observ				1	Noise So				eet)		
Barrier Distance to Observ								.000			
Observer Height (Above Pa								.297			
0 1					Heav	y Trucl	ks: 8	.006	Grade Ad	iustment	: 0.0
					Lane Eau	uivaler	nt Dista	nce (in	feet)		
				F				3.151	,		
			24		Mediur			.984			
Right Vi	ew:	0			Heav	y Trucl	ks: 53	8.000			
FHWA Noise Model Calcula	ations										
			Dist	anco	Finito	Road	Free	nol	Barrier Att	on Bor	m Atter
			Dist					-4.70		000	0.00
								-4.88		000	0.00
					-			-5.31		000	0.00
Unmitigated Noise Levels	witho	out Topo and	barrie	r atten	uation)						
						Leq	Night		Ldn	C	NEL
Autos:	69.	4 (37.5		65.7		59	.7	68.3	3	68
Medium Trucks:	62.	в (61.3		54.9		53	.4	61.8	3	62
Heavy Trucks:	62.	8 (31.4		52.4		53	.6	62.0)	62
Vehicle Noise:	71.	0	39.2		66.2		61	.4	69.9)	70.
Centerline Distance to Noi	se Co	ntour (in feet)	1								
							i dBA	1	60 dBA		dBA
							136		294		33
		CI	IFI :	6	8		147		316	6	81

FHWA-RD-77-1	08 HIGHW	AY NO	DISE PREI	DICTION	MODEL			
Scenario: Existing Without Project				oject Nam		ation		
Road Name: MacArthur Bl.			J	ob Numbe	er: 9831			
Road Segment: n/o East Coast Hwy.								
SITE SPECIFIC INPUT DATA	4		ite Conditi				S	
Highway Data		3	ne conun	UIIS (Hai		,		
Average Daily Traffic (Adt): 10,500 vehic	les				Autos.			
Peak Hour Percentage: 10%				m Trucks	· /			
Peak Hour Volume: 1,050 vehic	les		Heavy	Trucks (3	3+ Axles).	15		
Vehicle Speed: 55 mph		V	ehicle Mix					
Near/Far Lane Distance: 72 feet			Vehicle	Туре	Day	Evening	Night	Daily
Site Data				Autos	: 77.5%	6 12.9%	9.6%	97.429
Barrier Height: 0.0 feet			Mediu	ım Trucks	: 84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm): 0.0			Hea	vy Trucks	: 86.5%	5 2. 7 %	10.8%	0.74%
Centerline Dist. to Barrier: 64.0 feet		N	loise Sour	ce Elevat	ions (in f	eet)		
Centerline Dist. to Observer: 64.0 feet				Autos:	0.000	,		
Barrier Distance to Observer: 0.0 feet			Medium T		2.297			
Observer Height (Above Pad): 5.0 feet			Heavy T		8.006	Grade Ad	iustment	0.0
Pad Elevation: 0.0 feet			,					
Road Elevation: 0.0 feet		L	ane Equiv	alent Dist	tance (in	feet)		
Road Grade: 0.0%					53.151			
Left View: -90.0 deg	rees		Medium T	rucks:	52.984			
Right View: 90.0 deg	rees		Heavy T	rucks:	53.000			
FHWA Noise Model Calculations								
VehicleType REMEL Traffic Flow			Finite Ro		esnel	Barrier Att		m Atten
Autos: 71.78 -2.6		-0.50		.20	-4.70		000	0.00
Medium Trucks: 82.40 -19.8		-0.48		.20	-4.88		000	0.00
Heavy Trucks: 86.40 -23.8	30	-0.48	-1	.20	-5.31	0.0	000	0.00
Unmitigated Noise Levels (without Topo ar			,					
VehicleType Leq Peak Hour Leq D	,	eq Ev	v	Leq Nigh		Ldn		NEL
Autos: 67.5	65.6		63.8		57.7	66.4		67.
Medium Trucks: 60.9	59.4		53.0		51.5	59.9		60.
Heavy Trucks: 60.9	59.5		50.5		51.7	60.1	·	60.
Vehicle Noise: 69.1	67.3		64.3	Ę	59.5	68.0)	68.
Centerline Distance to Noise Contour (in fe	et)	=0.		05.10.				10.4
		70 di		65 dBA		60 dBA		dBA 72
	Ldn: CNEL:	47 51		102 109		219 236		-72 08

	FH\	NA-RD-77-108	HIGHW	AY N	IOISE PF	REDICT		DEL				
Scenari Road Nam Road Segmer		,					Name: / umber: §		ation			
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	IODE		s		
Highway Data				5	Site Con	ditions	(Hard =	10, Sc	oft = 15)			
Average Daily Peak Hour	Traffic (Adt): Percentage:	10,200 vehicle 10%	s		Me	dium Tri	ı ucks (2 A	Autos: xles):	15 15			
	our Volume:	1,020 vehicle	S		He	avy Tru	cks (3+ A	xles):	15			
	hicle Speed:	35 mph		١	Vehicle I	Nix						
Near/Far Lai	ne Distance:	48 feet			Vehi	icleType		Day	Evening	Night	Daily	
Site Data						/	Autos:	77.5%	12.9%	9.6%	97.429	
Bar	rier Height:	0.0 feet			Me	edium Ti	rucks:	84.8%	4.9%	10.3%	1.84%	
Barrier Type (0-W		0.0			F	leavy Ti	rucks:	86.5%	2.7%	10.8%	0.749	
Centerline Dis		52.0 feet		1	Noise Sc	ource El	evations	s (in fe	et)			
Centerline Dist.		52.0 feet				Auto	s: 0.0	000	,			
Barrier Distance		0.0 feet			Mediur	n Truck						
Observer Height (Above Pad):	5.0 feet				v Truck			Grade Ad	iustment	: 0.0	
Pa	ad Elevation:	0.0 feet				, 						
Roa	ad Elevation:	0.0 feet		L	Lane Eq	uivalen			feet)			
F	Road Grade:	0.0%				Auto						
	Left View:	-90.0 degre	es		Mediur	n Truck	s: 46.2	209				
	Right View:	90.0 degre	es		Heav	y Truck	s: 46.2	228				
FHWA Noise Mode	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten	
Autos:	64.30	-0.77		0.38	В	-1.20		4.66	0.0	000	0.00	
Medium Trucks:	75.75	-18.01		0.41	1	-1.20		-4.87	0.0	000	0.00	
Heavy Trucks:	81.57	-21.97		0.41	1	-1.20		-5.41	0.0	000	0.00	
Unmitigated Noise	e Levels (with	out Topo and	barrier a	atten	uation)							
VehicleType	Leq Peak Hou	ur Leq Day	' L	eq Ev	vening	Leq	Night		Ldn	C	NEL	
Autos:	62	.7	60.8		59.0		53.0		61.6	6	62.	
Medium Trucks:			55.4		49.1		47.5		56.0)	56.	
	56	.9	55.4				47.5			58.0		
Heavy Trucks:	56 58		55.4 57.4		48.3		47.5		58.0)	58.	
Heavy Trucks: Vehicle Noise:		.8							58.0 63.9			
	58	.8	57.4 63.2		48.3		49.6					
Vehicle Noise:	58	.8	57.4 63.2	70 a	48.3 59.8	65	49.6)	58. 64. dBA	
Vehicle Noise:	58	.8 .9 ontour (in feet	57.4 63.2	70 a 20	48.3 59.8		49.6 55.4		63.9	55	64.	

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	FH\	WA-RD-77-108	HIGHWA	Y NO	DISE PR	EDICTIC	ON MO	DEL			
	o: Existing W					Project N			ation		
Road Segmer						0001100	mber.	5051			
SITE	SPECIFIC IN	PUT DATA		Т		NC	DISE	IODE		6	
Highway Data				s	ite Con	ditions (F					
Average Daily	Traffic (Adt):	8,500 vehicles	;				,	Autos:	15		
• •	Percentage:	10%			Med	dium Truc	:ks (2 A	(xles):	15		
Peak H	our Volume:	850 vehicles			Hea	avy Truck	is (3+ A	(xles)	15		
Vei	hicle Speed:	35 mph		V	ehicle N	Niv					
Near/Far Lar	ne Distance:	48 feet		-		cleType		Dav	Evening	Niaht	Dailv
Site Data				-	10/11			77.5%	0	9.6%	
Bar	rier Height:	0.0 feet			Me	dium Tru	cks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-W		0.0			н	leavy Tru	cks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	52.0 feet		N	oise So	urce Ele	vation	s (in fe	eet)		
Centerline Dist.		52.0 feet				Autos:		000	,		
Barrier Distance	to Observer:	0.0 feet			Mediun	n Trucks:	2.2	297			
Observer Height (J	,	5.0 feet			Heav	Trucks:	8.0	006	Grade Adj	ustment	: 0.0
	ad Elevation:	0.0 feet		-							
	ad Elevation:	0.0 feet		L	ane Equ	ivalent l			teet)		
ŀ	Road Grade:	0.0%			1 4 m all 1 m	Autos: n Trucks:					
	Left View: Right View:	-90.0 degree 90.0 degree				γ Trucks:					
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	64.30	-1.57		0.38		-1.20		-4.66	0.0	00	0.00
Medium Trucks:	75.75	-18.80		0.41		-1.20		-4.87	0.0	00	0.00
Heavy Trucks:	81.57	-22.76		0.41		-1.20		-5.41	0.0	00	0.00
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	uation)						
	Leq Peak Hou	1.7		q Ev	ening	Leq N	·		Ldn		NEL
Autos:	61		60.0		58.3		52.2		60.8		61.
Medium Trucks:	56		54.6		48.3		46.7		55.2		55
Heavy Trucks:	58	-	56.6		47.6		48.8		57.2		57.
Vehicle Noise:	64		62.4		59.0		54.6)	63.1		63.
Centerline Distance	e to Noise C	ontour (in feet)		70 di	RA	65 dl	RA	6	60 dBA	55	dBA
		,	dn:	18		39			84		81
		-	IEL:	19		42			90		94
		0.1									

	FHWA	-RD-77-108 H	liG⊦	HWAY N	OISE PF	REDICT	ON MO	DEL						
Scenario: Existin							Name:		ation					
Road Name: West						Job N	umber:	9831						
Road Segment: w/o Ne	ewport E	31.												
SITE SPECIFI	C INP	UT DATA	_		NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15)									
Highway Data				3	Site Con	ditions	(Hard =	10, Se	oft = 15)					
Average Daily Traffic (A	<i>dt):</i> 13,	300 vehicles						Autos:	15					
Peak Hour Percenta		10%				dium Tru								
Peak Hour Volur		330 vehicles			He	avy Truc	cks (3+ /	Axles):	15					
Vehicle Spe		45 mph		1	/ehicle l	Nix								
Near/Far Lane Distan	ce:	72 feet			Vehi	icleType		Day	Evening	Night	Daily			
Site Data						A	Autos:	77.5%	12.9%	9.6%	97.42			
Barrier Heig	ht:	0.0 feet			Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84			
Barrier Type (0-Wall, 1-Ben		0.0			ŀ	leavy Ti	ucks:	86.5%	2.7%	10.8%	0.74			
Centerline Dist. to Barr		64.0 feet		-	Voise Sc	urco El	ovation	e (in fi	not)					
Centerline Dist. to Observ	er:	64.0 feet		<u>'</u>	voise sc	Auto:		000	eel)					
Barrier Distance to Observ	er:	0.0 feet			Madiuu	n Trucks		297						
Observer Height (Above Pa	id):	5.0 feet				y Truck		297	Grade Ad	liustmont	. 0.0			
Pad Elevati	on:	0.0 feet			Tieav	y mucks	5. 0.	000	Orade Ha	jusunent	0.0			
Road Elevati	on:	0.0 feet		1	ane Eq	uivalent	Distan	ce (in	feet)					
Road Gra	de:	0.0%				Autos	s: 53.	151						
Left Vie	ew: -	-90.0 degrees	6			n Trucks		984						
Right Vie	ew:	90.0 degrees	6		Heav	y Truck	s: 53.	000						
FHWA Noise Model Calcula														
VehicleType REME		raffic Flow	Dis	stance		Road	Fresr		Barrier At		m Atter			
	8.46	-0.71		-0.50		-1.20		-4.70		000	0.00			
	9.45	-17.95		-0.48		-1.20		-4.88		000	0.00			
Heavy Trucks: 8	4.25	-21.91		-0.48	3	-1.20		-5.31	0.0	000	0.00			
Unmitigated Noise Levels	-		arri							1				
VehicleType Leq Peal		Leq Day		Leq E	· ·	Leq	Night		Ldn		NEL			
Autos:	66.0	-	4.1		62.4		56.3		64.		65			
Medium Trucks:	59.8		8.3		51.9		50.4		58.		59			
Heavy Trucks:	60.7	-	9.2		50.2		51.5		59.	-	59			
Vehicle Noise:	67.9		6.1		63.0		58.3	3	66.	9	67			
Centerline Distance to Nois	se Cont	tour (in feet)		70		05	10.1				(0.4			
			L	70 c			dBA	e	60 dBA		dBA			
			dn:	4(-		5		183		95			
		CN	EL:	42	2	9	1		197	4	24			

Road Name	 D: Existing With e: West Coast ht: e/o Newport 	Hwy.				Name: Autol umber: 9831	Nation			
SITE S Highway Data	SPECIFIC INI	PUT DATA		Site Cor		OISE MOD (Hard = 10, S	EL INPUTS			
Average Daily Peak Hour Peak H	Percentage:	6,000 vehicles 10% 2,600 vehicles 40 mph		Me He	edium Tri eavy Tru	Autos Icks (2 Axles, Icks (3+ Axles,	s: 15): 15			
Near/Far Lar		72 feet		Vehicle	Mix nicleType	Dav	Evening	Night Daily		
Site Data Bar Barrier Type (0-Wi	rier Height:	0.0 feet		м		lutos: 77.5 ucks: 84.8	% 12.9% % 4.9%	9.6% 97.42% 10.3% 1.84% 10.8% 0.74%		
Centerline Dis	. ,	64.0 feet		Noice C		evations (in	fact)			
Roa	o Observer:	64.0 feet 0.0 feet 5.0 feet 0.0 feet 0.0% -90.0 degrees 90.0 degrees		Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.006 Grade Adjustment: 0.0 Lane Equivalent Distance (in feet) Autos: 53.151 Medium Trucks: 52.984 Heavy Trucks: 52.000						
FHWA Noise Mode	- Calculations				-					
VehicleType	REMEL	Traffic Flow	Distand	e Finite	Road	Fresnel	Barrier Atte	n Berm Atten		
Autos:	66.51	2.71	-	0.50	-1.20	-4.70	0.00	0.000		
Medium Trucks: Heavy Trucks:	77.72 82.99	-14.53 -18.48	-	0.48	-1.20 -1.20	-4.88 -5.31				
Unmitigated Noise VehicleType	Levels (without Leg Peak Hour			g Evening	Lea	Night	Ldn	CNEL		
Autos:	67.5		5.6	63.9		57.8	66.4	67.0		
Medium Trucks:	61.5	5 6	0.0	53.6		52.1	60.6	60.8		
Heavy Trucks:	62.8	B 6	1.4	52.4		53.6	62.0	62.1		
Vehicle Noise:	69.	5 6	7.8	64.5		60.0	68.5	69.0		
Centerline Distanc	e to Noise Co	ntour (in feet)								
				70 dBA		dBA	60 dBA	55 dBA		
		1.	dn:	51	1	10	236	509		

FHWA-RD-77-108 H	IGHWAY	NOISE P	REDICTIO	ON MOD	EL			
Scenario: Existing Without Project Road Name: West Coast Hwy. Road Segment: e/o Tustin Av.			Project I Job Nu	Vame: A Imber: 9		tion		
SITE SPECIFIC INPUT DATA			N	OISE M	ODEL	INPUT:	5	
Highway Data		Site Cor	nditions (Hard = 1	10, So	ft = 15)		
Average Daily Traffic (Adt): 25,800 vehicles				A	utos:	15		
Peak Hour Percentage: 10%		Me	edium Tru	cks (2 A	xles):	15		
Peak Hour Volume: 2,580 vehicles		He	avy Truci	ks (3+ A)	xles):	15		
Vehicle Speed: 40 mph		Vehicle	Mix					
Near/Far Lane Distance: 72 feet			nicleType	[Dav	Evening	Night	Daily
Site Data				utos: 7	7.5%	12.9%	9.6%	
Barrier Height: 0.0 feet		м	edium Tru	ucks: 8	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Tru	ucks: 8	86.5%	2.7%	10.8%	0.74%
Centerline Dist, to Barrier: 64.0 feet		Nolas O			11 6-	- 41		
Centerline Dist. to Observer: 64.0 feet		Noise S	ource Ele			et)		
Barrier Distance to Observer: 0.0 feet			Autos					
Observer Height (Above Pad): 5.0 feet			m Trucks			Grade Ad	ustmont	
Pad Elevation: 0.0 feet		Hea	vy Trucks	: 8.0	06	Graue Auj	usuneni	. 0.0
Road Elevation: 0.0 feet		Lane Eq	uivalent	Distanc	e (in fe	eet)		
Road Grade: 0.0%			Autos	: 53.1	51			
Left View: -90.0 degrees		Mediu	m Trucks	: 52.9	84			
Right View: 90.0 degrees		Hear	vy Trucks	: 53.0	00			
FHWA Noise Model Calculations		1						
VehicleType REMEL Traffic Flow	Distance	Finite	Road	Fresne	el E	Barrier Att	en Ber	m Atten
Autos: 66.51 2.68	-0	.50	-1.20	-	4.70	0.0	000	0.000
Medium Trucks: 77.72 -14.56	-0	.48	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks: 82.99 -18.52	-0	.48	-1.20	-	5.31	0.0	000	0.000
Unmitigated Noise Levels (without Topo and b	arrier atte	enuation)						
VehicleType Leq Peak Hour Leq Day		Evening	Leq N	•		Ldn		NEL
	5.6	63.8		57.8		66.4		67.0
	0.0	53.6		52.1		60.5		60.8
	.4	52.3		53.6		61.9	· · · · · · · · · · · · · · · · · · ·	62.1
Vehicle Noise: 69.5 67	7.8	64.5		59.9		68.5	5	68.9
Centerline Distance to Noise Contour (in feet)								
) dBA	65 d			0 dBA		dBA
	dn:	51	10	-		235		07
CNE	L:	54	11	7		252	5	43

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F	HWA-RD-77-108	HIGHWA	NOISE P	REDICTIO							
Scenario: Existing Road Name: West Co Road Segment: e/o Dove	ast Hwy.				ame: Autol aber: 9831	lation					
SITE SPECIFIC	INPUT DATA		NOISE MODEL INPUTS								
Highway Data			Site Cor	nditions (H	ard = 10, S	oft = 15)					
Average Daily Traffic (Adt) Peak Hour Perentage Peak Hour Volume	10% 3,230 vehicle			edium Truck eavy Trucks		: 15					
Vehicle Speed			Vehicle	Mix							
Near/Far Lane Distance	96 feet		Veh	icleType	Day	Evening	Night Daily				
Site Data				Aut	os: 77.59	% 12.9%	9.6% 97.42%				
Barrier Height	0.0 feet		М	edium Truc	ks: 84.89	6 4.9%	10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm)				Heavy Truc	ks: 86.59	% 2.7%	10.8% 0.74%				
Centerline Dist. to Barrier	72.0 feet		Noise S	ource Elev	ations (in	feet)					
Centerline Dist. to Observer	72.0 feet			Autos:	0.000						
Barrier Distance to Observer	0.0 feet		Mediu	m Trucks:	2.297						
Observer Height (Above Pad)	5.0 feet			vy Trucks:	8.006	Grade Adju	stment: 0.0				
Pad Elevation	0.0 feet			-		,					
Road Elevation	0.0 feet		Lane Eq	uivalent D		feet)					
Road Grade	0.0%			Autos:	53.898						
Left View		es		m Trucks:	53.734						
Right View	90.0 degre	es	Hear	vy Trucks:	53.750						
FHWA Noise Model Calculati	ons										
VehicleType REMEL	Traffic Flow	Distance	e Finite	Road	Fresnel	Barrier Atter	n Berm Atten				
Autos: 66.	51 3.65	-0	.59	-1.20	-4.72	0.00	0 0.000				
Medium Trucks: 77.	2 -13.59	-0	.57	-1.20	-4.88	0.00	0 0.000				
Heavy Trucks: 82.9	99 -17.54	-0	.57	-1.20	-5.26	0.00	0 0.000				
Unmitigated Noise Levels (w	thout Topo and	barrier att	enuation)								
VehicleType Leq Peak F	lour Leq Day	/ Leq	Evening	Leq Nig	ght	Ldn	CNEL				
Autos:	68.4	66.5	64.7		58.7	67.3	67.9				
		60.8	54.5		52.9	61.4	61.6				
		62.3	53.2		54.5	62.8	63.0				
Vehicle Noise:	70.4	68.7	65.4		60.8	69.4	69.8				
Centerline Distance to Noise	Contour (in feet)									
			0 dBA	65 dB	A	60 dBA	55 dBA				
		Ldn:	65	141		303	653				
	~	VFI :	70	151		325	699				

FHWA-RD-77-108 HIG	HWAY N	OISE PREDICT	ION MO	DEL						
Scenario: Existing Without Project Road Name: West Coast Hwy. Road Segment: e/o Bayside Dr.		Project Name: AutoNation Job Number: 9831								
SITE SPECIFIC INPUT DATA	1	NOISE MODEL INPUTS								
Highway Data	5	Site Conditions	(Hard =	10, Sc	oft = 15)					
Average Daily Traffic (Adt): 28,600 vehicles				Autos:	15					
Peak Hour Percentage: 10%		Medium Ti	rucks (2)	Axles):	15					
Peak Hour Volume: 2,860 vehicles		Heavy Tru	icks (3+)	Axles):	15					
Vehicle Speed: 50 mph	1	/ehicle Mix								
Near/Far Lane Distance: 96 feet		VehicleTyp	•	Dav	Evening	Night	Daily			
Site Data		,1	Autos:	77.5%	•	9.6%				
		Medium T		84.8%		10.3%				
g		Heavy 7	rucks:	86.5%		10.8%				
Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 72.0 feet						10.070	0.7 17			
Centerline Dist. to Observer: 72.0 feet	1	loise Source E			eet)					
Barrier Distance to Observer: 0.0 feet		Auto		000						
Observer Height (Above Pad): 5.0 feet		Medium Truck		297						
Pad Elevation: 0.0 feet		Heavy Truck	(s: 8.	006	Grade Adj	ustment	: 0.0			
Road Elevation: 0.0 feet	L	ane Equivalen.	t Distan	ce (in i	feet)					
Road Grade: 0.0%		Auto	os: 53.	898	,					
Left View: -90.0 degrees		Medium Truck	(s: 53.	734						
Right View: 90.0 degrees		Heavy Truck	(s: 53.	750						
FHWA Noise Model Calculations	1									
	istance	Finite Road	Fresr		Barrier Att		m Atten			
Autos: 70.20 2.16	-0.59			-4.72		000	0.00			
Medium Trucks: 81.00 -15.08	-0.57			-4.88		000	0.00			
Heavy Trucks: 85.38 -19.04	-0.57	-1.20		-5.26	0.0	000	0.00			
Unmitigated Noise Levels (without Topo and barr										
VehicleType Leq Peak Hour Leq Day	Leq Ev		Night		Ldn		NEL			
Autos: 70.6 68.7		66.9	60.8		69.5		70.			
Medium Trucks: 64.1 62.6		56.3	54.7		63.2	-	63.			
Heavy Trucks: 64.6 63.1		54.1	55.4		63.7		63.			
Vehicle Noise: 72.3 70.5		67.5	62.7	7	71.2	2	71.			
Centerline Distance to Noise Contour (in feet)										
	70 a		dBA	6	60 dBA		dBA			
Ldn:	87		87		404		70			
CNEL:	93	5 2	201		434	g	35			

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Scenario: Existing V	Vithout Proje	ct			Project Na	me: Aut	Nation			
Road Name: East Coa		UL			Job Num					
Road Segment: e/o Jamb					000 1401	001. 000				
SITE SPECIFIC		Δ			NO	SE MO	DEL INP	UTS		
Highway Data				Site Con	ditions (H					
Average Daily Traffic (Adt):	20,500 veh	icles				Auto	s: 15			
Peak Hour Percentage:	10%			Med	dium Truck	s (2 Axle	s): 15			
Peak Hour Volume:	2,050 veh	icles		Hea	avy Trucks	(3+ Axle	s): 15			
Vehicle Speed:	50 mp	h	-	Vehicle I	Aiv					
Near/Far Lane Distance:	72 fee	t	-		cleType	Da	Even	ina Ni	ght	Daily
Site Data					Aut			•	9.6%	
Barrier Height:	0.0 fe	et		Me	dium Truc	ks: 84.	3% 4.9	9% 1	0.3%	1.84
Barrier Type (0-Wall, 1-Berm):				H	leavy Truc	ks: 86.	5% 2.	7% 1	0.8%	0.74
Centerline Dist. to Barrier:	64.0 fee	et	F	Noise So	urce Elev	ations (ii	(feet)			
Centerline Dist. to Observer:	64.0 fee	et	F		Autos:	0.000				
Barrier Distance to Observer:	0.0 fee	et		Modiur	n Trucks:	2.297				
Observer Height (Above Pad):	5.0 fee	et			v Trucks:	8.006	Grade	Adjust	ment	0.0
Pad Elevation:	0.0 fee	et			·					
Road Elevation:	0.0 100	et	-	Lane Equ	ivalent D		in feet)			
Road Grade:	0.070				Autos:	53.151				
Left View:	00.0 40	•			n Trucks:	52.984				
Right View:	90.0 de	grees		Heav	y Trucks:	53.000				
FHWA Noise Model Calculatio	ons									
VehicleType REMEL	Traffic Flo	w Di	istance	Finite	Road	Fresnel	Barrie	^r Atten	Ber	m Atter
Autos: 70.2	0 0	.71	-0.5	0	-1.20	-4.7	0	0.000		0.0
Medium Trucks: 81.0	0 -16	.53	-0.4	8	-1.20	-4.8	8	0.000		0.0
Heavy Trucks: 85.3	8 -20	.49	-0.4	8	-1.20	-5.3	11	0.000		0.0
Unmitigated Noise Levels (wi	thout Topo a	and barr	ier atter	nuation)						
VehicleType Leq Peak H		,	Leq E	vening	Leq Nig		Ldn		CI	NEL
	69.2	67.3		65.5		59.5		68.1		68
	62.8	61.3		54.9		53.4		61.8		62
,	63.2	61.8		52.8		54.0		62.4		62
Vehicle Noise:	70.9	69.2		66.1		61.3		69.9		70
Centerline Distance to Noise	Contour (in a	feet)								
			70	dBA	65 dB	4	60 dBA		55	dBA
		Ldn: CNEL:	6	3 7	135 145		292 313			28 75

	FHWA	-RD-77-108 HIGI	HWAY I	NOISE PI	REDICTI	ON MOI	DEL			
Road Name	Existing Withor East Coast Hv w/o MacArthur	vy.				Name: / umber: 9		ition		
SITE S	PECIFIC INPU	JT DATA			N	OISE N	IODE	L INPUT	5	
Highway Data				Site Con	ditions	(Hard =	10, So	ft = 15)		
Average Daily T	raffic (Adt): 14,	900 vehicles					Autos:	15		
Peak Hour P	ercentage:	10%		Me	dium Tru	icks (2 A	xles):	15		
Peak Ho	ur Volume: 1,	490 vehicles		He	avy Truc	:ks (3+ A	xles):	15		
Veh	icle Speed:	50 mph	-	Vehicle	Miy					
Near/Far Lane	e Distance:	72 feet	ŀ		icleType		Day	Evening	Night	Daily
Site Data				Ven			77.5%	12.9%	9.6%	
				14	edium Tr		84.8%	4.9%	10.3%	1.84%
	ier Height:	0.0 feet			Heavy Tr		86.5%		10.8%	0.74%
Barrier Type (0-Wa		0.0							10.070	0.7 170
Centerline Dist.		64.0 feet 64.0 feet		Noise So	ource El	evations	s (in fe	et)		
Barrier Distance to		0.0 feet			Autos	s: 0.0	000			
Observer Height (A		5.0 feet		Mediu	m Trucks	3: 2.2				
0 1	l Flevation:	0.0 feet		Heav	y Trucks	s: 8.0	006	Grade Adj	ustment.	0.0
	l Elevation:	0.0 feet	ŀ	Lane Eq	uivalent	Distanc	e (in f	eet)		
	nad Grade:	0.0%	F	Lano Ly	Autos			000		
10		90.0 degrees		Mediu	m Trucks					
		90.0 degrees			y Trucks					
FHWA Noise Model	Calculations									
VehicleType	REMEL T	raffic Flow Di	stance	Finite	Road	Fresn	el i	Barrier Att	en Ber	m Atten
Autos:	70.20	-0.68	-0.5	50	-1.20		-4.70	0.0	000	0.000
Medium Trucks:	81.00	-17.92	-0.4	18	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	85.38	-21.87	-0.4	18	-1.20		-5.31	0.0	000	0.000
Unmitigated Noise	Levels (withou	t Topo and barri	ier attei	nuation)						
	eq Peak Hour.	Leq Day	Leq E	vening	Leq I	Night		Ldn	-	VEL
Autos:	67.8	65.9		64.2		58.1		66.7		67.3
Medium Trucks:	61.4	59.9		53.5		52.0		60.5		60.7
Heavy Trucks:	61.8	60.4		51.4		52.6		61.0		61.1
Vehicle Noise:	69.5	67.8		64.7		59.9		68.5	5	69.0
Centerline Distance	e to Noise Cont	our (in feet)								
				dBA	65 0		6	0 dBA		dBA
		Ldn:		51	10			236	-	08
		CNEL:	Ę	55	11	18		253	5	46

Wednesday, June 08, 2016

	FHWA-F	RD-77-108 HIG	HWAY I	NOISE PR	EDICTION	N MODEL		
Scenario: E	Existing Withou	t Project			Project Na	me: Autol	Vation	
	East Coast Hwy				Job Num	ber: 9831		
Road Segment: e	e/o MacArthur E	31.						
	ECIFIC INPU	T DATA					EL INPUT	5
Highway Data				Site Con	ditions (H	ard = 10, S	Soft = 15)	
Average Daily Traf	fic (Adt): 15,50	00 vehicles				Autos	: 15	
Peak Hour Per	centage:	10%		Med	dium Truck	s (2 Axles)	: 15	
Peak Hour	Volume: 1,5	50 vehicles		Hea	avy Trucks	(3+ Axles)	: 15	
Vehicle	e Speed: 3	35 mph	ŀ	Vehicle I	Nix			
Near/Far Lane D	Distance:	48 feet	ŀ		cleType	Dav	Evening	Night Dail
Site Data					Aut	os: 77.59	% 12.9%	9.6% 97.42
Barrier	Heiaht:	0.0 feet		Me	dium Truc	ks: 84.89	% 4.9%	10.3% 1.84
Barrier Type (0-Wall,		0.0		H	leavy Truc	ks: 86.59	% 2.7%	10.8% 0.74
Centerline Dist. to	Barrier: 5	2.0 feet	ŀ	Noise So	urce Elev	ations (in	feet)	
Centerline Dist. to C	bserver: 5	2.0 feet	ŀ		Autos:	0.000		
Barrier Distance to C	bserver:	0.0 feet		Mediur	n Trucks:	2.297		
Observer Height (Abo	ve Pad):	5.0 feet			v Trucks:	8.006	Grade Adi	ustment: 0.0
		0.0 feet	-		·			
		0.0 feet	-	Lane Equ	ivalent Di		feet)	
		0.0%			Autos:	46.400		
-		0.0 degrees			n Trucks:	46.209		
Rig	pht View: 9	0.0 degrees		Heav	y Trucks:	46.228		
FHWA Noise Model C	alculations							
			listance	Finite		Fresnel	Barrier Atte	
Autos:	64.30	1.04	0.3		-1.20	-4.66		
Medium Trucks:	75.75	-16.19	0.4		-1.20	-4.87		
Heavy Trucks:	81.57	-20.15	0.4	1	-1.20	-5.41	0.0	0.0
Unmitigated Noise Le			1					
,1	Peak Hour	Leq Day		vening	Leq Nig		Ldn	CNEL
Autos:	64.5	62.6		60.9		54.8	63.4	-
Medium Trucks:	58.8	57.3		50.9		49.4	57.8	
Heavy Trucks:	60.6	59.2		50.2		51.4	59.8	
Vehicle Noise:	66.8	65.0)	61.6		57.2	65.7	6
Centerline Distance to	o Noise Conto	ur (in feet)						
				dBA	65 dB	4	60 dBA	55 dBA
		Ldn:		27	58 62		126 134	271 289
		CNFL		9				

FHWA-RD-77-108 I	IIGHWA	Y NOISE PR	REDICTI							
Scenario: Existing With Project				Vame: Autol	Nation					
Road Name: Newport BI.			Job Ni	imber: 9831						
Road Segment: n/o West Coast Hwy.										
SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS								
Highway Data		Site Con	ditions (Hard = 10, S	Soft = 15)					
Average Daily Traffic (Adt): 9,900 vehicles				Autos	: 15					
Peak Hour Percentage: 10%		Me	dium Tru	cks (2 Axles): 15					
Peak Hour Volume: 990 vehicles		He	avy Truc	ks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle I	Nix							
Near/Far Lane Distance: 72 feet			icleType	Dav	Evening	Night	Daily			
Site Data			A	utos: 77.5	% 12.9%	9.6%	97.42			
Barrier Height: 0.0 feet		Me	edium Tr	ucks: 84.8	% 4.9%	10.3%	1.849			
Barrier Type (0-Wall, 1-Berm): 0.0		ŀ	leavy Tr	ucks: 86.5	% 2.7%	10.8%	0.749			
Centerline Dist. to Barrier: 64.0 feet		Noice Co	uree El	evations (in	fact					
Centerline Dist. to Observer: 64.0 feet		Noise Sc	Autos		reet)					
Barrier Distance to Observer: 0.0 feet		1 4 m - 15 m	Autos n Trucks							
Observer Height (Above Pad): 5.0 feet					Grade Ad					
Pad Elevation: 0.0 feet		Heav	y Trucks	: 8.006	Grade Au	jusuneni.	0.0			
Road Elevation: 0.0 feet		Lane Eq	uivalent	Distance (ir	feet)					
Road Grade: 0.0%			Autos	: 53.151						
Left View: -90.0 degree	;	Mediur	n Trucks	: 52.984						
Right View: 90.0 degree	5	Heav	y Trucks	53.000						
FHWA Noise Model Calculations										
VehicleType REMEL Traffic Flow	Distanc	e Finite	Road	Fresnel	Barrier Att	en Ber	m Atter			
Autos: 68.46 -1.99	-(0.50	-1.20	-4.70	0.0	000	0.00			
Medium Trucks: 79.45 -19.23).48	-1.20	-4.88		000	0.00			
Heavy Trucks: 84.25 -23.19	-(0.48	-1.20	-5.31	0.0	000	0.00			
Unmitigated Noise Levels (without Topo and L	arrier at	tenuation)								
VehicleType Leq Peak Hour Leq Day	Leo	Evening	Leq I	light	Ldn		VEL			
Autos: 64.8 6	2.9	61.1		55.0	63.7	7	64.			
	7.0	50.7		49.1	57.6	-	57.			
	3.0	48.9		50.2	58.5		58.			
Vehicle Noise: 66.6 6	4.9	61.7		57.0	65.6	6	66			
Centerline Distance to Noise Contour (in feet)										
		70 dBA	65 c		60 dBA		dBA			
	dn:	32	70		151		25			
	=L :	35	7	5	162	2	48			

FHWA-RD-77-	108 HIGHWA	Y NOISE P	REDICTION	MODEL			
Scenario: Existing With Project				me: AutoN	ation		
Road Name: Irvine Av.			Job Num	ber: 9831			
Road Segment: n/o 19th St.							
SITE SPECIFIC INPUT DAT	A					5	
Highway Data		Site Col	nditions (H		,		
Average Daily Traffic (Adt): 14,700 veh	icles			Autos.			
Peak Hour Percentage: 10%			edium Truck	, ,			
Peak Hour Volume: 1,470 veh		He	eavy Trucks	(3+ Axles).	15		
Vehicle Speed: 40 mpl	n	Vehicle	Mix				
Near/Far Lane Distance: 48 feet		Veł	nicleType	Day	Evening	Night	Daily
Site Data			Aut	os: 77.5%	6 12.9%	9.6%	97.42
Barrier Height: 0.0 fee	et	M	ledium Truc	ks: 84.8%	<i>4.9</i> %	10.3%	1.84
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Truc	ks: 86.5%	2.7%	10.8%	0.74
Centerline Dist. to Barrier: 52.0 fee	et	Noise S	ource Elev	ations (in f	eet)		
Centerline Dist. to Observer: 52.0 fee	et		Autos:	0.000	000		
Barrier Distance to Observer: 0.0 fee	et	Modiu	m Trucks:	2.297			
Observer Height (Above Pad): 5.0 fee	et		vy Trucks:	8.006	Grade Ad	iustment	0.0
Pad Elevation: 0.0 fee	et						
Road Elevation: 0.0 fee	et	Lane Eq	uivalent D		feet)		
Road Grade: 0.0%			Autos:	46.400			
Left View: -90.0 de	grees		m Trucks:	46.209			
Right View: 90.0 de	grees	Hea	vy Trucks:	46.228			
FHWA Noise Model Calculations		1					
VehicleType REMEL Traffic Flo		ce Finite	Road	Fresnel	Barrier Att	en Ber	m Atter
		0.38	-1.20	-4.66		000	0.00
Medium Trucks: 77.72 -17		0.41	-1.20	-4.87		000	0.00
Heavy Trucks: 82.99 -20	.96	0.41	-1.20	-5.41	0.0	000	0.00
Unmitigated Noise Levels (without Topo a		,					
VehicleType Leq Peak Hour Leq	,	q Evening	Leq Nig		Ldn		NEL
Autos: 65.9	64.0	62.3		56.2	64.8		65
Medium Trucks: 59.9	58.4	52.1		50.5	59.0		59
	59.8	50.8		52.0	60.4		60
Heavy Trucks: 61.2	66.2	62.9		58.4	66.9)	67
Vehicle Noise: 67.9							
Vehicle Noise: 67.9			1				
		70 dBA	65 dB	4	60 dBA		dBA
Vehicle Noise: 67.9		70 dBA 32 35	65 dB 70 75	4	60 dBA 150 161	3	dBA 24 47

	FH\	NA-RD-77-108	HIGHW	AY NO	OISE PF	REDICTIO	N MODI	EL			
Road Nam	io: Existing W ne: Dover Dr. nt: n/o Westcl	,				Project N Job Nur	lame: Au nber: 98				
SITE	SPECIFIC IN	IPUT DATA						DEL INP			
Highway Data				S	ite Con	ditions (H	lard = 1	0, Soft = 15	i)		
Average Daily	Traffic (Adt):	4,700 vehicle	5				AL	itos: 15			
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Ax	<i>les):</i> 15			
Peak H	lour Volume:	470 vehicle	5		He	avy Truck	s (3+ Ax	les): 15			
Ve	hicle Speed:	45 mph		V	ehicle l	Niv					
Near/Far La	ne Distance:	12 feet		-		icleType	D	ay Eveni	ng Nig	abt	Daily
Site Data					veni			7.5% 12.9	· ·	·	97.42%
Pa	rrier Height:	0.0 feet			Me	edium Tru	cks: 84	1.8% 4.9	9% 10	0.3%	1.84%
Barrier Type (0-W		0.0 1001			F	leavy Tru	cks: 86	6.5% 2.7	7% 10	.8%	0.74%
Centerline Di		28.0 feet				,					
Centerline Dist.		28.0 feet		N	loise Sc	ource Ele		· · ·			
Barrier Distance	to Observer:	0.0 feet				Autos:	0.00				
Observer Height (5.0 feet				n Trucks:	2.29				
	ad Elevation:	0.0 feet			Heav	y Trucks:	8.00	6 Grade	Adjustr	nent:	0.0
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent L	Distance	(in feet)			
	Road Grade:	0.0%				Autos:	27.80	13			
	Left View:	-90.0 deare	es		Mediur	n Trucks:	27.48	3			
	Right View:	90.0 degree	es		Heav	y Trucks:	27.51	4			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresnel	Barrier	Atten	Berm	Atten
Autos:	68.46	-5.23		3.72		-1.20	-4	.46	0.000		0.000
Medium Trucks:	79.45	-22.47		3.80		-1.20	-4	.86	0.000		0.000
Heavy Trucks:	84.25	-26.42		3.79		-1.20	-5	.83	0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenı	uation)						
VehicleType	Leq Peak Ho	ur Leq Day	L	eq Ev	ening	Leq N	ight	Ldn		CN	
Autos:	65	5.8	63.9		62.1		56.0		64.7		65.3
Medium Trucks:	59		58.1		51.7		50.2		58.6		58.9
Heavy Trucks:	60).4	59.0		50.0		51.2		59.6		59.7
Vehicle Noise:	67	.6	65.9		62.7		58.0		66.6		67.0
Centerline Distant	ce to Noise C	ontour (in feet)								
				70 di		65 di	BA	60 dBA		55 d	
			Ldn:	17		36		77		16	
		CI	VEL:	18		38		82		17	8

Wednesday, June 08, 2016

Wednesday, June 08, 2016

	FHWA	-RD-77-108 HIG	HWAY I	NOISE PI	REDICTION	N MODE	ïL		
Scenario	o: Existing With	Project			Project Na	me: Au	toNation		
Road Name	e: Dover Dr.				Job Num	ber: 98	31		
Road Segmen	t: s/o Westcliff E	Dr.							
	SPECIFIC INP	JT DATA					DEL INPUT	s	
Highway Data				Site Con	ditions (H	ard = 10), Soft = 15)		
Average Daily	Traffic (Adt): 11,	900 vehicles				Au	tos: 15		
Peak Hour I	Percentage:	10%		Me	dium Truck	s (2 Axl	es): 15		
Peak Ho	our Volume: 1,	190 vehicles		He	avy Trucks	(3+ Axl	es): 15		
Veh	nicle Speed:	45 mph	-	Vehicle	Mix				
Near/Far Lar	ne Distance:	48 feet	F		icleType	Da	ay Evening	Night	Daily
Site Data					Aut	os: 77	.5% 12.9%	9.6%	
Bar	rier Height:	0.0 feet		M	edium Truc	ks: 84	.8% 4.9%	10.39	6 1.849
Barrier Type (0-Wa		0.0		ŀ	leavy Truc	ks: 86	.5% 2.7%	10.8%	6 0.749
Centerline Dis		52.0 feet	-	Noise So	ource Elev	ations (in feet)		
Centerline Dist. t	o Observer:	52.0 feet			Autos:	0.00	,		
Barrier Distance t		0.0 feet		Mediu	n Trucks:	2.29	7		
Observer Height (/	,	5.0 feet		Heav	v Trucks:	8.00	Grade Ad	ljustmer	nt: 0.0
	d Elevation:	0.0 feet	_					·	
	d Elevation:	0.0 feet	_	Lane Eq	uivalent Di		. ,		
F	Road Grade:	0.0%			Autos:	46.40	-		
		90.0 degrees			n Trucks:	46.20	-		
	Right View:	90.0 degrees		Heav	y Trucks:	46.22	8		
FHWA Noise Mode	el Calculations								
VehicleType			istance			Fresnel	Barrier At		erm Atten
Autos:	68.46	-1.20	0.3		-1.20			000	0.00
Medium Trucks:	79.45	-18.43	0.4		-1.20			000	0.00
Heavy Trucks:	84.25	-22.39	0.4		-1.20	-5	.41 0.	000	0.00
Unmitigated Noise			1	<i></i>				1	
	Leq Peak Hour	Leq Day		vening	Leq Nig		Ldn		CNEL
Autos:	66.4	64.5		62.8		56.7	65.		66.
Medium Trucks:	60.2	58.7		52.4		50.8	59.	-	59.
Heavy Trucks:	61.1	59.6		50.6		51.9	60.		60.
Vehicle Noise:	68.3	66.5		63.4		58.7	67.	3	67.
Centerline Distanc	e to Noise Cont	our (in feet)	70	dBA	65 dB	4	60 dBA	5	5 dBA
		Ldn:		4	74	•	159		342
		CNFL:		37	79		170		366
		GIVEL.			15		110		000

F	HWA-	-RD-77-108 H	IGHW#	AY N	OISE PR	EDIC	ION MO	DEL			
Scenario: Existing	With F	Project				Projec	t Name:	AutoN	ation		
Road Name: Dover D	r.					Job I	lumber:	9831			
Road Segment: s/o 16th	St.										
SITE SPECIFIC	INPU	JT DATA							L INPUT	s	
Highway Data				S	Site Cond	ditions	; (Hard =	10, S	oft = 15)		
Average Daily Traffic (Adt)	: 13,4	400 vehicles						Autos:	15		
Peak Hour Percentage	e -	10%			Med	lium T	rucks (2 /	Axles):	15		
Peak Hour Volume	c 1,3	340 vehicles			Hea	ivy Tru	icks (3+ /	Axles):	15		
Vehicle Speed		45 mph		v	ehicle N	lix					
Near/Far Lane Distance	c .	48 feet		F		cleTyp	е	Day	Evening	Night	Daily
Site Data							Autos:	77.5%	5 12.9%	9.6%	97.42
Barrier Height		0.0 feet			Me	dium T	rucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm)		0.0			н	leavy T	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Dist. to Barrier		52.0 feet			loise So		lovation	o lin f	0.041		
Centerline Dist. to Observer	c (52.0 feet		~	0/58 30	Auto		s (In 1 000	eel)		
Barrier Distance to Observer	c	0.0 feet			Medium			000 297			
Observer Height (Above Pad)):	5.0 feet				/ Truci		297	Grade Ad	iustmont	. 0.0
Pad Elevation	n:	0.0 feet			rieavy	r muci		000	Grade Au	usunen	. 0.0
Road Elevation	n:	0.0 feet		L	ane Equ	ivaler	t Distan	ce (in	feet)		
Road Grade	e:	0.0%				Auto	os: 46.	400			
Left View	r: -9	90.0 degrees			Medium			209			
Right View	r: 9	90.0 degrees			Heavy	/ Trucl	(s: 46.	228			
FHWA Noise Model Calculati	ons										
VehicleType REMEL	Tr	raffic Flow	Distan	се	Finite F	Road	Fresr	nel	Barrier Att	en Ber	m Atter
Autos: 68.4		-0.68		0.38		-1.20		-4.66		000	0.00
Medium Trucks: 79.4		-17.92		0.41		-1.20		-4.87		000	0.00
Heavy Trucks: 84.:	25	-21.87		0.41		-1.20		-5.41	0.0	000	0.00
Unmitigated Noise Levels (w	-							-		Т	
VehicleType Leq Peak H		Leq Day		eq Ev	ening	Leq	Night		Ldn		NEL
	67.0	65			63.3		57.2		65.9		66
	60.7		1.2		52.9		51.3		59.8		60
Heavy Trucks:	61.6		0.2		51.1		52.4		60.7		60
	68.8	67	.1		63.9		59.2	2	67.8	5	68
Centerline Distance to Noise	Conte	our (in feet)		70 4	0.4	05	104		00 -/04		-10.4
			40.	70 d			dBA	1 (50 dBA		dBA
		CNE	in:	37			80		172		70
		CINE	L.	40	,		85		184	3	97

		/A-RD-77-108									
Scenario: Exi						Project N			ition		
Road Name: Jar Road Seament: n/o						Job Nu	nber: 9	831			
Road Segment: N/d	East Co	ast Hwy.									
SITE SPEC	IFIC IN	PUT DATA							L INPUT	S	
Highway Data				1	Site Con	ditions (I	lard = 1	10, So	ft = 15)		
Average Daily Traffic	: (Adt): 1	6,400 vehicles						utos:	15		
Peak Hour Perce	ntage:	10%			Me	dium Truc	ks (2 A)	des):	15		
Peak Hour Vo	olume:	1,640 vehicles			He	avy Truck	s (3+ A)	des):	15		
Vehicle S	Speed:	55 mph		-	Vehicle I	Mix					
Near/Far Lane Dis	tance:	72 feet		H		cleType	[Day	Evening	Night	Daily
Site Data				-				7.5%	12.9%	9.6%	
Barrier H	loiaht	0.0 feet			Me	edium Tru		4.8%	4.9%	10.3%	
Barrier Type (0-Wall, 1-		0.0 reet				leavy Tru		6.5%		10.8%	
Centerline Dist. to F		64.0 feet									
Centerline Dist. to Ob		64.0 feet		1	Noise Sc	ource Ele		•	et)		
Barrier Distance to Obs		0.0 feet				Autos:					
Observer Height (Above		5.0 feet				n Trucks:	2.2				
Pad Fle		0.0 feet			Heav	y Trucks:	8.0	06	Grade Ad	justmen	it: 0.0
Road Fle		0.0 feet		1	Lane Eq	uivalent I	Distance	e (in f	eet)		-
Road	Grade:	0.0%			,	Autos:	53.1	51			
Lefi	t View:	-90.0 degree	-		Mediur	n Trucks:	52.9	84			
Right	t View:	90.0 degree			Heav	y Trucks:	53.0	00			
FHWA Noise Model Cal	culations	6									
VehicleType RE	MEL	Traffic Flow	Dist	lance	Finite	Road	Fresne	e/ 1	Barrier Att	en Be	erm Atter
Autos:	71.78	-0.67		-0.50	C	-1.20	-	4.70	0.0	000	0.00
Medium Trucks:	82.40	-17.91		-0.48	В	-1.20	-	4.88	0.0	000	0.00
Heavy Trucks:	86.40	-21.87		-0.48	В	-1.20	-	5.31	0.0	000	0.00
Unmitigated Noise Leve			arrie								-
<i>,</i> , ,	Peak Hou			Leq E	~	Leq N	v		Ldn		CNEL
Autos:	69.		7.5		65.7		59.7		68.3		68.
Medium Trucks:	62.		1.3		54.9		53.4		61.		62.
Heavy Trucks:	62.		1.4		52.4		53.6		62.		62.
Vehicle Noise:	71.	0 6	9.2		66.3		61.4		70.)	70.
Centerline Distance to I	Voise Co	ntour (in feet)		_							
Contonino Diotanoo to i				70 0	1RA	65 dl	RA I	6	0 dBA	5	5 dBA
								-			
		L	dn:	6	4	137	,		295 317		635 683

	FH\	WA-RD-77-108	BHIGHW	AY NO	DISE PR	REDICTIO	N MODI	EL			
Road Nam	io: Existing W e: MacArthur nt: n/o East C	BI.				Project N Job Nur	ame: Au nber: 98		n		
SITE	SPECIFIC IN	NPUT DATA							NPUTS		
Highway Data				S	ite Con	ditions (H	lard = 1	0, Soft =	= 15)		
Average Daily	Traffic (Adt):	10,600 vehicle	s				AL	itos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truc	ks (2 Ax	les):	15		
Peak H	our Volume:	1,060 vehicle	s		Hea	avy Truck	s (3+ Ax	les):	15		
Ve	hicle Speed:	55 mph		V	ehicle I	<i>liv</i>					
Near/Far La	ne Distance:	72 feet				cleType	D	av Ev	/ening	Night	Daily
Site Data					1011				12.9%	9.6%	97.42%
Pa	rier Height:	0.0 feet			Me	edium True	cks: 84	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-W		0.0			ŀ	leavy Truc	cks: 86	6.5%	2.7%	10.8%	0.74%
Centerline Dis	. ,	64.0 feet			oico Sa	urce Elev	ations	(in foot)			
Centerline Dist.	to Observer:	64.0 feet		14	0/36 30	Autos:	0.00				
Barrier Distance	to Observer:	0.0 feet			Madium	n Trucks:	2.29				
Observer Height (Above Pad):	5.0 feet				y Trucks:	8.00		ade Adju	stmont.	0.0
Pá	ad Elevation:	0.0 feet			neav	y mucks.	8.00	6 0/1	aac Aaja	sumerne.	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent D	Distance	(in fee	t)		
1	Road Grade:	0.0%				Autos:	53.15	51			
	Left View:	-90.0 degre	es		Mediur	n Trucks:	52.98	34			
	Right View:	90.0 degre	es		Heav	y Trucks:	53.00	00			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresnel	l Bai	rrier Atte	n Berr	n Atten
Autos:	71.78	-2.57		-0.50		-1.20	-4	1.70	0.00	0	0.000
Medium Trucks:	82.40	-19.81		-0.48		-1.20	-4	1.88	0.00	0	0.000
Heavy Trucks:	86.40	-23.76		-0.48		-1.20	-5	5.31	0.00	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	V L	eq Eve	ening	Leq Ni	ight	Ld	In	CN	IEL
Autos:	•.	7.5	65.6		63.8		57.8		66.4		67.0
Medium Trucks:).9	59.4		53.0		51.5		60.0		60.2
Heavy Trucks:).9	59.5		50.5		51.7		60.1		60.2
Vehicle Noise:	69	9.1	67.3		64.4		59.5		68.1		68.5
Centerline Distant	ce to Noise C	ontour (in fee	t)								
			🖵	70 dl		65 dE		60 a		55 0	
		-	Ldn:	47		102		22			75
		C	NEL:	51		110		23	1	51	11

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	FHV	VA-RD-77-108 I	HIGHWA	Y NO	DISE PR	EDICTIC	ON MO	DEL			
	p: Existing Wi	th Project				Project I			ation		
Road Name						Job Nu	mber:	9831			
Road Segmen	t: w/o Irvine A	w.									
	SPECIFIC IN	IPUT DATA							L INPUTS	6	
Highway Data				S	ite Con	ditions (Hard =	10, So	oft = 15)		
Average Daily 7	Fraffic (Adt):	10,200 vehicles						Autos:	15		
Peak Hour F	Percentage:	10%			Med	dium Truo	cks (2 A	(xles)	15		
Peak Ho	our Volume:	1,020 vehicles			Hea	avy Truck	(3+ A	(xles)	15		
	nicle Speed:	35 mph		V	ehicle N	<i>lix</i>					
Near/Far Lan	e Distance:	48 feet		F		cleType		Dav	Evening	Niaht	Dailv
Site Data							itos:	77.5%	0	9.6%	97.429
Bari	rier Height:	0.0 feet			Me	dium Tru	icks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa	•	0.0			Н	leavy Tru	icks:	86.5%	2.7%	10.8%	0.749
Centerline Dis		52.0 feet		N	oise So	urce Ele	vation	s (in f	eet)		
Centerline Dist. t	o Observer:	52.0 feet		1		Autos		000	,		
Barrier Distance t	o Observer:	0.0 feet			Mediun	n Trucks	2.5	297			
Observer Height (A	Above Pad):	5.0 feet			Heav	v Trucks:	8.0	006	Grade Adj	ustment	0.0
	d Elevation:	0.0 feet				·					
	d Elevation:	0.0 feet		L	ane Equ	livalent			feet)		
R	load Grade:	0.0%				Autos:					
	Left View:	-90.0 degree				n Trucks:					
	Right View:	90.0 degree	s		Heav	y Trucks:	46.	228			
FHWA Noise Mode		-									
VehicleType	REMEL	Traffic Flow	Distanc	-	Finite		Fresn	-	Barrier Atte		m Atten
Autos:	64.30	-0.77		0.38		-1.20		-4.66	0.0		0.00
Medium Trucks:	75.75	-18.01).41		-1.20		-4.87	0.0		0.00
Heavy Trucks:	81.57	-21.97).41		-1.20		-5.41	0.0	00	0.00
Unmitigated Noise											
	Leq Peak Hou	1.7		y Eve	ening	Leq N	·		Ldn		VEL
Autos:	62		60.8		59.0		53.0		61.6		62.
Medium Trucks:	56		5.4		49.1		47.5		56.0		56.
Heavy Trucks:	58		57.4		48.3		49.6		58.0		58.
Vehicle Noise:	64		3.2		59.8		55.4		63.9		64.
Centerline Distanc	e to Noise Co	ontour (in feet)		70 dł	RA	65 d	RA	f	SO dBA	55	dBA
		1	dn:	20		44		· `	95		05
		-	IFI :	22		47			102	_	19
		014								-	

	FHW	A-RD-77-108	HIGHW	VAY NO	OISE PRI	EDICT	ION MO	DDEL			
Scenario: Existir	ng Wit	h Project			1	Project	t Name:	AutoN	ation		
Road Name: Westo	liff Dr.					Job N	lumber:	9831			
Road Segment: e/o Irv	ine Av	ι.									
SITE SPECIFI	C IN	PUT DATA							L INPUT	S	
Highway Data				S	ite Cond	litions	(Hard =	= 10, So	oft = 15)		
Average Daily Traffic (A	dt):	8,500 vehicles						Autos:	15		
Peak Hour Percenta	ge:	10%			Med	lium Tr	ucks (2	Axles):	15		
Peak Hour Volur	ne:	850 vehicles			Hea	vy Tru	cks (3+	Axles):	15		
Vehicle Spe	ed:	35 mph		v	ehicle M	lix					
Near/Far Lane Distan	ce:	48 feet		-		leType	9	Dav	Evening	Night	Daily
Site Data							Autos:	77.5%	•	9.6%	
Barrier Heig	ht.	0.0 feet			Med	dium T	rucks:	84.8%	4.9%	10.3%	
Barrier Type (0-Wall, 1-Ber		0.0			He	eavy T	rucks:	86.5%	2.7%	10.8%	
Centerline Dist. to Barr		52.0 feet				· ·					
Centerline Dist. to Observ		52.0 feet		N	loise Sou				eet)		
Barrier Distance to Observ		0.0 feet				Auto		.000			
Observer Height (Above Pa		5.0 feet			Medium			.297	Our de Ad		
Pad Elevati		0.0 feet			Heavy	/ I ruck	:s: 8	.006	Grade Ad	ustment	0.0
Road Elevati	on:	0.0 feet		L	ane Equ	ivalen	t Distar	nce (in	feet)		
Road Gra	de:	0.0%				Auto	s: 46	.400			
Left Vie	ew:	-90.0 degree	s		Medium	Truck	s: 46	.209			
Right Vie	ew:	90.0 degree	s		Heavy	Truck	:s: 46	.228			
FHWA Noise Model Calcul	ations	;									
VehicleType REME	L	Traffic Flow	Dista	ance	Finite F	Road	Fres	nel	Barrier Att	en Ber	m Atter
Autos: 6	4.30	-1.57		0.38		-1.20		-4.66	0.0	000	0.00
	5.75	-18.80		0.41		-1.20		-4.87		000	0.00
Heavy Trucks: 8	1.57	-22.76		0.41		-1.20		-5.41	0.0	000	0.00
Unmitigated Noise Levels			-								
VehicleType Leq Pear				Leq Ev	•	Leq	Night		Ldn	-	VEL
Autos:	61.		0.0		58.3		52.	-	60.8	-	61
Medium Trucks:	56.		4.6		48.3		46.		55.2		55
Heavy Trucks:	58.		6.6		47.6		48.	-	57.2		57
Vehicle Noise:	64.		62.4		59.0		54.	.6	63.1		63
Centerline Distance to Noi	se Co	ntour (in feet)		70 4	0.4	05	-104		0.104		-10.4
		,		70 di			dBA	6	60 dBA		dBA
			.dn:	18			39		84		81
		CN	IEL:	19	1		42		90	1	94

			REDICTION							
Scenario: Existing With Project			Project Nar		ation					
Road Name: West Coast Hwy.		Job Number: 9831								
Road Segment: w/o Newport Bl.										
SITE SPECIFIC INPUT DATA						5				
Highway Data		Site Cor	ditions (Ha	rd = 10, S	,					
Average Daily Traffic (Adt): 13,400 vehicle	s			Autos:						
Peak Hour Percentage: 10%			dium Trucks	1,						
Peak Hour Volume: 1,340 vehicle	s	He	avy Trucks	(3+ Axles)	15					
Vehicle Speed: 45 mph		Vehicle	Mix							
Near/Far Lane Distance: 72 feet		Veh	icleType	Day	Evening	Night	Dail			
Site Data			Auto	s: 77.5%	5 12.9%	9.6%	97.42			
Barrier Height: 0.0 feet		M	edium Truck	s: 84.8%	4.9%	10.3%	1.84			
Barrier Type (0-Wall, 1-Berm): 0.0		1	Heavy Truck	s: 86.5%	2.7%	10.8%	0.74			
Centerline Dist. to Barrier: 64.0 feet		Noise S	ource Eleva	tions (in f	eet)					
Centerline Dist. to Observer: 64.0 feet			Autos:	0.000	,					
Barrier Distance to Observer: 0.0 feet		Mediu	m Trucks:	2.297						
Observer Height (Above Pad): 5.0 feet			/v Trucks:	8.006	Grade Ad	iustment	0.0			
Pad Elevation: 0.0 feet			,							
Road Elevation: 0.0 feet		Lane Eq	uivalent Dis		feet)					
Road Grade: 0.0%			Autos:	53.151						
Left View: -90.0 degre			m Trucks:	52.984						
Right View: 90.0 degre	es	Heav	/y Trucks:	53.000						
FHWA Noise Model Calculations		1								
VehicleType REMEL Traffic Flow	Distan	ce Finite	Road F	resnel	Barrier Att	en Ber	rm Atte			
Autos: 68.46 -0.68		0.50	-1.20	-4.70	0.0	000	0.0			
Medium Trucks: 79.45 -17.92		0.48	-1.20	-4.88	0.0	000	0.0			
Heavy Trucks: 84.25 -21.87	· ·	0.48	-1.20	-5.31	0.0	000	0.0			
Unmitigated Noise Levels (without Topo and	l barrier a	ttenuation)								
VehicleType Leq Peak Hour Leq Da	y Le	q Evening	Leq Nigl	nt	Ldn		NEL			
Autos: 66.1	64.2	62.4		56.4	65.0		65			
Medium Trucks: 59.8	58.3	52.0		50.4	58.9		59			
Heavy Trucks: 60.7	59.3	50.2		51.5	59.8	-	60			
Vehicle Noise: 67.9	66.2	63.0		58.3	66.9)	67			
Centerline Distance to Noise Contour (in fee	t)									
		70 dBA	65 dBA		60 dBA	55	dBA			
		10 001								
	Ldn: NEL:	40	86		184	3	397			

	FHV	VA-RD-77-108 H	IIGHWAY	' NOISE P	REDICTI	ON MOI	DEL			
Road Nam	io: Existing Wit e: West Coast nt: e/o Newpor	Hwy.				Name: / umber: 9		ation		
SITE	SPECIFIC IN	PUT DATA						L INPUTS	5	
Highway Data				Site Cor	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 2	6,000 vehicles					Autos:	15		
Peak Hour	Percentage:	10%		Me	edium Tru	icks (2 A	xles):	15		
Peak H	our Volume:	2,600 vehicles		He	avy Truc	cks (3+ A	xles):	15		
Ve	hicle Speed:	40 mph		Vehicle	Mix					
Near/Far La	ne Distance:	72 feet			nicleType		Day	Evening	Night	Daily
Site Data				Ver			77.5%	•	9.6%	
		0.0 feet		м	, Iedium Tr		84.8%		10.3%	1.84%
Barrier Type (0-W	rier Height:	0.0 feet			Heavy Tr	ucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis		64.0 feet								
Centerline Dist.		64.0 feet		Noise S				et)		
Barrier Distance		0.0 feet			Autos					
Observer Height (5.0 feet			m Trucks					
	ad Flevation:	0.0 feet		Hea	vy Trucks	s: 8.0	006	Grade Adj	ustment.	0.0
	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distand	e (in i	feet)		
	Road Grade:	0.0%			Autos	s: 53.1	151	,		
	Left View:	-90.0 degrees		Mediu	m Truck	s: 52.9	984			
	Right View:	90.0 degrees		Hear	vy Trucks	s: 53.0	000			
FHWA Noise Mode	el Calculations	s								
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	66.51	2.71	-0	.50	-1.20		-4.70	0.0	00	0.000
Medium Trucks:	77.72	-14.53	-0	.48	-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	82.99	-18.48	-0	.48	-1.20		-5.31	0.0	00	0.000
Unmitigated Noise			arrier att	enuation)						
	Leq Peak Hou			Evening		Night		Ldn		VEL
Autos:	67.		5.6	63.9		57.8		66.4		67.0
Medium Trucks:	61.	.5 6	0.0	53.6		52.1		60.6		60.8
Heavy Trucks:	62.		1.4	52.4		53.6		62.0		62.1
Vehicle Noise:	69.	.5 6	7.8	64.5		60.0		68.5		69.0
Centerline Distant	ce to Noise Co	ontour (in feet)								
				0 dBA	65		6	i0 dBA		dBA
			dn:	51		10		236		09
		CN	EL:	55	11	17		253	5	45

Wednesday, June 08, 2016

Wednesday, June 08, 2016

FH	WA-RD-77-108 HIG	HWAY N		TION MODE	L	
Scenario: Existing W Road Name: West Coa Road Segment: e/o Tustin	st Hwy.			t Name: Aut Number: 983		
SITE SPECIFIC I	NPUT DATA			NOISE MO	DEL INPUT	3
Highway Data			Site Conditions	; (Hard = 10,	Soft = 15)	
Average Daily Traffic (Adt):	25,900 vehicles			Aut	os: 15	
Peak Hour Percentage:	10%		Medium T	rucks (2 Axle	s): 15	
Peak Hour Volume:	2,590 vehicles		Heavy Tru	icks (3+ Axle	s): 15	
Vehicle Speed:	40 mph	-	Vehicle Mix			
Near/Far Lane Distance:	72 feet	-	Vehicle Typ	e Da	y Evening	Night Daily
Site Data			romotoryp		5% 12.9%	9.6% 97.42%
Barrier Height:	0.0 feet		Medium	rucks: 84.	8% 4.9%	10.3% 1.84%
Barrier Type (0-Wall, 1-Berm):	0.0		Heavy	rucks: 86.	5% 2.7%	10.8% 0.74%
Centerline Dist, to Barrier:	64.0 feet	-	Naisa 0auna 1			
Centerline Dist. to Observer:	64.0 feet	Ľ	Noise Source E Auto		,	
Barrier Distance to Observer:	0.0 feet		Auto Medium Truci			
Observer Height (Above Pad):	5.0 feet		Heavy Truci			ustment: 0.0
Pad Elevation:	0.0 feet		neavy Truci	(S. 0.000	Grade Auj	usuneni. 0.0
Road Elevation:	0.0 feet	1	Lane Equivaler	nt Distance ('in feet)	
Road Grade:	0.0%		Auto	os: 53.151		
Left View:	-90.0 degrees		Medium Truci	ks: 52.984		
Right View:	90.0 degrees		Heavy Truci	ks: 53.000		
FHWA Noise Model Calculation	15					
VehicleType REMEL	Traffic Flow Di	istance	Finite Road	Fresnel	Barrier Atte	en Berm Atten
Autos: 66.51		-0.50		-4.		
Medium Trucks: 77.72		-0.4				
Heavy Trucks: 82.99	-18.50	-0.4	8 -1.20	-5.	31 0.0	00 0.000
Unmitigated Noise Levels (with	nout Topo and barr	ier atten	uation)			
VehicleType Leq Peak Ho		Leq E	ů.	Night	Ldn	CNEL
	7.5 65.6		63.8	57.8	66.4	
	1.5 60.0		53.6	52.1	60.5	
	2.8 61.4		52.4	53.6	62.0	
Vehicle Noise: 6	9.5 67.8		64.5	60.0	68.5	68.9
Centerline Distance to Noise C	ontour (in feet)		-		-	
		70 0		dBA	60 dBA	55 dBA
	Ldn:	5	1 '	09	236	508
	CNEL:	5		17	252	544

	FHV	VA-RD-77-108	HIGH	WAY NO	DISE PR	REDICT	ION M	ODEL			
	o: Existing Wi							AutoN	ation		
	e: West Coas					Job N	lumber.	9831			
Road Segmer	nt: e/o Dover D	Dr.									
SITE	SPECIFIC IN	PUT DATA								s	
Highway Data				S	ite Con	ditions	(Hard	= 10, So	oft = 15)		
Average Daily	Traffic (Adt): 3	32,400 vehicles	;					Autos:	15		
Peak Hour	Percentage:	10%			Med	dium Tr	ucks (2	Axles):	15		
Peak H	our Volume:	3,240 vehicles	5		Hea	avy Tru	cks (3+	Axles):	15		
Ve	hicle Speed:	40 mph		V	ehicle N	Nix					
Near/Far La	ne Distance:	96 feet		-		cleTvpe		Dav	Evening	Night	Dailv
Site Data							Autos:	77.5%		9.6%	
	rier Height:	0.0 feet			Мє	dium T		84.8%		10.3%	1.849
Barrier Type (0-W		0.0 1001			F	leavy T	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Dis	. ,	72.0 feet				,					
Centerline Dist.		72.0 feet		N	oise So				eet)		
Barrier Distance		0.0 feet				Auto		0.000			
Observer Height (5.0 feet			Mediun			2.297			
0 1	d Flevation:	0.0 feet			Heav	y Truck	s: 8	3.006	Grade Ad	justment	0.0
	d Elevation:	0.0 feet		Li	ane Equ	uivalen	t Dista	nce (in	feet)		
	Road Grade:	0.0%				Auto	s: 53	3.898			
	Left View:	-90.0 degree	s		Mediun	n Truck	s: 53	3.734			
	Right View:	90.0 degree	S		Heav	y Truck	s: 53	3.750			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Free	snel	Barrier Att	en Ber	m Atten
Autos:	66.51	3.67		-0.59		-1.20		-4.72	0.0	000	0.00
Medium Trucks:	77.72	-13.57		-0.57		-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	82.99	-17.53		-0.57		-1.20		-5.26	0.0	000	0.00
Unmitigated Noise											
VehicleType	Leq Peak Hou			Leq Eve	· ·	Leq	Night		Ldn		VEL
Autos:	68		6.5		64.7		58		67.3	-	67.
Medium Trucks:	62		60.9		54.5		53		61.4		61.
Heavy Trucks:	63		32.3		53.2		54		62.8	-	63.
Vehicle Noise:	70		68.7		65.4		60	.8	69.4	4	69.
Centerline Distand	e to Noise Co	ontour (in feet)		70 dE	24	65	dBA	4	60 dBA	55	dBA
		,	_dn:	65			и <i>в</i> м 41		304		овя 54
			IEL:	70			41 51		304		01
		Ch		70					525		

Scenario: Existing With Proje	ect		Project Na	me: AutoN	ation	
Road Name: West Coast Hwy.				ber: 9831	ation	
Road Segment: e/o Bayside Dr.						
SITE SPECIFIC INPUT	DATA		NO	SE MODE		
Highway Data		Site Co	nditions (Ha	ard = 10, S	oft = 15)	
Average Daily Traffic (Adt): 28,800	vehicles			Autos:	15	
Peak Hour Percentage: 109	6	Me	edium Truck	s (2 Axles):	15	
Peak Hour Volume: 2,880	vehicles	He	eavy Trucks	(3+ Axles):	15	
Vehicle Speed: 50	mph	Vehicle	Mix			
Near/Far Lane Distance: 96	feet		nicleType	Day	Evening	Night Daily
Site Data			Auto	os: 77.5%	Ű	9.6% 97.42
Barrier Height: 0.0	feet	N	ledium Truci	ks: 84.8%	4.9%	10.3% 1.849
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Truc	ks: 86.5%	2.7%	10.8% 0.749
Centerline Dist. to Barrier: 72.0	feet	Noise S	ource Eleva	ations (in f	eet)	
Centerline Dist. to Observer: 72.0	feet		Autos:	0.000		
Barrier Distance to Observer: 0.0	feet	Mediu	m Trucks:	2.297		
Observer Height (Above Pad): 5.0	feet		vv Trucks:	8.006	Grade Adiu	stment: 0.0
	feet		,			
	feet	Lane Ec	uivalent Di		feet)	
Road Grade: 0.0			Autos:	53.898		
	degrees		m Trucks:	53.734		
Right View: 90.0	degrees	Hea	vy Trucks:	53.750		
FHWA Noise Model Calculations						
	Flow Distan			Fresnel	Barrier Atte	
Autos: 70.20		-0.59	-1.20	-4.72	0.00	
Medium Trucks: 81.00		-0.57	-1.20	-4.88	0.00	
Heavy Trucks: 85.38	-19.01	-0.57	-1.20	-5.26	0.00	00.00
Unmitigated Noise Levels (without To		,				
	1 2	q Evening	Leq Nig		Ldn	CNEL
Autos: 70.6	68.7	66.9		60.9	69.5	70
Medium Trucks: 64.2	62.7	56.3		54.8	63.2	63
Heavy Trucks: 64.6	63.2	54.1		55.4	63.7	63.
Vehicle Noise: 72.3	70.5	67.5		62.7	71.3	71
Centerline Distance to Noise Contour	(in feet)			-		
	1	70 dBA	65 dB/	A (50 dBA	55 dBA
	Ldn: CNFL :	87 94	188 202		406 436	874 939

	FHW	A-RD-77-108 I	HIGHWA	Y NC	DISE PF	REDICTI	ON MODE	L		
Scenario: Ex Road Name: Ea Road Segment: e/o	ast Coast ⊢	łwy.					Vame: Au Imber: 98			
SITE SPEC	CIFIC INF	PUT DATA				N	OISE MO	DEL INPUT	S	
Highway Data				S	ite Con	ditions (Hard = 10), Soft = 15)		
Average Daily Traffic Peak Hour Perce Peak Hour V	entage:	0,500 vehicles 10% 2,050 vehicles					Au cks (2 Axi ks (3+ Axi			
Vehicle	Speed:	50 mph			ehicle l			-		
Near/Far Lane Dis	stance:	72 feet		V		icleType	D	ay Evening	Night	Daily
Site Data					veni			.5% 12.9%	9.6	
Barrier H	loight	0.0 feet			Me	edium Tr	ucks: 84	.8% 4.9%	10.3	% 1.84%
Barrier Type (0-Wall, 1-		0.0			ŀ	leavy Tr	ucks: 86	6.5% 2.7%	10.8	% 0.74%
Centerline Dist. to I	Barrier:	64.0 feet		N	loise Sc	ource Ele	evations (in feet)		
Centerline Dist. to Ob	server:	64.0 feet				Autos				
Barrier Distance to Ob	server:	0.0 feet			Mediur	n Trucks				
Observer Height (Abov	,	5.0 feet			Heav	y Trucks	8.00	6 Grade Ad	justme	nt: 0.0
Pad Ele		0.0 feet				,			·	
Road Ele		0.0 feet		Li	ane Eq		Distance	, ,		
	Grade:	0.0%				Autos				
	t View:	-90.0 degree				n Trucks				
Righ	t View:	90.0 degree	S		Heav	y Trucks	: 53.00	0		
FHWA Noise Model Cal										
		Traffic Flow	Distanc		Finite		Fresnel	Barrier Att	_	erm Atten
Autos:	70.20	0.71	-(0.50		-1.20			000	0.000
Medium Trucks:	81.00	-16.53		0.48		-1.20			000	0.000
Heavy Trucks:	85.38	-20.49	-(0.48		-1.20	-5	.31 0.0	000	0.000
Unmitigated Noise Lev			parrier at	tenu	uation)					
,, ,	Peak Hour			y Eve	ening	Leq I	•	Ldn		CNEL
Autos:	69.2		7.3		65.5		59.5	68.1		68.7
Medium Trucks:	62.8		1.3		54.9		53.4	61.8		62.1
Heavy Trucks: Vehicle Noise:	63.2 70.9	-	1.8 9.2		52.8 66.1		54.0 61.3	62.4		62.5 70.3
Centerline Distance to			3.2		00.1		01.3	69.3	5	70.3
Centerline Distance to	NUISE COI	nour (in reet)		70 dE	BA	65 0	IBA	60 dBA	5	5 dBA
		L	dn:	63		13		292		628
			EL:	67		14		313		675

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	FHV	VA-RD-77-108 HI	IGHWAY	NOISE PI	REDICTIO	N MODEL			
Scenario	p: Existing Wit	th Project			Project Na	ame: Auto	Nation		
	e: East Coast				Job Nurr	nber: 983			
Road Segmen	t: w/o MacArt	hur Bl.							
	SPECIFIC IN	PUT DATA					EL INPUT	S	
Highway Data				Site Cor	ditions (H	ard = 10,	Soft = 15)		
Average Daily 1	Fraffic (Adt): 1	5,000 vehicles				Auto	s: 15		
Peak Hour F	Percentage:	10%		Me	dium Truck	ks (2 Axles	;): 15		
Peak Ho	our Volume:	1,500 vehicles		He	avy Trucks	(3+ Axles	;): 15		
Veh	nicle Speed:	50 mph		Vehicle	Mix				
Near/Far Lan	e Distance:	72 feet			icleType	Dav	Evening	Night	Dailv
Site Data					Aut	os: 77.5	0	9.6%	97.429
Rari	rier Height:	0.0 feet		М	edium Truc	ks: 84.8	% 4.9%	10.3%	1.849
Barrier Type (0-Wa		0.0		I	Heavy Truc	ks: 86.5	% 2.7%	10.8%	0.749
Centerline Dis		64.0 feet		Noise Se	ource Elev	ations (in	feet)		
Centerline Dist. t		64.0 feet			Autos:	0.000			
Barrier Distance t	o Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height (A	,	5.0 feet		Heav	v Trucks:	8.006	Grade Ad	justment.	: 0.0
	d Elevation:	0.0 feet						·	
	d Elevation:	0.0 feet		Lane Eq	uivalent D		n feet)		
R	load Grade:	0.0%			Autos:	53.151			
	Left View:	-90.0 degrees			m Trucks:	52.984			
	Right View:	90.0 degrees		Heav	/y Trucks:	53.000			
FHWA Noise Mode		-					1		
VehicleType	REMEL		Distance			Fresnel	Barrier Att		m Atten
Autos:	70.20	-0.65	-0.		-1.20	-4.7		000	0.00
Medium Trucks:	81.00	-17.89	-0		-1.20	-4.8		000	0.00
Heavy Trucks:	85.38	-21.84	-0		-1.20	-5.3	1 0.0	000	0.00
Unmitigated Noise				,					
	Leq Peak Hou	1.7		Evening	Leq Nig	-	Ldn		NEL
Autos: Medium Trucks:	67. 61.			64.2 53.6		58.1 52.0	66. 60.		67. 60.
	61. 61.			53.6 51.4		52.0 52.6	60.:	-	60. 61.
Heavy Trucks: Vehicle Noise:	61.			51.4 64.8		52.6 60.0	61.0		61. 69.
			.0	64.8		00.0	68.	5	69.
Centerline Distanc	e to Noise Co	ontour (in feet)	70	dBA	65 dB	A	60 dBA	55	dBA
		Id		51	110		237		510
		CNE		55	118		254	-	48
		ONL			110		207		

	FHW	A-RD-77-108	HIGHV	NAY N	NOISE PR	REDICT	ION MO	DEL			
Scenario: Existing	g With	n Project	_	_		Projec	t Name:	AutoN	ation		
Road Name: East C						Job I	lumber:	9831			
Road Segment: e/o Ma	cArth	ur Bl.									
SITE SPECIFIC	C INF	PUT DATA								S	
Highway Data					Site Con	ditions	(Hard =	10, Se	oft = 15)		
Average Daily Traffic (Ad	t): 1	5,500 vehicles						Autos:	15		
Peak Hour Percentag	ie:	10%			Mee	dium Ti	ucks (2 A	(xles):	15		
Peak Hour Volum	e: '	1,550 vehicles			Hea	avy Tru	cks (3+ A	(xles):	15		
Vehicle Spee		35 mph		F	Vehicle I	Nix					
Near/Far Lane Distand	e:	48 feet			Vehi	cleTyp	э	Day	Evening	Night	Daily
Site Data							Autos:	77.5%	12.9%	9.6%	97.429
Barrier Heigl	nt:	0.0 feet	-		Me	edium 1	rucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Bern		0.0			F	leavy T	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Dist. to Barrie	·	52.0 feet		H	Noise So		lovation	c (in f	oot)		
Centerline Dist. to Observe	ər:	52.0 feet		÷	NUISE 30	Auto		000	eel)		
Barrier Distance to Observe	ər:	0.0 feet			Mediur			297			
Observer Height (Above Pa	d):	5.0 feet				y Truck		006	Grade Ad	iustmont	. 0.0
Pad Elevation	n:	0.0 feet			Tieav	y mucr		000	Orade Au	usunon	0.0
Road Elevation	on:	0.0 feet			Lane Equ	uivalen	t Distan	ce (in	feet)		
Road Grad	le:	0.0%				Auto	s: 46.	400			
Left Vie	W:	-90.0 degree	S		Mediur						
Right Vie	W:	90.0 degree	s		Heav	y Truck	s: 46.	228			
FHWA Noise Model Calcula	tions										
VehicleType REMEL	-	Traffic Flow	Dista	ance	Finite		Fresn	el	Barrier Att	en Ber	m Atter
	1.30	1.04		0.3		-1.20		-4.66		000	0.00
	5.75	-16.19		0.4		-1.20		-4.87		000	0.00
Heavy Trucks: 81	.57	-20.15		0.4	1	-1.20		-5.41	0.0	000	0.00
Unmitigated Noise Levels (é ,						
VehicleType Leq Peak				Leq E	vening	Leq	Night		Ldn	-	NEL
Autos:	64.5		2.6		60.9		54.8		63.4		64.
Medium Trucks:	58.8		7.3		50.9		49.4		57.8		58.
Heavy Trucks:	60.6		9.2		50.2		51.4		59.8		59.
Vehicle Noise:	66.8		5.0		61.6		57.2		65.7		66.
Centerline Distance to Nois	e Col	ntour (in feet)		70	dBA	65	dBA		60 dBA	55	dBA
		,	dn:	-	dBA 7		<i>ав</i> А 58		126		71
			un.				20		120	2	11

		AT NOIS	E PREDICTIO					
Scenario: TPO 2019 Without Projec	t		Project N			tion		
Road Name: Newport Bl.			Job Nur	nber: 9	831			
Road Segment: n/o West Coast Hwy.								
SITE SPECIFIC INPUT DATA							S	
Highway Data		Site	Conditions (H			,		
Average Daily Traffic (Adt): 10,600 vehicle	s				utos:	15		
Peak Hour Percentage: 10%			Medium Truc			15		
Peak Hour Volume: 1,060 vehicle	S		Heavy Trucks	s (3+ A)	des):	15		
Vehicle Speed: 45 mph		Vehi	cle Mix					
Near/Far Lane Distance: 72 feet			VehicleType	L	Day	Evening	Night	Daily
Site Data			Au	tos: 7	7.5%	12.9%	9.6%	97.42
Barrier Height: 0.0 feet			Medium Truc	cks: 8	4.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy True	cks: 8	6.5%	2.7%	10.8%	0.74
Centerline Dist. to Barrier: 64.0 feet		Nois	e Source Elev	ations	(in fe	et)		
Centerline Dist. to Observer: 64.0 feet			Autos:	0.0	•			
Barrier Distance to Observer: 0.0 feet		14	edium Trucks:	2.2				
Observer Height (Above Pad): 5.0 feet			leavv Trucks:	8.0		Grade Ad	iustment	0.0
Pad Elevation: 0.0 feet			, , ,					
Road Elevation: 0.0 feet		Lane	Equivalent D			eet)		
Road Grade: 0.0%			Autos:	53.1				
Left View: -90.0 degree	es	Me	edium Trucks:	52.9	84			
Right View: 90.0 degree	es	ŀ	leavy Trucks:	53.0	00			
FHWA Noise Model Calculations		- 1						
VehicleType REMEL Traffic Flow	Distar	nce F	inite Road	Fresne		Barrier Att	en Ber	rm Atter
Autos: 68.46 -1.70		-0.50	-1.20	-	4.70	0.0	000	0.00
Medium Trucks: 79.45 -18.94		-0.48	-1.20		4.88		000	0.0
Heavy Trucks: 84.25 -22.89		-0.48	-1.20	-	5.31	0.0	000	0.0
Unmitigated Noise Levels (without Topo and								
VehicleType Leq Peak Hour Leq Day		eq Evenir	•	~		Ldn		NEL
	63.2		61.4	55.3		64.0		64
	57.3		51.0	49.4		57.9		58
	58.3		19.2	50.5		58.8	-	59
Vehicle Noise: 66.9	65.2	6	32.0	57.3		65.9)	66
Centerline Distance to Noise Contour (in feet)							
		70 dBA	65 dE	3A	60) dBA	55	dBA
	Ldn: NEL:	34 36	73 79			158 169	-	340 364

	FHV	VA-RD-77-108 HI	GHWAY	NOISE PI	REDICT		DEL			
Road Nam	io: TPO 2019 ie: Irvine Av. nt: n/o 19th St.	Without Project				Name: /		ation		
SITE	SPECIFIC IN	IPUT DATA						L INPUT	5	
Highway Data				Site Con	ditions	(Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	15,400 vehicles				,	Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Tr	ucks (2 A	xles):	15		
Peak H	lour Volume:	1,540 vehicles		He	avy Tru	cks (3+ A	xles):	15		
Ve	hicle Speed:	40 mph		Vehicle	Mix					
Near/Far La	ne Distance:	48 feet			icleType		Day	Evening	Night	Daily
Site Data				VCII			77.5%	•	9.6%	
				M	, edium T		84.8%		10.3%	1.84%
Barrier Type (0-W	rrier Height:	0.0 feet 0.0			leavy T		86.5%		10.8%	0.74%
Centerline Di	. ,	52.0 feet								
Centerline Dist.		52.0 feet		Noise So	ource E	levation	s (in fe	eet)		
Barrier Distance		0.0 feet			Auto					
Observer Height (5.0 feet			m Truck		297			
	ad Flevation:	0.0 feet		Heav	y Truck	's: 8.0	006	Grade Adj	ustment.	0.0
	ad Elevation:	0.0 feet		Lane Eq	uivalen	t Distand	e (in i	feet)		
	Road Grade:	0.0%		,	Auto	s: 46.4	100	,		
	Left View:	-90.0 degrees		Mediu	n Truck	s: 46.2	209			
	Right View:	90.0 degrees		Heav	y Truck	s: 46.2	228			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL		Distance		Road	Fresn		Barrier Att		m Atten
Autos:	66.51	0.44	0.3		-1.20		-4.66	0.0		0.000
Medium Trucks:	77.72	-16.80	0.4		-1.20		-4.87		000	0.000
Heavy Trucks:	82.99	-20.76	0.4	41	-1.20		-5.41	0.0	000	0.000
Unmitigated Noise										
VehicleType	Leq Peak Hou			evening	Leq	Night		Ldn	-	VEL
Autos:	66		-	62.5		56.4		65.0		65.6
Medium Trucks:	60			52.3		50.7		59.2		59.4
Heavy Trucks:	61		-	51.0		52.2		60.6		60.7
Vehicle Noise:	68	.1 66.4	4	63.1		58.6		67.1		67.6
Centerline Distant	ce to Noise Co	ontour (in feet)								
				dBA		dBA	6	i0 dBA		dBA
		Ldr		33		72		155		34
		CNEL	. :	36	7	77		166	3	58

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Wednesday, June 08, 2016

	FH	WA-RD-77-108	HIGHV	VAY NO	DISE PF	REDICTIO	N MOI	DEL			
	e: Dover Dr.	Without Projec	t			Project Na Job Nun			ition		
SITE S	PECIFIC IN	NPUT DATA				NO	ISE N	IODE	L INPUT	s	
Highway Data				S	te Con	ditions (H	lard =	10, So	ft = 15)		
	Percentage: our Volume:	4,900 vehicle 10% 490 vehicle				dium Truci avy Trucks	ks (2 A	,	15 15 15		
	icle Speed:	45 mph		V	ehicle l	Mix					
Near/Far Lan	e Distance:	12 feet			Veh	icleType	1	Day	Evening	Night	Daily
Site Data						Au	tos:	77.5%	12.9%	9.6%	97.429
Bari	rier Height:	0.0 feet			Me	edium Truc	cks: 8	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	leavy Truc	cks: 1	36.5%	2.7%	10.8%	0.74%
Centerline Dis		28.0 feet		N	oise So	ource Elev	ations	; (in fe	et)		
Centerline Dist. t		28.0 feet				Autos:	0.0	00			
Barrier Distance t		0.0 feet			Mediur	n Trucks:	2.2	97			
Observer Height (A	,	5.0 feet			Heav	y Trucks:	8.0	06	Grade Adj	iustmen	t: 0.0
	d Elevation:	0.0 feet									
	d Elevation:	0.0 feet		Li	ane Eq	uivalent D			eet)		
R	oad Grade:	0.0%				Autos:	27.8				
	Left View: Right View:	-90.0 degre 90.0 degre				m Trucks: ry Trucks:	27.4 27.5				
FHWA Noise Mode	I Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el I	Barrier Atte	en Be	rm Atten
Autos:	68.46	-5.05		3.72		-1.20		4.46	0.0	000	0.00
Medium Trucks:	79.45	-22.29		3.80		-1.20		4.86	0.0	000	0.00
Heavy Trucks:	84.25	-26.24		3.79		-1.20		-5.83	0.0	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barrier	r attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	/	Leq Eve	ening	Leq Ni	ght		Ldn	C	NEL
Autos:	65	5.9	64.0		62.3		56.2		64.8	3	65.
Medium Trucks:	59	9.8	58.2		51.9		50.3		58.8	3	59.
Heavy Trucks:	60).6	59.2		50.1		51.4		59.7	7	59.
Vehicle Noise:	67	7.8	66.0		62.9		58.2		66.8	3	67.
Centerline Distanc	e to Noise C	ontour (in feet	;)	70 -10		05 -15		0	0 -10 4		
			L	70 dE	5A	65 dE	\$A	6	0 dBA		5 dBA
		~	Ldn: NFL:	17		37 39			79 85		170 183
		Ci	NEL:	18		39			62		183

FH	WA-RD-77-108 H	IIGHWA	Y NOISE P	REDICTIO	N MODEL			
Scenario: TPO 2019 Road Name: Dover Dr. Road Segment: s/o Westc	,				ame: Auto nber: 9831			
SITE SPECIFIC I	NPUT DATA			NO	ISE MOD	EL INPUT	s	
Highway Data			Site Cor	nditions (H	lard = 10,	Soft = 15)		
Average Daily Traffic (Adt):	12,300 vehicles				Auto	s: 15		
Peak Hour Percentage:	10%		Me	dium Truc	ks (2 Axles	;): 15		
Peak Hour Volume:	1,230 vehicles		He	avy Truck	s (3+ Axles	s): 15		
Vehicle Speed:	45 mph		Vehicle	Mix				
Near/Far Lane Distance:	48 feet			icleType	Dav	Evening	Night	Daily
Site Data					tos: 77.5	•		97.42
Barrier Height:	0.0 feet		М	edium Tru	cks: 84.8	% 4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Tru	cks: 86.5	% 2.7%	10.8%	0.749
Centerline Dist. to Barrier:	52.0 feet		Nolos O			6		
Centerline Dist. to Observer:	52.0 feet		Noise S		vations (in	feet)		
Barrier Distance to Observer:	0.0 feet		Madiu	Autos: m Trucks:	0.000			
Observer Height (Above Pad):	5.0 feet			/y Trucks:	8.006	Grade Ad	iuctmont	
Pad Elevation:	0.0 feet		near	/y mucks.	0.000	Grade Au	Jusuneni	. 0.0
Road Elevation:	0.0 feet		Lane Eq	uivalent L)istance (i	n feet)		
Road Grade:	0.0%			Autos:	46.400			
Left View:	-90.0 degrees	S	Mediu	m Trucks:	46.209			
Right View:	90.0 degrees	5	Heav	/y Trucks:	46.228			
FHWA Noise Model Calculation	าร							
VehicleType REMEL	Traffic Flow	Distanc	e Finite	Road	Fresnel	Barrier At	en Ber	m Atter
Autos: 68.46			0.38	-1.20	-4.6		000	0.00
Medium Trucks: 79.45			0.41	-1.20	-4.8		000	0.00
Heavy Trucks: 84.25	-22.25		0.41	-1.20	-5.4	1 0.0	000	0.00
Unmitigated Noise Levels (with			,					
VehicleType Leq Peak Ho			q Evening	Leq N	•	Ldn		NEL
		4.7	62.9		56.9	65.		66
	• •	8.9	52.5		51.0	59.		59
		9.8	50.8		52.0	60.		60
		6.7	63.5		58.9	67	4	67
Centerline Distance to Noise C	ontour (in feet)		70 40 4	6E -1	24	60 dBA		dD A
		dn:	70 dBA 35	65 dE 75	24	60 dBA 162		dBA 49

	FHV	/A-RD-77-108	HIGH	WAY N	NOISE PF	EDICTI	ON MC	DEL				
Scenario: T Road Name: D Road Segment: s/	over Dr.	Vithout Project	t			Project Job N	Name: umber:		ation			
	CIFIC IN	PUT DATA			Site Con				L INPU	rs		
Highway Data					Site Con	antions	(Hard =		,			
Average Daily Traff			5					Autos:				
Peak Hour Perc	•	10%				dium Tru						
Peak Hour \		1,420 vehicles	5		He	avy Truc	KS (3+	Axles):	15			
Vehicle		45 mph			Vehicle I	/lix						
Near/Far Lane D	istance:	48 feet		F	Vehi	cleType		Day	Evening	Nig	ht	Daily
Site Data						4	lutos:	77.5%	6 12.9%	9	6%	97.42%
Barrier	Hoight	0.0 feet			Me	dium Tr	ucks:	84.8%	4.9%	10	3%	1.84%
Barrier Type (0-Wall, 1		0.0			ŀ	leavy Tr	ucks:	86.5%	s 2.7%	10	8%	0.74%
Centerline Dist. to	Barrier:	52.0 feet			Noise So	urce El	evatior	ıs (in f	eet)			
Centerline Dist. to Ol	oserver:	52.0 feet		F		Autos		.000				
Barrier Distance to Ol	oserver:	0.0 feet			Mediur	n Truck		297				
Observer Height (Abov	e Pad):	5.0 feet				v Trucks		.006	Grade A	diustn	nent:	0.0
Pad El	evation:	0.0 feet				·				-,		
Road El	evation:	0.0 feet			Lane Eq	livalent	Distar	ice (in	feet)			
Road	Grade:	0.0%				Autos		.400				
Le	ft View:	-90.0 degree	es		Mediur	n Trucks	s: 46	.209				
Rigi	ht View:	90.0 degree	es		Heav	y Trucks	s: 46	.228				
FHWA Noise Model Ca												
	EMEL	Traffic Flow	Dis	stance	Finite		Fres		Barrier A		Bern	n Atten
Autos:	68.46	-0.43		0.3	-	-1.20		-4.66	-	.000		0.000
Medium Trucks:	79.45	-17.67		0.4		-1.20		-4.87		.000		0.000
Heavy Trucks:	84.25	-21.62		0.4		-1.20		-5.41	0	.000		0.000
Unmitigated Noise Lev								_				
, ,	Peak Hou			Leq E	vening	Leq	Night		Ldn		CN	
Autos:	67.		65.3		63.6		57.	-	66			66.
Medium Trucks:	61.	-	59.5		53.1		51.	-	60			60.3
Heavy Trucks:	61.		60.4		51.4		52.	-	61			61.1
Vehicle Noise:	69.	1	67.3		64.2		59.	5	68	.0		68.
Centerline Distance to	Noise Co	ntour (in feet)									
			L		dBA		dBA	1	60 dBA		55 0	
			Ldn:	3	8	8	3		178		38	
			VFI :		1	8			191		41	

	FHV	VA-RD-77-108	HIGHWA	y noi	SE PR	EDICTI	ом мо	DEL			
Road Nam	io: TPO 2019 \ le: Jamboree F nt: n/o East Co					Project I Job Ni	Name: Imber:		ation		
	SPECIFIC IN	PUT DATA							L INPUT	5	
Highway Data				Site	e Con	ditions (Hard =	10, So	oft = 15)		
• •	. ,	17,800 vehicles						Autos:			
	Percentage:	10%				dium Tru					
	lour Volume:	1,780 vehicles			Hea	avy Truc	ks (3+)	Axles):	15		
	hicle Speed:	55 mph		Vel	hicle I	<i>lix</i>					-
Near/Far La	ne Distance:	72 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						Α	utos:	77.5%	12.9%	9.6%	6 97.42%
Bai	rrier Height:	0.0 feet				edium Tri		84.8%		10.3%	
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tri	ucks:	86.5%	2.7%	10.8%	% 0.74%
Centerline Dis		64.0 feet		No	ise So	urce Ele	evation	s (in f	eet)		
Centerline Dist.		64.0 feet				Autos	: 0.	000	,		
Barrier Distance		0.0 feet		/	Mediur	n Trucks	: 2.	297			
Observer Height (,	5.0 feet			Heav	y Trucks	: 8.	006	Grade Adj	iustmer	nt: 0.0
	ad Elevation: ad Elevation:	0.0 feet		1.21	no Eau	uivalent	Dicton	co (in	foot)		
	ad Elevation: Road Grade:	0.0 feet 0.0%		Lai	le Ly	Autos		151	ieel)		
,	Left View:	-90.0 degree	c .		Mediur	n Trucks		984			
	Right View:	90.0 degree				y Trucks		000			
	rught non.	50.0 degree	3		mour	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		000			
FHWA Noise Mode	el Calculation:										
VehicleType	REMEL	Traffic Flow	Distanc	-	Finite		Fresr		Barrier Att		erm Atten
Autos:	71.78	-0.32		0.50		-1.20		-4.70	0.0		0.000
Medium Trucks:	82.40	-17.56		0.48		-1.20		-4.88	0.0		0.000
Heavy Trucks:	86.40	-21.51	-	0.48		-1.20		-5.31	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and I	oarrier at	tenua	tion)						
VehicleType	Leq Peak Hou			q Ever	<u> </u>	Leq I			Ldn		CNEL
Autos:	69.		7.9		66.1		60.0		68.7		69.3
Medium Trucks:	63.		1.7		55.3		53.8		62.2	-	62.4
Heavy Trucks:	63.		1.8		52.7		54.0		62.3		62.5
Vehicle Noise:	71.		9.6		66.6		61.8	3	70.3	3	70.8
Centerline Distant	ce to Noise Co	ontour (in feet)		70 dB/	<u> </u>	65 a	ID A	4	60 dBA	5	5 dBA
		,	dn:	67	"	14			311		5 dBA 671
		-	FI:	72		15	-		335		722
		0/1		. 2		15	~		000		

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	FHW	A-RD-77-108 HIG	HWAY N	OISE PR	EDICTIO		L		
	2: TPO 2019 V 2: MacArthur E 2: n/o East Co	si.			Project Na Job Num				
SITE S	PECIFIC IN	PUT DATA			NO	ISE MO	DEL INPUT	S	
Highway Data			5	lite Con	ditions (Ha	ard = 10,	Soft = 15)		
Average Daily 1	. ,	0,900 vehicles		Max	lium Truck	Auto			
Peak Hour F						•	,		
		1,090 vehicles		Hea	avy Trucks	(3+ AXI6	s): 15		
	icle Speed:	55 mph	١	ehicle N	lix				
Near/Far Lan	e Distance:	72 feet		Vehi	cleType	Da	y Evening	Night	Daily
Site Data					Aut	os: 77.	5% 12.9%	9.6%	97.42%
Bar	rier Height:	0.0 feet		Me	dium Truc	ks: 84.	8% 4.9%	10.3%	1.84%
Barrier Type (0-Wa	all, 1-Berm):	0.0		н	leavy Truc	ks: 86.	5% 2.7%	10.8%	0.74%
Centerline Dis		64.0 feet	٨	loise So	urce Elev	ations (i	n feet)		
Centerline Dist. t	o Observer:	64.0 feet			Autos:	0.000	,		
Barrier Distance t	o Observer:	0.0 feet		Mediun	n Trucks:	2.297			
Observer Height (A	Above Pad):	5.0 feet			v Trucks:	8.006		liustment	: 0.0
Pa	d Elevation:	0.0 feet						,	
Roa	d Elevation:	0.0 feet	L	ane Equ	ivalent Di	istance ('in feet)		
R	oad Grade:	0.0%			Autos:	53.151			
	Left View:	-90.0 degrees		Mediun	n Trucks:	52.984			
	Right View:	90.0 degrees		Heav	y Trucks:	53.000			
FHWA Noise Mode							1		
VehicleType	REMEL		istance	Finite		Fresnel	Barrier Att		m Atten
Autos:	71.78	-2.45	-0.50		-1.20	-4.		000	0.000
Medium Trucks:	82.40	-19.69	-0.48		-1.20	-4.8		000	0.000
Heavy Trucks:	86.40	-23.64	-0.48		-1.20	-5.3	31 0.0	000	0.000
Unmitigated Noise									
	Leq Peak Hour		Leq Ev	· ·	Leq Nig		Ldn		NEL
Autos:	67.			64.0		57.9	66.		67.
Medium Trucks:	61.0			53.2		51.6	60.		60.3
Heavy Trucks:	61.			50.6		51.9	60.3		60.3
Vehicle Noise:	69.:			64.5		59.6	68.3	2	68.
Centerline Distanc	e to Noise Co	ntour (in feet)	70 a	DA I	65 dB	4	EO dBA		dBA
		L da				A	60 dBA		
		Ldn:	48		104		225		84
		CNEL:	52	<u>.</u>	112		242	5	620

	FHV	VA-RD-77-108	HIGHV	VAY NO	DISE PR	EDICT	ION MC	DEL			
	io: TPO 2019 \ ne: 17th St.	Vithout Project			1		t Name: lumber:		ation		
	nt: w/o Irvine A	v.				000 1	umbor.	5051			
	SPECIFIC IN	PUT DATA							L INPUT	S	
Highway Data				S	ite Cona	litions	(Hard =	= 10, Se	oft = 15)		
Average Daily	Traffic (Adt): 1	0,700 vehicles						Autos:	15		
Peak Hour	Percentage:	10%			Med	lium Tr	ucks (2	Axles):	15		
Peak H	lour Volume:	1,070 vehicles			Hea	ivy Tru	cks (3+	Axles):	15		
	hicle Speed:	35 mph		V	ehicle M	lix					
Near/Far La	ne Distance:	48 feet		Ē		leType	9	Day	Evening	Night	Daily
Site Data					-		Autos:	77.5%	12.9%	9.6%	97.429
Ra	rrier Height:	0.0 feet			Mer	dium T	rucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-W	•	0.0			H	eavy T	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Di		52.0 feet			loise Sol	uree E	lovation	no (in f	a a 4 l		
Centerline Dist.	to Observer:	52.0 feet		N	0158 300	Auto		.000	eel)		
Barrier Distance	to Observer:	0.0 feet			Medium			.000			
Observer Height	Above Pad):	5.0 feet				/ Truck		.297	Grade Ad	iustmont	0.0
P	ad Elevation:	0.0 feet			neavy	TTUCK	S. 0.	.006	Giade Au	jusunen.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	ivalen	t Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto		.400			
	Left View:	-90.0 degree	s		Medium			.209			
	Right View:	90.0 degree	s		Heavy	/ Truck	s: 46	.228			
FHWA Noise Mod	el Calculation:	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite F	Road	Fres	nel	Barrier Att	en Ber	m Atten
Autos:	64.30	-0.57		0.38		-1.20		-4.66		000	0.00
Medium Trucks:	75.75	-17.80		0.41		-1.20		-4.87		000	0.00
Heavy Trucks:		-21.76		0.41		-1.20		-5.41	0.0	000	0.00
Unmitigated Nois			barrier	attenu	lation)						
VehicleType	Leq Peak Hou			Leq Eve	•	Leq	Night		Ldn		VEL
Autos:	62		1.0		59.3		53.		61.8		62.
Medium Trucks:	57.		5.6		49.3		47.		56.2		56.
Heavy Trucks:	59.		7.6		48.6		49.	-	58.2		58.
Vehicle Noise:			3.4		60.0		55.	6	64.1	1	64.
Centerline Distan	ce to Noise Co	ontour (in feet)		70 dl	RA	65	dBA		60 dBA	55	dBA
		1	dn:	21			46		98		11
			FL:	23			49		105		26
		0.1		20						-	

F	HWA-RD-77-10	8 HIGHW	AY NC	DISE PRE	DICTIO	N MODEL			
Scenario: TPO 201 Road Name: Westcliff Road Segment: e/o Irvine	Dr.	ct				ame: AutoN nber: 9831	Nation		
SITE SPECIFIC	INPUT DATA						EL INPUTS	3	
Highway Data			Si	te Condi	tions (H	ard = 10, S	Soft = 15)		
Average Daily Traffic (Adt)	9,100 vehicl	es				Autos	: 15		
Peak Hour Percentage	10%			Media	um Truck	(2 Axles)	: 15		
Peak Hour Volume.	910 vehicl	es		Heav	y Trucks	(3+ Axles)	: 15		
Vehicle Speed	35 mph		Ve	ehicle Mi	¥				
Near/Far Lane Distance	48 feet			Vehicl		Day	Evening	Night	Daily
Site Data					Aut		•	9.6%	97.429
Barrier Height	0.0 feet			Med	ium Truc	ks: 84.89	% 4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm)				He	avy Truc	ks: 86.5%	% 2.7%	10.8%	0.74%
Centerline Dist. to Barrier	52.0 feet		N	oise Sou	rce Elev	ations (in	feet)		
Centerline Dist. to Observer	52.0 feet				Autos:	0.000			
Barrier Distance to Observer	0.0 feet			Medium		2.297			
Observer Height (Above Pad)	5.0 feet				Trucks:	8.006	Grade Adj	ustment:	0.0
Pad Elevation	0.0 feet						,		
Road Elevation	0.0 1001		Lá	ane Equi		istance (in	feet)		
Road Grade	0.070				Autos:	46.400			
Left View	oolo dogi			Medium		46.209			
Right View	90.0 degr	ees		Heavy	Trucks:	46.228			
FHWA Noise Model Calculati	ons		_						
VehicleType REMEL	Traffic Flow		nce	Finite R		Fresnel	Barrier Atte	en Berr	n Atten
Autos: 64.3			0.38		-1.20	-4.66			0.00
Medium Trucks: 75.7			0.41		-1.20	-4.87			0.00
Heavy Trucks: 81.5	57 -22.40	6	0.41		-1.20	-5.41	0.0	00	0.00
Unmitigated Noise Levels (wi	thout Topo and	d barrier a	attenu	ation)					-
VehicleType Leq Peak H			eq Eve	~	Leq Nig		Ldn	CN	
	62.2	60.3		58.6		52.5	61.1		61.
	56.5	54.9		48.6		47.0	55.5		55.
	58.3	56.9		47.9		49.1	57.5		57.
Vehicle Noise:	64.4	62.7		59.3		54.9	63.4		63.
Centerline Distance to Noise	Contour (in fee	et)							-
			70 dE	BA	65 dB	A	60 dBA	55 0	
		Ldn:	19		41		88	19	30
		ONEL:	20		44		94	20	

	FH\	NA-RD-77-108	HIGHW	/AY N	OISE P	REDICTI	ON MOE	DEL			
Road Nam	io: TPO 2019 e: West Coas nt: w/o Newpo	,	t				Name: A umber: 9		ation		
	SPECIFIC IN	IPUT DATA							L INPUTS	3	
Highway Data				5	Site Col	nditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	14,800 vehicle	s				A	Autos:	15		
Peak Hour	Percentage:	10%				edium Tru			15		
Peak H	our Volume:	1,480 vehicle	s		He	eavy Truc	ks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph		1	/ehicle	Mix					
Near/Far La	ne Distance:	72 feet			Vel	nicleType	1	Day	Evening	Night	Daily
Site Data						A	utos: 1	77.5%	12.9%	9.6%	97.42%
Bai	rier Height:	0.0 feet			M	ledium Tr	ucks: 8	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-W		0.0				Heavy Tr	ucks: 8	86.5%	2.7%	10.8%	0.74%
Centerline Dis		64.0 feet		1	Voise S	ource El	evations	; (in fe	eet)		
Centerline Dist.		64.0 feet				Autos	: 0.0	00	,		
Barrier Distance		0.0 feet			Mediu	m Trucks					
Observer Height (,	5.0 feet			Hea	vy Trucks	: 8.0	06	Grade Adj	ustment	: 0.0
	ad Elevation:	0.0 feet					Distance	- //	64		
	ad Elevation:	0.0 feet		1	.ane Eq	uivalent			teet)		
	Road Grade:	0.0%				Autos m Trucks					
	Left View:	-90.0 degre									
	Right View:	90.0 degre	es		Hea	vy Trucks	: 53.0	000			
FHWA Noise Mode	el Calculation										
VehicleType	REMEL	Traffic Flow	Dista			Road	Fresne	-	Barrier Atte		rm Atten
Autos:	68.46	-0.25		-0.50		-1.20		4.70	0.0		0.000
Medium Trucks:	79.45			-0.48		-1.20		4.88	0.0		0.000
Heavy Trucks:	84.25	-21.44		-0.48	3	-1.20	-	5.31	0.0	00	0.000
Unmitigated Noise	e Levels (with										
VehicleType	Leq Peak Hou			.eq Ev	/ening	Leq I	0		Ldn	-	NEL
Autos:	66		64.6		62.8		56.8		65.4		66.0
Medium Trucks:	60		58.8		52.4		50.9		59.3		59.6
Heavy Trucks: Vehicle Noise:	61		59.7 66.6		50.7 63.5		51.9 58.8		60.3		60.4
					63.5)	58.8		67.3		67.8
Centerline Distant	ce to Noise C	ontour (in feet)	70 a	IDΛ	65 (ND A	6	0 dBA	55	dBA
			I dn:	42		9		Ľ	197		124
			VFL:	46	-	9			211		+24 155
		0		τ.	-	5	-				

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Wednesday, June 08, 2016

	FH\	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	ON MOI	DEL			
	e: West Coas		t			Project I Job Nu	Vame: A mber: 9		ation		
SITE S	SPECIFIC IN	IPUT DATA							L INPUT	5	
Highway Data				S	ite Con	ditions (Hard =	10, Sc	oft = 15)		
Average Daily			s					Autos:	15		
	Percentage:	10%				dium Tru		/	15		
	our Volume:	2,740 vehicle	S		He	avy Truci	KS (3+ A	xies):	15		
	nicle Speed:	40 mph		V	ehicle l	Mix					
Near/Far Lar	ne Distance:	72 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	97.42%
Bar	rier Heiaht:	0.0 feet			M	edium Tru	icks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-W		0.0			ŀ	Heavy Tru	icks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis		64.0 feet		N	oise So	ource Ele	vations	s (in fe	eet)		
Centerline Dist. t	o Observer:	64.0 feet				Autos		000	,		
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Trucks	2.2	97			
Observer Height (/	Above Pad):	5.0 feet			Heav	y Trucks	8.0	006	Grade Adj	ustmen	t: 0.0
	d Elevation:	0.0 feet									
	d Elevation:	0.0 feet		L	ane Eq	uivalent			feet)		
F	Road Grade:	0.0%				Autos.					
	Left View:	-90.0 degre				m Trucks.					
	Right View:	90.0 degre	es		Heav	/y Trucks.	53.0	000			
FHWA Noise Mode	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Distar		Finite	Road	Fresn		Barrier Atte		rm Atten
Autos:	66.51	2.94		-0.50		-1.20		-4.70	0.0		0.000
Medium Trucks:	77.72			-0.48		-1.20		-4.88	0.0		0.000
Heavy Trucks:	82.99	-18.26		-0.48		-1.20		-5.31	0.0	00	0.000
Unmitigated Noise											
	Leq Peak Ho			eq Ev		Leq N	·		Ldn	-	NEL
Autos:			65.8		64.1		58.0		66.7		67.3
Medium Trucks:	61		60.2		53.9		52.3		60.8		61.0
Heavy Trucks:	63		61.6		52.6		53.8		62.2		62.3
Vehicle Noise:	69).8	68.0		64.8		60.2		68.7	'	69.2
Centerline Distanc	e to Noise C	ontour (in feet)	70 -	D 4	65 -	DA	, ,	O dBA		- dDA
			I dn:	70 di		65 d		6	0 dBA 245		5 dBA
			Lan: NFL :	53 56		11-			245 262		527 565
		Ci	VEL:	56		12	2		202	:	200

FHWA-RD-77-108 Hi	GHWAY	NOISE PR	EDICTION	MODEL			
Scenario: TPO 2019 Without Project Road Name: West Coast Hwy. Road Segment: e/o Tustin Av.			Project Nai Job Numb		ation		
SITE SPECIFIC INPUT DATA			NOI	SE MODE		S	
Highway Data		Site Con	ditions (Ha	rd = 10, S	oft = 15)		
Average Daily Traffic (Adt): 28,200 vehicles				Autos:	15		
Peak Hour Percentage: 10%		Mee	dium Trucks	s (2 Axles):	15		
Peak Hour Volume: 2,820 vehicles		Hea	avy Trucks	(3+ Axles):	15		
Vehicle Speed: 40 mph		Vehicle I	Alu				
Near/Far Lane Distance: 72 feet			cleTvpe	Dav	Evening	Night	Dailv
Site Data		Veni	Auto		•	9.6%	
		Me	dium Truck			10.3%	1.849
Barrier Height: 0.0 feet			leavy Truck			10.8%	0.749
Barrier Type (0-Wall, 1-Berm): 0.0			icavy much		5 2.170	10.070	0.747
Centerline Dist. to Barrier: 64.0 feet Centerline Dist. to Observer: 64.0 feet		Noise So	urce Eleva	tions (in f	eet)		
Barrier Distance to Observer: 0.0 feet			Autos:	0.000			
Observer Height (Above Pad): 5.0 feet		Mediur	n Trucks:	2.297			
Pad Elevation: 0.0 feet		Heav	y Trucks:	8.006	Grade Ad	justment.	0.0
Road Elevation: 0.0 feet		Lane Equ	uivalent Dis	stance (in	feet)		
Road Grade: 0.0%			Autos:	53.151			
Left View: -90.0 degrees		Mediur	n Trucks:	52.984			
Right View: 90.0 degrees		Heav	y Trucks:	53.000			
FHWA Noise Model Calculations							
	Distance			resnel	Barrier Att		m Atten
Autos: 66.51 3.06		.50	-1.20	-4.70		000	0.00
Medium Trucks: 77.72 -14.18	-	.48	-1.20	-4.88		000	0.00
Heavy Trucks: 82.99 -18.13	-0	.48	-1.20	-5.31	0.0	000	0.00
Unmitigated Noise Levels (without Topo and ba	rier att	enuation)					
VehicleType Leq Peak Hour Leq Day		Evening	Leq Nigi		Ldn		VEL
Autos: 67.9 66.		64.2		58.2	66.8		67.
Medium Trucks: 61.9 60.		54.0		52.4	60.9		61.
Heavy Trucks: 63.2 61.	-	52.7		54.0	62.3		62.
Vehicle Noise: 69.9 68.	2	64.9		60.3	68.9	Э	69.
Centerline Distance to Noise Contour (in feet)	-						(0.1
		0 dBA	65 dBA	1 0	60 dBA		dBA
Ldr CNFI		54 58	116 124		250		38
CNEL		58	124		267	5	76

							ON MO				
	: TPO 2019 \ : West Coas	Without Project Hwy.	t			Project Job N	Name: umber:		ation		
Road Segmen											
	PECIFIC IN	PUT DATA							L INPUT	s	
Highway Data					Site Cor	ditions	•		,		
Average Daily T	. ,		s					Autos:			
Peak Hour F	Percentage:	10%				dium Tru					
Peak Ho	our Volume:	3,520 vehicle	s		He	avy Truc	cks (3+)	Axles):	15		
Veh	icle Speed:	40 mph		F	Vehicle	Mix					
Near/Far Lan	e Distance:	96 feet		F	Veh	icleType		Day	Evening	Night	Daily
Site Data						A	lutos:	77.5%	12.9%	9.6%	97.42
Barı	ier Heiaht:	0.0 feet			М	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.74
Centerline Dis	t. to Barrier:	72.0 feet		F	Noise Se	ource El	evation	s (in f	eet)		
Centerline Dist. to	o Observer:	72.0 feet				Autos		000			
Barrier Distance to	o Observer:	0.0 feet			Madiu	m Truck		297			
Observer Height (A		5.0 feet				v Trucks		006	Grade Ad	liustment	: 0.0
Pa	d Elevation:	0.0 feet		-		·					
Roa	d Elevation:	0.0 feet		4	Lane Eq				feet)		
R	oad Grade:	0.0%				Autos		898			
	Left View:	-90.0 degre	es			m Trucks		734			
	Right View:	90.0 degre	es		Heav	ry Trucks	s: 53.	750			
FHWA Noise Mode	I Calculation	s									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresi	nel	Barrier Att	en Bei	rm Atter
Autos:	66.51	4.03		-0.5	-	-1.20		-4.72		000	0.00
Medium Trucks:	77.72	-13.21		-0.5		-1.20		-4.88		000	0.00
Heavy Trucks:	82.99	-17.17		-0.5	7	-1.20		-5.26	0.0	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barrie	er atter	nuation)						
	Leq Peak Hou			Leq E	vening	Leq	Night		Ldn	-	NEL
Autos:	68		66.8		65.1		59.0		67.6		68
Medium Trucks:	62		61.2		54.9		53.3	-	61.8	-	62
Heavy Trucks:	64		62.6		53.6		54.8	-	63.2		63
Vehicle Noise:	70	.8	69.0		65.7		61.3	2	69.7	7	70
Centerline Distance	e to Noise Co	ontour (in feet)								
			L		dBA		dBA	6	60 dBA		dBA
			Ldn:	-	69	14			321 344		691 740
			NFI :		'4	16					

	FHV	VA-RD-77-108 H	HIGHWAY	NOISE P	REDICTI	ON MOI	DEL			
	e: West Coas					Name: A umber: 9		ation		
	SPECIFIC IN	IPUT DATA			N	OISE N	IODE	L INPUT	S	
Highway Data				Site Cor	nditions	(Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 3	30,800 vehicles				A	Autos:	15		
Peak Hour	Percentage:	10%		Me	edium Tru	icks (2 A	xles):	15		
Peak H	our Volume:	3,080 vehicles		He	eavy Truc	:ks (3+ A	xles):	15		
Vel	hicle Speed:	50 mph		Vehicle	Mix					
Near/Far Lar	ne Distance:	96 feet			nicleType		Dav	Evening	Night	Daily
Site Data							77.5%	•	9.6%	
Par	rier Heiaht:	0.0 feet		М	edium Tr	ucks:	84.8%	4.9%	10.3%	
Barrier Type (0-W		0.0			Heavy Tr	ucks:	36.5%	2.7%	10.8%	0.74%
Centerline Dis	. ,	72.0 feet			-					
Centerline Dist.		72.0 feet		Noise S	ource El			et)		
Barrier Distance t	to Observer:	0.0 feet			Autos					
Observer Height (J	Above Pad):	5.0 feet			m Trucks			Grade Ad	iustmont	
Pa	d Elevation:	0.0 feet		Hea	vy Trucks	5: 8.0	06	Graue Auj	usunem	. 0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distanc	e (in i	feet)		
F	Road Grade:	0.0%			Autos	s: 53.8	898			
	Left View:	-90.0 degrees	S	Mediu	m Trucks	s: 53.7	'34			
	Right View:	90.0 degrees	5	Hea	vy Trucks	s: 53.7	'50			
FHWA Noise Mode	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	70.20	2.48	-0	.59	-1.20		4.72	0.0	000	0.000
Medium Trucks:	81.00	-14.76		.57	-1.20		4.88		000	0.000
Heavy Trucks:	85.38	-18.72	-0	.57	-1.20		5.26	0.0	000	0.000
Unmitigated Noise				,						
	Leq Peak Hou		,	Evening	,	Night		Ldn		NEL
Autos:	70		9.0	67.2		61.2		69.8		70.4
Medium Trucks:	64		3.0	56.6		55.1		63.5		63.7
Heavy Trucks:	64		3.5	54.4		55.7		64.0		64.2
Vehicle Noise:	72		0.8	67.8		63.0		71.6	ò	72.0
Centerline Distance	e to Noise Co	ontour (in feet)							1	
				0 dBA	65 0		6	0 dBA		dBA
			dn:	91	19			424		14
		CN	EL:	98	21	12		456	ę	82

Wednesday, June 08, 2016

Wednesday, June 08, 2016

	FHWA-	RD-77-108 HIC	SHWAY I	NOISE PI	REDICTIO	N MODI	ΞL		
Scenario: TPO					Project Na				
Road Name: East					Job Nur	iber: 98	31		
Road Segment: e/o J	amboree	Ra.							
SITE SPECIE	IC INPU	T DATA					DEL INPU	TS	
Highway Data				Site Con	ditions (H	ard = 1	0, Soft = 15)		
Average Daily Traffic ()	Adt): 22,0	00 vehicles				AL	itos: 15		
Peak Hour Percent	age:	10%		Me	dium Truck	is (2 Ax	les): 15		
Peak Hour Volu	me: 2,2	00 vehicles		He	avy Trucks	(3+ Ax	les): 15		
Vehicle Sp	eed:	50 mph	-	Vehicle	Mix				
Near/Far Lane Dista	nce:	72 feet	-		icleType	D	ay Evenin	g Nig	ht Daily
Site Data					Aut		7.5% 12.9		6% 97.42%
Barrier Hei	abt.	0.0 feet		M	edium Truc	ks: 84	4.8% 4.99	6 10.	3% 1.84%
Barrier Type (0-Wall, 1-Be		0.0		ŀ	Heavy Truc	ks: 80	6.5% 2.79	6 10.	8% 0.74%
Centerline Dist. to Ba	rier: 6	64.0 feet	-	Noise So	ource Elev	ations	(in feet)		
Centerline Dist. to Obse	ver: 6	64.0 feet			Autos:	0.00			
Barrier Distance to Obse	ver:	0.0 feet		Mediu	m Trucks:	2.29			
Observer Height (Above F	· ·	5.0 feet		Heav	v Trucks:	8.00	6 Grade	Adjustm	ent: 0.0
Pad Eleva		0.0 feet	_					<i>.</i>	
Road Eleva		0.0 feet	-	Lane Eq	uivalent D				
Road Gr		0.0%			Autos:	53.15			
Left V		0.0 degrees			m Trucks:	52.98			
Right V	iew: 9	0.0 degrees		Heav	/y Trucks:	53.00	0		
FHWA Noise Model Calcu				T				T	
VehicleType REM			Distance			Fresne			Berm Atten
	70.20	1.02	-0.5		-1.20			0.000	0.00
	81.00	-16.22	-0.4	-	-1.20			0.000	0.00
	85.38	-20.18	-0.4	-	-1.20	-0	.31	0.000	0.00
Unmitigated Noise Levels			1	<i></i>	1 NI	- h t	Lata		ONE
VehicleType Leq Pea Autos:	69.5	Leq Day 67.6		vening 65.9	Leq Nig	59.8	Ldn	8.4	CNEL 69.
Autos: Medium Trucks:	63.1	61.6		55.2		59.8 53.7	-	8.4 2.1	69. 62.
Heavy Trucks:	63.1	62.1		53.1		53.7 54.3	-	2.1 2.7	62.
Vehicle Noise:	71.2	69.5		66.4		54.5 61.6		0.2	70.
			,	00.4		01.0	'	0.2	70.
Centerline Distance to No	ise Conto	our (in feet)	70	dBA	65 dB	A	60 dBA		55 dBA
		Ldn	: 6	6	142		306		658

FF	WA-RD-77-1	08 HIG	HWAY N	IOISE PF	REDICTIC	N MOI	DEL			
Scenario: TPO 2019 Road Name: East Coas Road Segment: w/o MacA	t Hwy.	ject			Project N Job Nu			ation		
SITE SPECIFIC I	NPUT DAT	A			NC	DISE N	IODE		S	
Highway Data				Site Con	ditions (I	Hard =	10, Sc	oft = 15)		
Average Daily Traffic (Adt):	15,700 vehi	cles					Autos:	15		
Peak Hour Percentage:	10%			Me	dium Truc	:ks (2 A	xles):	15		
Peak Hour Volume:	1,570 vehi	cles		He	avy Truck	s (3+ A	xles):	15		
Vehicle Speed:	50 mph		-	Vehicle I	Niv					
Near/Far Lane Distance:	72 feet		F		icleTvpe		Dav	Evening	Night	Dailv
Site Data				VCIII			77.5%	•	9.6%	
				Me	edium Tru		84.8%		10.3%	
Barrier Height:	0.0 fee	t			leavy Tru		86.5%		10.8%	
Barrier Type (0-Wall, 1-Berm): Centerline Dist, to Barrier:	0.0 64.0 fee								10.070	0.7 17
Centerline Dist. to Observer:	64.0 fee		1	Noise Sc	ource Ele	vations	s (in fe	et)		
Barrier Distance to Observer:	0.0 fee				Autos:		000			
Observer Height (Above Pad):	5.0 fee				n Trucks:		297			
Pad Elevation:	0.0 fee			Heav	y Trucks:	8.0	006	Grade Ad	iustment.	0.0
Road Elevation:	0.0 fee			Lane Eq	uivalent l	Distand	e (in i	feet)		
Road Grade:	0.0%		-		Autos:			,		
Left View:	-90.0 dec	rees		Mediur	n Trucks:	52.9	984			
Right View:	90.0 deç	grees		Heav	y Trucks:	53.0	000			
FHWA Noise Model Calculatio										
VehicleType REMEL	Traffic Flo		istance	Finite		Fresn	-	Barrier Att		m Atter
Autos: 70.2			-0.5		-1.20		-4.70		000	0.00
Medium Trucks: 81.0			-0.4	-	-1.20		-4.88		000	0.00
Heavy Trucks: 85.3	3 -21.	64	-0.4	8	-1.20		-5.31	0.0	000	0.00
Unmitigated Noise Levels (wit	hout Topo a	nd barr	ier atten	uation)						
VehicleType Leq Peak Ho	,			vening	Leq N	•		Ldn		VEL
	8.1	66.2		64.4		58.3		67.0		67.
	1.6	60.1		53.8		52.2		60.7		60.
,	2.1	60.6		51.6		52.8		61.2		61.
	9.8	68.0		65.0		60.2		68.7	7	69.
Centerline Distance to Noise (Contour (in f	eet)	_							
				dBA	65 di		6	0 dBA		dBA
		Ldn:		3	113			244		26
		CNEL:	5	6	122			262	5	65

				B 1 11		1.11		
Scenario: TPO 2019					ame: AutoN	lation		
Road Name: East Coast				JOD INUIT	ber: 9831			
Road Segment: e/o MacArl	nur BI.							
SITE SPECIFIC I	IPUT DATA					EL INPUT	S	
Highway Data			Site Con	ditions (H	ard = 10, S	oft = 15)		
Average Daily Traffic (Adt):	16,100 vehicles				Autos	: 15		
Peak Hour Percentage:	10%		Med	dium Truck	is (2 Axles)	: 15		
Peak Hour Volume:	1,610 vehicles		Hea	avy Trucks	(3+ Axles)	: 15		
Vehicle Speed:	35 mph	ŀ	Vehicle I	<i>lix</i>				
Near/Far Lane Distance:	48 feet	ŀ		cleType	Day	Evening	Night	Daily
Site Data				Aut		•	9.6%	
Barrier Height:	0.0 feet		Me	dium Truc	ks: 84.89	6 4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berm):	0.0		H	leavy Truc	ks: 86.5%	6 2.7%	10.8%	0.74
Centerline Dist. to Barrier:	52.0 feet	-						
Centerline Dist. to Observer:	52.0 feet	-	Noise So		ations (in	reet)		
Barrier Distance to Observer:	0.0 feet			Autos:	0.000			
Observer Height (Above Pad):	5.0 feet			n Trucks:	2.297	Our de Ari		
Pad Elevation:	0.0 feet		Heav	y Trucks:	8.006	Grade Ad	jusimeni	. 0.0
Road Elevation:	0.0 feet	[Lane Equ	ivalent D	istance (in	feet)		
Road Grade:	0.0%	ſ		Autos:	46.400			
Left View:	-90.0 degrees		Mediur	n Trucks:	46.209			
Right View:	90.0 degrees		Heav	y Trucks:	46.228			
FHWA Noise Model Calculation	IS							
VehicleType REMEL		Distance	Finite		Fresnel	Barrier Att		rm Atte
Autos: 64.30	1.21	0.3		-1.20	-4.66		000	0.0
Medium Trucks: 75.75		0.4		-1.20	-4.87		000	0.0
Heavy Trucks: 81.57	-19.99	0.4	11	-1.20	-5.41	0.0	000	0.0
Unmitigated Noise Levels (with		-					1	
VehicleType Leq Peak Ho		,	vening	Leq Ni		Ldn		NEL
Autos: 64		-	61.0		55.0	63.		64
	.9 57.4		51.1		49.5	58.		58
	0.8 59.4		50.3		51.6	59.9		60
Vehicle Noise: 66		2	61.8		57.4	65.9	9	66
Centerline Distance to Noise C	ontour (in feet)				- 1			
			dBA	65 dB	A	60 dBA		dBA
	Ldn	n: 1	28	60		129	2	278
	CNEL		30	64		138		297

	FHW	A-RD-77-108 HIG	HWAY I	NOISE PI	REDICTIC	N MOD	EL		
Road Nam	io: TPO 2019 W ne: Newport Bl. nt: n/o West Coa					lame: Ai mber: 98	utoNation 331		
SITE	SPECIFIC INP	UT DATA			NC	DISE M	ODEL INPUT	S	
Highway Data				Site Cor	nditions (I	Hard = 1	0, Soft = 15)		
Average Daily	Traffic (Adt): 10	,700 vehicles				A	utos: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Ax	des): 15		
Peak H	lour Volume: 1	,070 vehicles		He	avy Truck	s (3+ Ax	des): 15		
Ve	hicle Speed:	45 mph	-	Vehicle	Mix				
Near/Far La	ne Distance:	72 feet	-		icleType		ay Evening	Night	Dailv
Site Data				ven			7.5% 12.9%	9.6%	
		0.0 feet		м	edium Tru		4.8% 4.9%	10.3%	1.84%
Barrier Type (0-W	rrier Height:	0.0 feet			Heavy Tru		6.5% 2.7%	10.8%	0.74%
Centerline Di	. ,	64.0 feet							
Centerline Dist.		64.0 feet	-	Noise S	ource Ele				
Barrier Distance		0.0 feet			Autos:				
Observer Height (5.0 feet			m Trucks:				
	ad Elevation:	0.0 feet		Heav	/y Trucks:	8.00	6 Grade Ad	justment.	0.0
	ad Elevation:	0.0 feet	Ē	Lane Eq	uivalent l	Distance	e (in feet)		
	Road Grade:	0.0%			Autos:	53.15	51		
		-90.0 degrees		Mediu	m Trucks:	52.98	34		
	Right View:	90.0 degrees		Heav	/y Trucks:	53.00	00		
FHWA Noise Mod	el Calculations								
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresne	I Barrier Att	ten Ber	m Atten
Autos:	68.46	-1.66	-0.5	60	-1.20	-4	4.70 0.0	000	0.000
Medium Trucks:	79.45	-18.90	-0.4	8	-1.20	-4	4.88 0.0	000	0.000
Heavy Trucks:	84.25	-22.85	-0.4	8	-1.20	-8	5.31 0.0	000	0.000
Unmitigated Noise	e Levels (withou								
VehicleType	Leq Peak Hour	Leq Day		vening	Leq N		Ldn		VEL
Autos:	65.1	63.2		61.4		55.4	64.0	-	64.6
Medium Trucks:	58.9			51.0		49.5	57.9		58.2
Heavy Trucks:	59.7			49.3		50.5	58.9	-	59.0
Vehicle Noise:	66.9	65.2		62.0		57.4	65.9	9	66.4
Centerline Distant	ce to Noise Con	tour (in feet)							
				dBA	65 di		60 dBA		dBA
		Ldn:		34	74		159	-	42
		CNEL:	3	37	79		170	3	67

Wednesday, June 08, 2016

Wednesday, June 08, 2016

	FHV	VA-RD-77-108	HIGHWA	Y NO	DISE PR	EDICTI	ION MO	DEL			
Scenario: Road Name:	TPO 2019 \	With Project					Name: umber:		ation		
Road Segment:						00014	umber.	5051			
SITE SI	PECIFIC IN	PUT DATA				N	IOISE I	NODE		s	
Highway Data				S	ite Con	ditions	(Hard =	10, S	oft = 15)		
Average Daily Tr	affic (Adt): 1	5,500 vehicles						Autos:	15		
Peak Hour P	ercentage:	10%			Med	lium Tru	ucks (2 /	Axles):	15		
Peak Hou	ur Volume:	1,550 vehicles			Hea	avy Truc	cks (3+)	Axles):	15		
Vehi	cle Speed:	40 mph		V	ehicle N	Niv					
Near/Far Lane	e Distance:	48 feet		-		cleType		Dav	Evening	Night	Daily
Site Data							Autos:	77.5%	•	9.6%	
Barri	er Heiaht:	0.0 feet			Me	dium Tr	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wal		0.0			н	leavy Tr	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist.	to Barrier:	52.0 feet		N	oise So	urce Fl	evation	s (in f	eet)		
Centerline Dist. to	Observer:	52.0 feet		-	0.00 00	Autos		000	000)		
Barrier Distance to	Observer:	0.0 feet			Mediun	n Trucks		297			
Observer Height (Al	bove Pad):	5.0 feet				V Trucks		006	Grade Ad	iustmen	t: 0.0
Pad	Elevation:	0.0 feet									
	Elevation:	0.0 feet		L	ane Equ				feet)		
Ro	oad Grade:	0.0%				Autos		400			
	Left View:	-90.0 degree				n Trucks		209			
F	Right View:	90.0 degree	S		Heav	7 Trucks	s: 46.	228			
FHWA Noise Model	Calculation	s									
VehicleType	REMEL	Traffic Flow	Distand	e	Finite	Road	Fresr	nel	Barrier Att	en Be	rm Atten
Autos:	66.51	0.46		0.38		-1.20		-4.66		000	0.00
Medium Trucks:	77.72	-16.77		0.41		-1.20		-4.87		000	0.00
Heavy Trucks:	82.99	-20.73		0.41		-1.20		-5.41	0.0	000	0.00
Unmitigated Noise			parrier a	tenı	ation)						
	eq Peak Hou			q Ev	ening	Leq	Night		Ldn	-	NEL
Autos:	66.		4.3		62.5		56.4		65.1		65.
Medium Trucks:	60.		8.6		52.3		50.7		59.2		59.
Heavy Trucks:	61.		i0.0		51.0		52.3		60.6	-	60.
Vehicle Noise:	68.	.2 6	6.4		63.2		58.6	6	67.2	2	67.
Centerline Distance	to Noise Co	ontour (in feet)		-	-			_			
				70 dl			dBA		60 dBA		i dBA
		-	.dn:	34			2		156		336
		CN	EL:	36		7	7		167		360

	FHV	VA-RD-77-108	HIGHW	VAY NC	ISE PF	REDICTI	ON MC	DEL			
	p: TPO 2019 \	With Project				Project			ation		
	e: Dover Dr.					Job Ni	umber:	9831			
Road Segmen	t: n/o Westclif	ff Dr.									
SITE S	SPECIFIC IN	PUT DATA							L INPUT	s	
Highway Data				Si	te Con	ditions ((Hard =	: 10, So	oft = 15)		
Average Daily	Traffic (Adt):	5,000 vehicles						Autos:	15		
Peak Hour I	Percentage:	10%			Me	dium Tru	icks (2 .	Axles):	15		
Peak He	our Volume:	500 vehicles			He	avy Truc	ks (3+)	Axles):	15		
Vel	nicle Speed:	45 mph		Ve	hicle l	Mix					
Near/Far Lar	ne Distance:	12 feet		Ē		icleType		Day	Evening	Night	Daily
Site Data					-		utos:	77.5%	•	9.6%	
Par	rier Height:	0.0 feet			Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wa	•	0.0 1001			ŀ	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.749
Centerline Dis	. ,	28.0 feet		<u> </u>							
Centerline Dist. t		28.0 feet		No	oise So	ource Ele			et)		
Barrier Distance t		0.0 feet				Autos		000			
Observer Height (/		5.0 feet				m Trucks		297			
0 1	d Elevation:	0.0 feet			Heav	y Trucks	.: 8.	006	Grade Ad	ustment.	0.0
Roa	d Elevation:	0.0 feet		Lá	ne Eq	uivalent	Distan	ce (in	feet)		
F	Road Grade:	0.0%				Autos	: 27.	.803			
	Left View:	-90.0 degree	s		Mediui	m Trucks	: 27	483			
	Right View:	90.0 degree	S		Heav	y Trucks	: 27	514			
FHWA Noise Mode	Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresi	nel	Barrier Att	en Ber	m Atter
Autos:	68.46	-4.96		3.72		-1.20		-4.46	0.0	000	0.00
Medium Trucks:	79.45	-22.20		3.80		-1.20		-4.86	0.0	000	0.00
Heavy Trucks:	84.25	-26.16		3.79		-1.20		-5.83	0.0	000	0.00
Unmitigated Noise	Levels (with	out Topo and I	barrier	attenu	ation)						
	Leq Peak Hou	1.7		.eq Eve	· ·	Leq I	· ·		Ldn		VEL
Autos:	66.		4.1		62.4		56.3		64.9		65
Medium Trucks:	59.		8.3		52.0		50.4		58.9		59
Heavy Trucks:	60.		9.3		50.2		51.	-	59.8	-	60
Vehicle Noise:	67		6.1		63.0		58.3	3	66.9	9	67
Centerline Distanc	e to Noise Co	ontour (in feet)		70 dE	4	65 0	1RA	6	0 dBA	55	dBA
		,	.dn:	17	~	3			80		73

	FHW	A-RD-77-108	HIGHV	NAYN	IOISE PR	EDICTIO	N MODE	L			
Scenario: TPO 2		Vith Project				Project N					
Road Name: Dover						Job Nur	nber: 98	31			
Road Segment: s/o We	estclif	r Dr.									
SITE SPECIFI	C IN	PUT DATA						DEL INI			
Highway Data					Site Con	ditions (H			,		
Average Daily Traffic (Ad								os: 15			
Peak Hour Percentag		10%				dium Truc		., .			
Peak Hour Volum		1,230 vehicles			Hea	avy Truck	s (3+ Axl	es): 15			
Vehicle Spee		45 mph		F	Vehicle I	<i>lix</i>					
Near/Far Lane Distand	ce:	48 feet			Vehi	cleType	Da	y Ever	ning N	light	Daily
Site Data						Au	tos: 77	.5% 12	.9%	9.6%	97.42%
Barrier Heigl	ht:	0.0 feet			Me	dium Tru	cks: 84	.8% 4	.9% 1	0.3%	1.84%
Barrier Type (0-Wall, 1-Berr	n):	0.0			H	leavy Tru	cks: 86	.5% 2	.7% 1	0.8%	0.74%
Centerline Dist. to Barri	er:	52.0 feet			Noise So	urce Elev	ations (n feet)			
Centerline Dist. to Observ	er:	52.0 feet		F		Autos:	0.000				
Barrier Distance to Observ	er:	0.0 feet			Mediur	n Trucks:	2.29				
Observer Height (Above Pa	·	5.0 feet				v Trucks:	8.006		le Adjust	tment:	0.0
Pad Elevation		0.0 feet		F		·					
Road Elevation		0.0 feet		-	Lane Equ	uivalent E		· /			
Road Grad		0.0%				Autos:	46.40				
Left Vie		-90.0 degree				n Trucks:	46.20				
Right Vie	W:	90.0 degree	S		Heav	y Trucks:	46.22	5			
FHWA Noise Model Calcula	tions										
VehicleType REMEL		Traffic Flow	Dista		Finite	Road	Fresnel	Barrie	er Atten	Berr	n Atten
Autos: 68											
	3.46	-1.05		0.3	-	-1.20	-4.		0.000		
Medium Trucks: 79	9.45	-18.29		0.4	1	-1.20	-4.	87	0.000		0.00
Medium Trucks: 79					1			87			0.00
Medium Trucks: 79	9.45 4.25	-18.29 -22.25	oarrier	0.4 0.4	- 1 1	-1.20	-4.	87	0.000		0.00
Medium Trucks: 79 Heavy Trucks: 84 Unmitigated Noise Levels (VehicleType Leq Peak	9.45 4.25 withc Hou	-18.29 -22.25 Dut Topo and L Leq Day		0.4 0.4 r atten	1 1 nuation) ivening	-1.20	-4. -5.	87	0.000		0.00 0.00
Medium Trucks: 75 Heavy Trucks: 84 Unmitigated Noise Levels (Vehicle Type Leq Peak Autos:	9.45 4.25 witho Hou 66.	-18.29 -22.25 Dut Topo and L Leq Day 6 6	4.7	0.4 0.4 r atten	1 1 nuation) ivening 62.9	-1.20 -1.20	-4. -5. ight 56.9	87 41	0.000 0.000 65.5		0.00 0.00 IEL 66.
Medium Trucks: 75 Heavy Trucks: 84 Unmitigated Noise Levels (VehicleType Leq Peak Autos: Medium Trucks:	9.45 4.25 witho Hou 66. 60.	-18.29 -22.25 but Topo and B r Leq Day 6 6 4 5	4.7 8.9	0.4 0.4 r atten	1 1 1 <i>ivening</i> 62.9 52.5	-1.20 -1.20	-4. -5. ight 56.9 51.0	87 41	0.000 0.000 65.5 59.4		0.00 0.00 IEL 66. 59.
Medium Trucks: 79 Heavy Trucks: 84 Unmitigated Noise Levels (i VehicleType Leq Peak Autos: Medium Trucks: Heavy Trucks:	9.45 4.25 without 66. 60. 61.	-18.29 -22.25 but Topo and L r Leq Day 6 6 4 5 2 5	4.7 8.9 9.8	0.4 0.4 r atten	1 1 1 vening 62.9 52.5 50.8	-1.20 -1.20	-4. -5. <u>ght</u> 56.9 51.0 52.0	87 41	0.000 0.000 65.5 59.4 60.4		0.00 0.00 IEL 66. 59. 60.
Medium Trucks: 75 Heavy Trucks: 84 Unmitigated Noise Levels (VehicleType Leq Peak Autos: Medium Trucks:	9.45 4.25 witho Hou 66. 60.	-18.29 -22.25 but Topo and L r Leq Day 6 6 4 5 2 5	4.7 8.9	0.4 0.4 r atten	1 1 1 <i>ivening</i> 62.9 52.5	-1.20 -1.20	-4. -5. ight 56.9 51.0	87 41	0.000 0.000 65.5 59.4		0.00 0.00 IEL 66. 59. 60.
Medium Trucks: 79 Heavy Trucks: 84 Unmitigated Noise Levels (i VehicleType Leq Peak Autos: Medium Trucks: Heavy Trucks:	9.45 4.25 witho Hou 66. 60. 61. 68.	-18.29 -22.25 Dut Topo and R Leq Day 6 6 6 4 5 2 5 4 6	4.7 8.9 9.8	0.4 0.4 r attern Leq E	1 1 1 <i>vening</i> 62.9 52.5 50.8 63.5	-1.20 -1.20 Leq Ni	-4. -5. 56.9 51.0 52.0 58.9	87 41 Ldn	0.000 0.000 65.5 59.4 60.4 67.4	Ch	0.00 0.00 IEL 66. 59. 60. 67.
Medium Trucks: 77 Heavy Trucks: 84 Unnitigated Noise Levels (VehicleType Leg Peak Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	9.45 4.25 witho Hou 66. 60. 61. 68.	-18.29 -22.25 but Topo and R r Leq Day 6 6 6 4 5 2 5 4 6 ntour (in feet)	4.7 8.9 9.8 6.7	0.4 0.4 r atten Leg E	1 1 1 vening 62.9 52.5 50.8 63.5 dBA	-1.20 -1.20 Leq Ni 65 dE	-4. -5. 56.9 51.0 52.0 58.9	87 41 Ldn 60 dB/	0.000 0.000 65.5 59.4 60.4 67.4	CN 55 (66. 59. 60. 67.
Medium Trucks: 77 Heavy Trucks: 84 Unnitigated Noise Levels (VehicleType Leg Peak Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	9.45 4.25 witho Hou 66. 60. 61. 68.	-18.29 -22.25 but Topo and B r Leq Day 6 6 6 4 5 2 5 4 6 intour (in feet)	4.7 8.9 9.8	0.4 0.4 r atten Leq E 70 (3	1 1 1 <i>vening</i> 62.9 52.5 50.8 63.5	-1.20 -1.20 Leq Ni	-4. -5. 56.9 51.0 52.0 58.9	87 41 Ldn	0.000 0.000 65.5 59.4 60.4 67.4	Ch	0.00 0.00 <u>IEL</u> 66. 59. 60. 67. 1BA

	FH\	WA-RD-77-108	HIGHW	AY NC	DISE P	REDICTIC	N MOI	DEL			
Scenario Road Name Road Segment						Project N Job Nur			ition		
SITE S	PECIFIC IN	IPUT DATA								S	
Highway Data				Si	ite Cor	nditions (H	lard =	10, So	ft = 15)		
Average Daily T	raffic (Adt):	14,200 vehicles	5				A	Autos:	15		
Peak Hour P	Percentage:	10%			Me	dium Truc	ks (2 A	xles):	15		
Peak Ho	ur Volume:	1,420 vehicles	\$		He	avy Truck	s (3+ A	xles):	15		
Veh	icle Speed:	45 mph		V	ehicle	Mix					
Near/Far Lan	e Distance:	48 feet		-		icleType		Day	Evening	Night	Daily
Site Data								77.5%	12.9%	9.6%	
Barr	ier Heiaht:	0.0 feet			М	edium Tru	cks:	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa		0.0				Heavy Tru	cks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist		52.0 feet		N	nisa S	ource Ele	vations	in fe	of)		
Centerline Dist. to	Observer:	52.0 feet			0/30 0	Autos:					
Barrier Distance to	Observer:	0.0 feet			Modiu	m Trucks:	2.2				
Observer Height (A	bove Pad):	5.0 feet				/v Trucks:			Grade Ad	iustmen	t: 0.0
Pad	d Elevation:	0.0 feet									
	d Elevation:	0.0 feet		Lá	ane Eq	uivalent L			eet)		
R	oad Grade:	0.0%				Autos:					
	Left View:	-90.0 degree	es			m Trucks:					
	Right View:	90.0 degree	es		Heav	/y Trucks:	46.2	228			
FHWA Noise Model	Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fresn	el i	Barrier Att	en Be	rm Atten
Autos:	68.46	-0.43		0.38		-1.20		4.66	0.0	000	0.000
Medium Trucks:	79.45	-17.67		0.41		-1.20		4.87	0.0	000	0.000
Heavy Trucks:	84.25	-21.62		0.41		-1.20		-5.41	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType L	.eq Peak Hou	ur Leq Day	L	eq Eve	ening	Leq N	ight		Ldn	С	NEL
Autos:	67	.2	65.3		63.6		57.5		66.1	1	66.7
Medium Trucks:	61		59.5		53.1		51.6		60.0		60.3
Heavy Trucks:	61	-	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	e to Noise C	ontour (in feet,									
				70 dE	BA	65 dl		6	0 dBA		i dBA
			Ldn:	38		83			178		384
		CI	VEL:	41		89			191	4	412

Wednesday, June 08, 2016

Wednesday, June 08, 2016

Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 64.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dserver: 64.0 feet Barrier Distance to Observer: 64.0 feet Barrier Distance to Observer: 64.0 feet Barrier Distance to Observer: 0.0 feet Pad Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Rideliar Trucks: 82.40 -17.53 -0.48 Autos: 71.78 -0.29 -0.50 -1.20 -4.70 Medium Trucks: 82.40 -17.53 -0.48 -12.0 -5.31 Unnitigated Noise Levels (without Topo and barrier attenuation) VehiceType Leq Day Leq Evening Leq Night Leq Evening Leq Night Medium Trucks: 63.2		FH	WA-RD-77-108 I	HIGHWA	Y NOISE	PREDICTIO	N MODEL			
Road Segment: n/o East Coast Hwy. Site SPECIFIC INPUT DATA NOISE MODEL INPUTS More and the set of the se	Scenari	io: TPO 2019	With Project			Project Na	ame: Autol	Vation		
SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 17,900 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Avles): 15 Peak Hour Volume: 1,790 vehicles Autos: 15 Vehicle Speed: 55 mph Medium Trucks (2 Avles): 15 Site Data Autos: 77.5% 12.9% 9.6% Barrier Height: 0.0 feet Autos: 77.5% 12.9% 9.6% Barrier Jiste to Dbserver: 64.0 feet Autos: 77.5% 12.9% 9.6% Centerline Dist. to Dbserver: 64.0 feet Medium Trucks: 84.8% 4.9% 10.3% Pad Elevation: 0.0 feet Road Grade: 0.0% Medium Trucks: 8.206 Grade Adjustment: Pad Elevation: 0.0 feet Road Grade: 0.0% Autos: 53.900 FHWA Noise Model Calculations VehicleType Finite Road Fresnel Barrier Atten Berrier Atten VehicleType<						Job Nun	nber: 9831			
Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 17,900 vehicles Autos: 15 Autos: 15 Peak Hour Volume: 1,790 vehicles Autos: 15 Medium Trucks (2 Avles): 15 Vehicle Speed: 55 mph Traffic Flow Day Evening Night Site Data Autos: 77.5% 12.9% 9.6% Barrier Height: 0.0 feet Autos: 77.5% 12.9% 9.6% Barrier Jype (0-Wail, 1-Berrn): 0.0 feet Autos: 0.0% Heavy Trucks: 84.8% 4.9% 10.3% Centerline Dist. to Dserver: 64.0 feet Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 80.06 Grade Adjustment: Pad Elevation: 0.0 feet Autos: 53.151 Medium Trucks: 53.000 Medium Trucks: 53.000 FHWA Noise Model Calculations VehicleType Ref View: -90.0 degrees Finite Road Fresnel Barrier Atten Berrier Atten VehicleType Ref View: -90.0 degrees Finite Road Fresnel Barrier Atten Berrier Atten Wedivery Trucks: 82.40 -71.53 -0.48 <th>Road Segmer</th> <th>nt: n/o East C</th> <th>oast Hwy.</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Road Segmer	nt: n/o East C	oast Hwy.							
Average Daily Traffic (Adt): 17,900 vehicles Average Daily Traffic (Adt): 17,900 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,790 vehicles Wehicle Speed: 55 mph Near/Far Lane Distance: 72 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 64.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 64.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 6.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left Iview: 90.0 degrees Right View: 90.0 degrees Right Vi		SPECIFIC II	NPUT DATA						S	
Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 1.790 vehicles Heavy Trucks (3 + Axles): 15 Vehicle Speed: 55 mph Vehicle Speed: 55 Neat/Far Lane Distance: 72 feet Vehicle Speed: 55 Barrier Type (O-Wall, 1-Berm): 0.0 feet Autos: 77.5% 12.9% 9.6% Barrier Type (O-Wall, 1-Berm): 0.0 feet Autos: 71.5% 10.9% 10.8% Barrier Type (O-Wall, 1-Berm): 0.0 feet Autos: 0.00 Heavy Trucks: 84.8% 4.9% 10.3% Barrier Type (O-Wall, 1-Berm): 0.0 feet Medium Trucks: 2.297 10.8% Deserver Height (Above Pad): 5.0 feet Autos: 3.151 Autos: 3.006 Grade Adjustment: Road Grade: 0.0% Autos: 53.000 Heavy Trucks: 53.000 FHWA Noise Model Calculations VehicleType REIMEL Traffic Flow Distance Finite Road Fresnet Berrier Atten Berrie Atten Berrier Atten Berrier Att	Highway Data				Site 0	Conditions (H	ard = 10, S	Soft = 15)		
Peak Hour Volume: 1,790 vehicles Vehicle Speed: 55 mph Near/Far Lane Distance: 72 feet Site Data Vehicle Mix Barrier Height: 0.0 feet Barrier Height: 0.0 feet Barrier Jype (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dserver: 64.0 feet Barrier Distance to Observer: 64.0 feet Barrier Distance to Observer: 64.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Right View: 90.0 degrees Wehicle Type Left View: 90.0 degrees Wehicle Type Read Fresnel Barrier Atten Berrier Atten Autos: 71.78 -0.29 -0.50 -1.20 -4.70 0.000 Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.88 0.000 Medium Trucks: 86.32 61.1 Conterline Distance Finite Road Fresnel Barrier Att	Average Daily	Traffic (Adt):	17,900 vehicles				Autos	s: 15		
Vehicle Speed: Near/Far Lane Distance: 55 mph 72 feet Vehicle Mix Site Data Autos: 77.5% 12.9% 9.6% Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% Barrier Type (0-Wall, 1-Berm): 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% Barrier Type (0-Wall, 1-Berm): 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% Barrier Distance to Observer: 0.0 feet Moise Source Elevations (in feet) Autos: 0.00% Barrier Distance to Observer: 0.0 feet Autos: 3.151 Medium Trucks: 8.298 Pad Elevation: 0.0 feet Autos: 53.151 Medium Trucks: 53.000 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Watios: 71.78 -0.29 -0.50 -1.20 -4.70 0.000 Medium Trucks: 82.40 -17.53 -0.48 -1.20	Peak Hour	Percentage:	10%			Medium Truck	s (2 Axles): 15		
Venic/E Ar Lane Distance: 72 feet Venicle MiX Day Evening Night Site Data Autos: 77.5% 12.9% 9.6% Barrier Height: 0.0 feet Autos: 77.5% 12.9% 9.6% Barrier Height: 0.0 feet Autos: 77.5% 12.9% 9.6% Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 64.0 feet Medium Trucks: 86.8% 4.9% 10.3% Centerline Dist. to Diserver: 64.0 feet Autos: 0.000 Medium Trucks: 2.297 Observer: Height (Above Pad): 5.0 feet Heavy Trucks: 8.006 Grade Adjustment: Road Grade: 0.0 feet Mutos: 53.161 Iteme Equivalent Distance (in feet) Road Grade: 0.0 degrees Medium Trucks: 52.984 Heavy Trucks: 53.000 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType Reg Haru <t< td=""><td>Peak H</td><td>lour Volume:</td><td>1,790 vehicles</td><td></td><td></td><td>Heavy Trucks</td><td>(3+ Axles</td><td>): 15</td><td></td><td></td></t<>	Peak H	lour Volume:	1,790 vehicles			Heavy Trucks	(3+ Axles): 15		
Near/Far Lane Distance: 72 feet Vehicle Type Day Evening Night Site Data Autos: 77.5% 12.9% 9.6% Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% Barrier Type (0-Wall, 1-Berm): 0.0 Medium Trucks: 84.8% 4.9% 10.3% Centerline Dist. to Dbserver: 64.0 feet Medium Trucks: 86.5% 2.7% 10.8% Diserver Height (Above Pad): 5.0 feet Autos: 0.00 Medium Trucks: 8.006 Grade Adjustment: Pad Elevation: 0.0 feet Autos: 53.151 Heavy Trucks: 53.000 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten WehicleType REMMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten WehicleType Leq Day Leq Day Leq Day Leq Levening Leq Levening Autos: 63.2	Ve	hicle Speed:	55 mph		Vehic	lo Mix				
Site Data Autos: 77.5% 12.9% 9.6% Barrier Height: 0.0 feet Medium Trucks: 84.8% 4.9% 10.3% Barrier Type (0-Wall, 1-Berm): 0.0 Medium Trucks: 86.8% 4.9% 10.3% Centerline Dist. to Barrier: 64.0 feet Meaver Trucks: 86.5% 2.7% 10.8% Deserver Height (Above Pad): 5.0 feet Noise Source Elevations (in feet) Autos: 2.297 Road Grade: 0.0 feet Medium Trucks: 2.297 Heavy Trucks: 8.006 Road Grade: 0.0 feet Autos: 53.151 Medium Trucks: 52.984 Heavy Trucks: 90.0 degrees Finite Road Fresnel Barrier Atten Berrier Atten VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.88 0.000 Heavy Trucks: 83.67.9 66.1 60.1 68.7 68.7 68.7	Near/Far La	ne Distance:	72 feet				Dav	Evenina	Niaht	Dailv
Barrier Type (IV) Wall, 1-Berrier 0.0 Telet Heavy Trucks: 86.5% 2.7% 10.8% Centerline Dist. to Diserver: 64.0 feet Autos: 0.000 Melawy Trucks: 86.5% 2.7% 10.8% Diserver: 64.0 feet Autos: 0.000 Melawy Trucks: 0.000 Barrier Distance to Diserver: 0.0 feet Autos: 0.000 Medium Trucks: 2.297 Pad Elevation: 0.0 feet Autos: 53.151 Heavy Trucks: 53.06 Left Ivew: 90.0 degrees Right View: 90.0 degrees Heavy Trucks: 53.000 FHWA Noise Model Calculations VenicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier VehicleType Leg Day -21.49 -0.48 -1.20 -4.70 0.000 Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.88 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) VehicleType Egrewring Leg Night Ldn	Site Data					,,	os: 77.5	0	9.6%	97.429
Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Trucks: 86.5% 2.7% 10.8% Centerline Dist. to Dserver: 64.0 feet Autos: 0.00 Autos: 0.00 Barrier Distance to Observer: 0.0 feet Autos: 0.00 Moise Source Elevations (in feet) Barrier Distance to Observer: 0.0 feet Autos: 0.00 Medium Trucks: 2.297 Pad Elevation: 0.0 feet Autos: 53.151 Heavy Trucks: 53.151 Left View: 90.0 degrees Right View: 90.0 degrees Heavy Trucks: 53.000 FHWA Noise Model Calculations VenicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Autos: 71.78 -0.29 -0.50 -1.20 -4.70 0.000 Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.88 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) VehiceType Eq Peak How Leq Day Leq Day Leq Day Leq Day	Bai	rrier Height:	0.0 feet			Medium Truc	ks: 84.8	% 4.9%	10.3%	1.849
Centerline Dist. to Observer: 64.0 feet Autos: O.000 Barrier Distance to Observer: 0.0 feet Autos: 0.000 Observer Height (Above Paul) 5.0 feet Medium Trucks: 2.297 Pad Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: Road Elevation: 0.0 feet Autos: 53.151 Late Equivalent Distance (in feet) Road Grade 0.0% Autos: 53.000 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType ReMeL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType Remet Traffic Flow Destance Finite Road Fresnel Barrier Atten Cono Medium Trucks: 82.40 -7.53 -0.48 -1.20 -4.						Heavy Truc	ks: 86.5	% 2.7%	10.8%	0.749
Barrier Distance to Observer: 0.0 feet Autos: 0.000 Observer Height (Above Pad): 5.0 feet Medium Trucks: 2.297 Pad Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: Road Grade: 0.0% Autos: 53.151 Left I/vew: -90.0 degrees Right View: 90.0 degrees Filte Road Fresnel Barrier Atten Berrier Atten VehicleType REMEL Traffic Flow Distance Filte Road Fresnel Barrier Atten Berrier Atten Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.70 0.000 Medium Trucks: 82.40 -21.49 -0.48 -1.20 -5.31 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leg Day Leg Day Leg Night Ldn CN Autos: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks:					Noise	Source Elev	ations (in	feet)		
Observer Height (Above Pad): 5.0 feet Pad Elevation: Medium Trucks: 2.297 Heavy Trucks: Medium Trucks: 5.0 0 Grade Adjustment: VehicleType REMEL 0.006 Fresnel Barrier Atten Berrier Atten Berrier Atten Berrier Atten Medium Trucks: 52.984 VehicleType REMEL Traffic Flow Distance Fresnel Barrier Atten Berrier Atten Berrier Atten Demo VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Berrier Atten Demo VehicleType Leq Day Leq Evening Leq Night Ldn CN Autos: 63.2 <td< td=""><td></td><td></td><td></td><td></td><td></td><td>Autos:</td><td>0.000</td><td></td><td></td><td></td></td<>						Autos:	0.000			
Pad Elevation: 0.0 feet Heavy Trucks: 8.006 Grade Adjustment: Road Elevation: 0.0 feet Late Equivalent Distance (in feet) Late Equivalent Distance (in feet) Road Grade Adjustment: 90.0 degrees Autos: 53.151 Medium Trucks: 52.984 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: VehicleType Remet Atten Leg Day Leg Evening Leg Night Ldn CN Autos: 69.8 67.9	Barrier Distance	to Observer:			Me	dium Trucks:	2.297			
Pad Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Grade: 0.0% Autos: 53.151 Left View: -90.0 degrees Medium Trucks: 52.984 Right View: 90.0 degrees Medium Trucks: 53.000 FHWA Noise Model Calculations Vehicel Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Vehicel Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bern Vehicel Type REMEL Traffic Flow 0.48 -1.20 -4.70 0.000 Medium Trucks: 86.40 -21.49 -0.48 -1.20 -4.73 0.000 Umnitigated Noise Levels (without Topo and barrier entenuation) Uark Science 69.8 67.9 66.1 60.1 68.7 Medium Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet)	0 1	,			Н	eavv Trucks:	8.006	Grade Ad	iustment:	0.0
Road Grade: 0.0% Autos: 53.151 Left View: -90.0 degrees Medium Trucks: 52.984 Heavy Trucks: 53.000 FHWA Noise Model Calculations Distance Finite Road Fresnel Barrier Atten Berrier Atten VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Wedium Trucks: 82.40 -17.53 -0.48 -1.20 -4.70 0.000 Medium Trucks: 86.40 -21.49 -0.48 -12.0 -4.73 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CN Autos: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) To dBA 65 dBA						,				
Left View: -90.0 degrees Medium Trucks: 52.984 Right View: 90.0 degrees Heavy Trucks: 53.000 FHWA Noise Model Calculations Edit View: 90.0 degrees Medium Trucks: 52.984 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bernier Atten Autos: 71.78 -0.29 -0.50 -1.20 -4.70 0.000 Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.70 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Day Leq Evening Leq Night Ldn CN Autos: 69.8 67.9 66.1 60.1 68.7 Medium Trucks: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) 70 dBA					Lane			n feet)		
Right View. 90.0 degrees Heavy Trucks: 53.000 FHWA Noise Model Calculations Heavy Trucks: 53.000 VehicleType REIMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.70 0.000 Medium Trucks: 82.40 -21.49 -0.48 -1.20 -5.31 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leg Day Leg Day Leg Day Leg Cas 63.2 61.7 55.3 53.8 62.2 Medium Trucks: 63.2 61.7 55.3 53.8 62.2 44.70 66.6 61.8 70.3 Medium Trucks: 63.2 61.7 55.3 53.8 62.2 44.70 62.4 44.70 62.4 44.70 62.4 44.70 62.4 44.70 63.2 61.7 55.3 53.8 62.2 44.70 63.2 64.6 65.6 66.6	1									
FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Autos: 71.78 -0.29 -0.50 -1.20 -4.70 0.000 Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.88 0.000 Heavy Trucks: 86.40 -21.49 -0.48 -1.20 -5.31 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) - - - - - - - - - - 0.48 -1.20 - - 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) - - - - - - - - 0.48 - 0.00 - Autos: 69.8 67.9 66.1 60.1 68.7 Medium Trucks: 63.2 61.8 52.8 54.0 62.4 - Vehicle Noise: 71.4 69.6 66.6 61.8 <t< td=""><td></td><td></td><td>•</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>			•							
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berner Autos: 71.78 -0.29 -0.50 -1.20 -4.70 0.000 Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.88 0.000 Heavy Trucks: 86.0 -21.49 -0.48 -1.20 -5.31 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) Leq Day Leq Evening Leq Night Ldn CN Autos: 69.8 67.9 66.1 60.1 68.7 Medium Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet)		Right View:	90.0 degree	S	Н	eavy Trucks:	53.000			
Autos: 71.78 -0.29 -0.50 -1.20 -4.70 0.000 Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.78 0.000 Heavy Trucks: 86.40 -21.49 -0.48 -1.20 -5.31 0.000 Umnit/gated Moise Levels (without Topo and barrier attenuation) -5.31 0.000 -0.48 -1.20 -5.31 0.000 VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CN Autos: 69.8 67.9 66.1 60.1 68.7 Medium Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet)	FHWA Noise Mode	el Calculatior	าร							
Medium Trucks: 82.40 -17.53 -0.48 -1.20 -4.88 0.000 Heavy Trucks: 86.40 -21.49 -0.48 -1.20 -5.31 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) VerbiceType Leg Peak Hour Leg Day Leg Levening Leg Night Ldn CN Autos: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.8 70.3 VehiceType 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 co. Ldn: 67 145 313 67										m Atten
Heavy Trucks: 86.40 -21.49 -0.48 -1.20 -5.31 0.000 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Day Leq Evening Leq Night Ldn CN VehicleType Leq Peak How Leq Day Leq Evening Leq Night Ldn CN Medium Trucks: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) Let Ldn: 67 145 313 67										0.00
Vehicle Ivels Levels Without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CN Autos: 69.8 67.9 66.1 60.1 68.7 Medium Trucks: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet)										0.00
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CN Autos: 69.8 67.9 66.1 60.1 68.7 Medium Trucks: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) Ldn: 67 145 313 67							-5.31	0.0	000	0.00
Autos: 69.8 67.9 66.1 60.1 68.7 Medium Trucks: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 oc Ldn: 67 145 313 67	•					<i>,</i>				
Medium Trucks: 63.2 61.7 55.3 53.8 62.2 Heavy Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) Lchr: 67 145 313 67		1								
Heavy Trucks: 63.2 61.8 52.8 54.0 62.4 Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) 270 dBA 65 dBA 60 dBA 55 dBA Ldn: 67 145 313 67										69.
Vehicle Noise: 71.4 69.6 66.6 61.8 70.3 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 67 145 313 67					-				-	62.
Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 67 145 313 67	· · ·				-					62.
T0 dBA 65 dBA 60 dBA 55 c Ldn: 67 145 313 67				9.6	6	5.6	61.8	70.3	3	70.
Ldn: 67 145 313 67	Centerline Distant	ce to Noise C	ontour (in feet)		0 dBA	65 10	4	60 dBA	55	dBA
Givee. 12 130 330 12									-	
			CN		12	150		000	'	27

	FHW	/A-RD-77-108	HIGHWA	Y NOISE F	REDICT	ION MO	DEL			
	io: TPO 2019 V e: MacArthur E					Name: I lumber:		ation		
Road Segme	nt: n/o East Co	ast Hwy.								
SITE	SPECIFIC IN	PUT DATA				IOISE N	IODE	L INPUT	s	
Highway Data				Site Co	nditions	(Hard =	10, Se	oft = 15)		
Average Daily	Traffic (Adt): 1	0,900 vehicles					Autos:	15		
Peak Hour	Percentage:	10%		М	edium Tr	ucks (2 A	(xles)	15		
Peak H	lour Volume:	1,090 vehicles		Н	eavy Tru	cks (3+ A	(xles)	15		
Ve	hicle Speed:	55 mph		Vehicle	Mix					
Near/Far La	ne Distance:	72 feet			hicleType		Day	Evening	Night	Daily
Site Data						Autos:	77.5%	5 12.9%	9.6%	97.429
Ba	rrier Height:	0.0 feet		٨	1edium T	rucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-W	•	0.0			Heavy T	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Di	st. to Barrier:	64.0 feet		Noise	ource E	lovation	e (in fi	oof)		
Centerline Dist.	to Observer:	64.0 feet		10136 0	Auto		200			
Barrier Distance	to Observer:	0.0 feet		Modii	Im Truck		297			
Observer Height	Above Pad):	5.0 feet			vy Truck		206	Grade Ad	iustment	0.0
	ad Elevation:	0.0 feet							,	
	ad Elevation:	0.0 feet		Lane E	quivalen			feet)		
	Road Grade:	0.0%			Auto					
	Left View:	-90.0 degree			ım Truck					
	Right View:	90.0 degree	S	Hea	vy Truck	s: 53.	000			
FHWA Noise Mod	el Calculations	5								
VehicleType	REMEL	Traffic Flow	Distan	ce Finite	e Road	Fresh	el	Barrier Att	en Ber	m Atter
Autos:	71.78	-2.45		0.50	-1.20		-4.70		000	0.00
Medium Trucks:	82.40	-19.69		0.48	-1.20		-4.88		000	0.00
Heavy Trucks:	86.40	-23.64	-	0.48	-1.20		-5.31	0.0	000	0.00
Unmitigated Nois				,	1					
VehicleType	Leq Peak Hou			q Evening		Night		Ldn		NEL
Autos:	67.		5.7	64.0		57.9		66.		67.
Medium Trucks:	61.		9.5	53.2		51.6		60. 60.2		60.
Heavy Trucks:	61.		9.6	50.0		51.9				60
Vehicle Noise:	69.		7.5	64.)	59.6	0	68.2	2	68
Centerline Distan	ce to Noise Co	ntour (in feet)	-	70 dBA	67	dBA		60 dBA		dBA
		,	.dn:	70 dBA 48		04		225		84
			uri.	+0	1	UH		440	4	-04

F	HWA	-RD-77-108 I	HIGH	IWAY I	NOISE PR	EDICTI	ON MO	DDEL				
Scenario: TPO 201 Road Name: 17th St. Road Segment: w/o Irvin		th Project				Project Job N	Name: umber:		lation			
SITE SPECIFIC	INPU	UT DATA			Site Con					rs		
Highway Data					Site Con	antions	(Hara =		,			
Average Daily Traffic (Adt)								Autos				
Peak Hour Percentage		10%				dium Tru		/				
Peak Hour Volume	,	070 vehicles			Hea	avy Truc	:KS (3+	Axies)	: 15			
Vehicle Speed		35 mph			Vehicle I	<i>lix</i>						-
Near/Far Lane Distance		48 feet			Vehi	cleType		Day	Evening	Nig	ht	Daily
Site Data						A	lutos:	77.5%	6 12.9%	9	.6%	97.42
Barrier Height		0.0 feet			Me	dium Tr	ucks:	84.8%	6 4.9%	10	.3%	1.849
Barrier Type (0-Wall, 1-Berm)		0.0			H	leavy Tr	ucks:	86.5%	6 2.7%	10	.8%	0.74
Centerline Dist. to Barrier	:	52.0 feet		ŀ	Noise So	urce Fl	evatio	ns (in i	eet)			
Centerline Dist. to Observer	:	52.0 feet		ŀ		Autos		.000	001)			
Barrier Distance to Observer		0.0 feet			Modiur	n Trucks		.000				
Observer Height (Above Pad)	:	5.0 feet				v Trucks		.006	Grade A	diustn	nent [.]	0.0
Pad Elevation		0.0 feet			Tieav	y mucks	s. o	.000	0.0007	ajaoai	10111.	0.0
Road Elevation	:	0.0 feet		L	Lane Equ	livalent	Distar	nce (in	feet)			
Road Grade	:	0.0%				Autos	s: 46	.400				
Left View		90.0 degree	s		Mediur	n Trucks	s: 46	.209				
Right View		90.0 degree	s		Heav	y Trucks	s: 46	.228				
FHWA Noise Model Calculati	ons											
VehicleType REMEL	T	raffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier A	tten	Berr	n Atter
Autos: 64.	30	-0.57		0.3	18	-1.20		-4.66	C	.000		0.00
Medium Trucks: 75.	75	-17.80		0.4	1	-1.20		-4.87	C	.000		0.00
Heavy Trucks: 81.	57	-21.76		0.4	1	-1.20		-5.41	C	.000		0.00
Unmitigated Noise Levels (w			barri									
VehicleType Leq Peak H		Leq Day		Leq E	vening	Leq	Night		Ldn		C٨	IEL
	62.9	-	1.0		59.3		53.	-	61			62
	57.2	-	5.6		49.3		47.		56			56
	59.0	-	7.6		48.6		49.	-	58			58.
Vehicle Noise:	65.2	6	3.4		60.0		55.	6	64	.1		64
Centerline Distance to Noise	Cont	tour (in feet)								-		
			L		dBA		dBA		60 dBA			dBA
			.dn: IFL :	-	21 23	4	-		98 105		2'	11 26

	FHV	/A-RD-77-108 HI	GHWAY	NOISE PR	REDICTIC	ON MODEL			
Road Nam	io: TPO 2019 V e: Westcliff Dr nt: e/o Irvine A					Vame: Auto mber: 9831			
SITE	SPECIFIC IN	PUT DATA			N	DISE MOD	EL INPUT	S	
Highway Data				Site Con	ditions (I	Hard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	9,100 vehicles				Auto	s: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	cks (2 Axles): 15		
Peak H	lour Volume:	910 vehicles		He	avy Truck	ks (3+ Axles	;): 15		
Ve	hicle Speed:	35 mph		Vehicle I	Mise	-			
Near/Far La	ne Distance:	48 feet				Dev	Guardian	Allenter	Delte
011 0 1				ven	icleType	Day	•	Night	Daily
Site Data						utos: 77.5		9.6%	
	rrier Height:	0.0 feet			edium Tru			10.3%	1.84%
Barrier Type (0-W	. ,	0.0		,	leavy Tru	icks: 86.5	% 2.7%	10.8%	0.74%
Centerline Dis		52.0 feet		Noise So	ource Ele	vations (in	feet)		
Centerline Dist.		52.0 feet			Autos:	0.000			
Barrier Distance		0.0 feet		Mediu	n Trucks:				
Observer Height (,	5.0 feet			v Trucks:		Grade Ad	justment.	0.0
	ad Elevation:	0.0 feet						·	
	ad Elevation:	0.0 feet		Lane Eq		Distance (i	n feet)		
1	Road Grade:	0.0%			Autos:				
	Left View:	-90.0 degrees			m Trucks:				
	Right View:	90.0 degrees		Heav	y Trucks:	46.228			
FHWA Noise Mode	el Calculations	5							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier At	ten Ber	m Atten
Autos:	64.30	-1.27	0.	38	-1.20	-4.6	6 0.0	000	0.000
Medium Trucks:	75.75	-18.51	0.	41	-1.20	-4.8	7 0.0	000	0.000
Heavy Trucks:	81.57	-22.46	0.	41	-1.20	-5.4	1 0.0	000	0.000
Unmitigated Noise				,					
21	Leq Peak Hou	. ,		Evening	Leq N	0	Ldn		VEL
Autos:	62.			58.6		52.5	61.		61.7
Medium Trucks:	56.			48.6		47.0	55.		55.7
Heavy Trucks:	58.			47.9		49.1	57.	-	57.6
Vehicle Noise:	64.	4 62	.7	59.3		54.9	63.	4	63.9
Centerline Distant	ce to Noise Co	ntour (in feet)							
			70) dBA	65 d	BA	60 dBA	55	dBA
		Ld		19	41		88	1	90
		CNE	L:	20	44		94	2	03

Wednesday, June 08, 2016

Wednesday, June 08, 2016

FH	WA-RD-77-108 HIG	HWAY I	NOISE PR	EDICTION	MODEL		
Scenario: TPO 2019 Road Name: West Coa: Road Segment: w/o Newpo	st Hwy.			Project Na Job Numi		lation	
SITE SPECIFIC II	NPUT DATA					EL INPUTS	6
Highway Data			Site Cond	ditions (Ha	rd = 10, S	oft = 15)	
Average Daily Traffic (Adt):	14,900 vehicles				Autos.	15	
Peak Hour Percentage:	10%		Med	lium Truck:	s (2 Axles)	15	
Peak Hour Volume:	1,490 vehicles		Hea	ivy Trucks	(3+ Axles)	: 15	
Vehicle Speed:	45 mph	ŀ	Vehicle N	liv			
Near/Far Lane Distance:	72 feet	ŀ		cleType	Dav	Evening	Night Daily
Site Data			10/10	Auto		0	9.6% 97.42%
Barrier Height:	0.0 feet		Me	dium Truck	s: 84.89	6 4.9%	10.3% 1.84%
Barrier Type (0-Wall, 1-Berm):	0.0		н	eavy Truck	s: 86.5%	6 2.7%	10.8% 0.74%
Centerline Dist. to Barrier:	64.0 feet	-		,			
Centerline Dist. to Observer:	64.0 feet	-	Noise So	urce Eleva		eet)	
Barrier Distance to Observer:	0.0 feet			Autos:	0.000		
Observer Height (Above Pad):	5.0 feet			n Trucks:	2.297	Our de Ad	
Pad Elevation:	0.0 feet		Heavy	/ Trucks:	8.006	Grade Auj	ustment: 0.0
Road Elevation:	0.0 feet		Lane Equ	ivalent Di	stance (in	feet)	
Road Grade:	0.0%	ſ		Autos:	53.151		
Left View:	-90.0 degrees		Mediun	n Trucks:	52.984		
Right View:	90.0 degrees		Heavy	/ Trucks:	53.000		
FHWA Noise Model Calculation	าร	1					
VehicleType REMEL	Traffic Flow D	listance	Finite I	Road F	resnel	Barrier Atte	en Berm Atten
Autos: 68.46		-0.5		-1.20	-4.70	0.0	
Medium Trucks: 79.45		-0.4		-1.20	-4.88	0.0	
Heavy Trucks: 84.25	-21.41	-0.4	18	-1.20	-5.31	0.0	00 0.000
Unmitigated Noise Levels (with		rier attei	nuation)				
VehicleType Leq Peak Ho			vening	Leq Nig		Ldn	CNEL
	6.5 64.6		62.9		56.8	65.4	
	0.3 58.8		52.4		50.9	59.4	
,	1.2 59.7		50.7		51.9	60.3	
	8.4 66.6	5	63.5		58.8	67.4	67.8
Centerline Distance to Noise C	ontour (in feet)						
			dBA	65 dB/		60 dBA	55 dBA
	Ldn:		43	92		198	426
	CNEL	: 4	46	99		212	457

	FIIV	VA-RD-77-108	HIGH	IWAY N	OISE PF	REDICT	ION MC	DEL			
	o: TPO 2019						Name:		ation		
Road Nam Road Segmer	e: West Coas nt: e/o Newpor	,				Job N	lumber:	9831			
SITE	SPECIFIC IN	PUT DATA								S	
Highway Data				S	Site Con	ditions	(Hard =	= 10, S	oft = 15)		
Average Daily	Traffic (Adt): 2	27,400 vehicles	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tr	ucks (2	Axles):	15		
Peak H	our Volume:	2,740 vehicles	s		He	avy Tru	cks (3+	Axles):	15		
Vel	hicle Speed:	40 mph		L.	ehicle l	Mix					
Near/Far Lar	ne Distance:	72 feet		-		icleType		Dav	Evening	Night	Dailv
Site Data							Autos:	77.5%	•		97.429
	rier Height:	0.0 feet			Me	dium T	rucks:	84.8%	4.9%	10.3%	
Barrier Type (0-W		0.0			ŀ	leavy T	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Dis		64.0 feet		_							
Centerline Dist.		64.0 feet		^	loise Sc				eet)		
Barrier Distance		0.0 feet				Auto		.000			
Observer Height (Above Pad):	5.0 feet				n Truck		.297			
	d Elevation:	0.0 feet			Heav	y Truck	s: 8	.006	Grade Ad	ustment	0.0
Roa	d Elevation:	0.0 feet		L	ane Eq	uivalen	t Distar	ice (in	feet)		
F	Road Grade:	0.0%				Auto	s: 53	.151			
	Left View:	-90.0 degree	es		Mediur	n Truck	s: 52	.984			
	Right View:	90.0 degree	es		Heav	y Truck	s: 53	.000			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier Att	en Ber	m Atten
Autos:	66.51	2.94		-0.50	1	-1.20		-4.70	0.0	000	0.00
Medium Trucks:	77.72	-14.30		-0.48		-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	82.99	-18.26		-0.48		-1.20		-5.31	0.0	000	0.00
Unmitigated Noise			barri	er attenu	uation)						
	Leq Peak Hou			Leq Ev	· ·	Leq	Night		Ldn		VEL
Autos:	67		65.8		64.1		58.		66.7		67.
Medium Trucks:	61		60.2		53.9		52.		60.8		61.
Heavy Trucks:	63		61.6		52.6		53.	-	62.2		62.
Vehicle Noise:	69		68.0		64.8		60.	2	68.7	7	69.
Centerline Distanc	e to Noise Co	ontour (in feet)	70 d	DA I	65	dBA		60 dBA	55	dBA
			Ldn:	53			14		245		27

FHWA-RD-77-108	HIGHWA	NOISE	FREDICI		JUEL			
Scenario: TPO 2019 With Project				t Name.		ation		
Road Name: West Coast Hwy.			Job N	lumber.	9831			
Road Segment: e/o Tustin Av.								
SITE SPECIFIC INPUT DATA						L INPUT	5	
Highway Data		Site C	onditions	(Hard	= 10, So	,		
Average Daily Traffic (Adt): 28,300 vehicles					Autos:			
Peak Hour Percentage: 10%			Aedium Tr	,				
Peak Hour Volume: 2,830 vehicles		ŀ	leavy Tru	icks (3+	Axles):	15		
Vehicle Speed: 40 mph		Vehicl	e Mix					
Near/Far Lane Distance: 72 feet		V	ehicleType	e	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height: 0.0 feet			Medium T	rucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy T	rucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier: 64.0 feet		Neice	Source E	lovatio	no (in f	a a f l		
Centerline Dist. to Observer: 64.0 feet		NOISE	Auto		0.000	eer)		
Barrier Distance to Observer: 0.0 feet		Mad	Auto ium Truck		2.297			
Observer Height (Above Pad): 5.0 feet			avv Truck			Grade Adi	ustmont	0.0
Pad Elevation: 0.0 feet		пе	avy much	is. c	0.000	Orade Auj	usunoni	0.0
Road Elevation: 0.0 feet		Lane E	quivalen	t Dista	nce (in	feet)		
Road Grade: 0.0%			Auto		3.151			
Left View: -90.0 degree	s	Med	ium Truck	(s: 52	2.984			
Right View: 90.0 degree	s	He	avy Truck	(s: 53	3.000			
FHWA Noise Model Calculations								
VehicleType REMEL Traffic Flow	Distant	ce Fini	te Road	Fres	inel	Barrier Atte	en Ber	m Atten
Autos: 66.51 3.08	-	0.50	-1.20		-4.70	0.0	00	0.00
Medium Trucks: 77.72 -14.16	-	0.48	-1.20		-4.88	0.0	00	0.00
Heavy Trucks: 82.99 -18.12	-	0.48	-1.20		-5.31	0.0	00	0.00
Unmitigated Noise Levels (without Topo and I	parrier a	ttenuatior	l)					
VehicleType Leq Peak Hour Leq Day	Le	q Evening	Leq	Night		Ldn	CI	VEL
	6.0	64	.2	58	.2	66.8	3	67.
	i0.4	54		52		60.9		61.
Heavy Trucks: 63.2 6	1.8	52	.7	54	.0	62.3	5	62.
Vehicle Noise: 69.9 6	i8.2	64	.9	60	.3	68.9)	69.3
Centerline Distance to Noise Contour (in feet)								
		70 dBA	65	dBA	e	60 dBA	55	dBA
L	dn:	54	1	16	_	250	5	39
	FL:	58		24		268		

	FHV	VA-RD-77-108 HI	GHWAY	NOISE PI	REDICTIO		EL			
Road Nam	io: TPO 2019 le: West Coas nt: e/o Dover D	t Hwy.			Project I Job Nu	Vame: A mber: 9		tion		
SITE	SPECIFIC IN	PUT DATA						INPUT:	5	
Highway Data				Site Cor	ditions (Hard = 1	10, So	ft = 15)		
Average Daily	Traffic (Adt): 3	35,400 vehicles				A	utos:	15		
Peak Hour	Percentage:	10%		Me	dium True	cks (2 A	kles):	15		
Peak H	lour Volume:	3,540 vehicles		He	avy Truck	ks (3+ A)	kles):	15		
Ve	hicle Speed:	40 mph		Vehicle	Mix					
Near/Far La	ne Distance:	96 feet			icleType	[Day	Evening	Night	Daily
Site Data							7.5%	12.9%	9.6%	
Pa	rrier Heiaht:	0.0 feet		М	edium Tru	icks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-W		0.0 1001			Heavy Tru	icks: 8	6.5%	2.7%	10.8%	0.749
Centerline Di	. ,	72.0 feet								
Centerline Dist.		72.0 feet		Noise S	ource Ele		•	et)		
Barrier Distance		0.0 feet			Autos:					
Observer Height (5.0 feet			m Trucks:					
	ad Elevation:	0.0 feet		Heav	/y Trucks:	8.0	06	Grade Adj	ustment	0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distanc	e (in f	eet)		
	Road Grade:	0.0%			Autos:	53.8	98			
	Left View:	-90.0 degrees		Mediu	m Trucks:	53.7	34			
	Right View:	90.0 degrees		Heav	/y Trucks:	53.7	50			
FHWA Noise Mod	el Calculation	-								
VehicleType	REMEL		Distance		Road	Fresne		Barrier Att		m Atten
Autos:	66.51	4.05	-0.5		-1.20		4.72	0.0		0.00
Medium Trucks:	77.72	-13.19	-0.5		-1.20		4.88	0.0		0.00
Heavy Trucks:	82.99	-17.14	-0.5		-1.20	-	5.26	0.0	000	0.00
Unmitigated Nois										
VehicleType	Leq Peak Hou			vening	Leq N	0		Ldn	-	NEL
Autos:	68		-	65.1		59.1		67.7		68.
Medium Trucks:	62		-	54.9		53.3		61.8		62.
Heavy Trucks:	64			53.6		54.9		63.2		63.3
Vehicle Noise:	70		1	65.8		61.2		69.8	3	70.:
Centerline Distant	ce to Noise Co	ontour (in feet)	=0	-/0.4	05	04	~	0.104		-10.4
				dBA	65 d			0 dBA		dBA
		Ldr	1: (69	15	U		322	6	94
		CNEL		74	16	~		345		43

Wednesday, June 08, 2016

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	HWA-RD-77-1	8 HIGHWA	Y NOISE P	REDICTION			
Scenario: TPO 20 Road Name: West C Road Segment: e/o Bay:	oast Hwy.			Project Na Job Numi	me: AutoN ber: 9831	lation	
SITE SPECIFIC	INPUT DATA	1				EL INPUTS	
Highway Data			Site Cor	nditions (Ha	ard = 10, S	oft = 15)	
Average Daily Traffic (Adt Peak Hour Percentage Peak Hour Volume Vehicle Speed	e: 10% e: 3,090 vehic			edium Trucks eavy Trucks		: 15	
Near/Far Lane Distance			Vehicle	Mix			
Neal/Fai Lane Distance	90 leet		Veł	nicleType	Day	0	Vight Daily
Site Data Barrier Heigh Barrier Type (0-Wall, 1-Berm				Auto Iedium Truck Heavy Truck	ks: 84.8%	6 4.9%	9.6% 97.42% 10.3% 1.84% 10.8% 0.74%
Centerline Dist. to Barrie	r: 72.0 feet		Noise S	ource Eleva	ations (in t	feet)	
Centerline Dist. to Observe Barrier Distance to Observe Observer Height (Above Pad Pad Elevation Road Elevation Road Grad	r: 0.0 feet): 5.0 feet n: 0.0 feet		Hea Lane Eq	Autos: m Trucks: vy Trucks: uivalent Di Autos:	53.898	Grade Adjus feet)	stment: 0.0
Left Viev Right Viev	v: 90.0 deg			m Trucks: vy Trucks:	53.734 53.750		
VehicleType REMEL	Traffic Flow	Distan	- Einite	Road F	Fresnel	Barrier Atten	Berm Atten
Autos: 70			0.59	-1.20	-4.72	0.000	
Medium Trucks: 81			0.57	-1.20	-4.88		
Heavy Trucks: 85	38 -18.7	0 -	0.57	-1.20	-5.26	0.000	0.000
Unmitigated Noise Levels (w	ithout Topo an	d barrier a	tenuation)				
VehicleType Leq Peak			, Evening	Leq Nig	ht	Ldn	CNEL
Autos:	70.9	69.0	67.2		61.2	69.8	70.4
Medium Trucks:	64.5	63.0	56.6		55.1	63.5	63.8
Heavy Trucks:	64.9	63.5	54.4		55.7	64.0	64.2
Vehicle Noise:	72.6	70.8	67.8		63.0	71.6	72.0
Centerline Distance to Noise	Contour (in fe	et)					
			70 dBA	65 dBA	4	60 dBA	55 dBA
		Ldn:	92	197		425	916
		CNFL:	98	212		457	984

FHWA-RD-77-10	08 HIGHWA	Y NOISE PI	REDICTION	MODEL			
Scenario: TPO 2019 With Project			Project Nam	e: AutoN	ation		
Road Name: East Coast Hwy.			Job Numbe	ər: 9831			
Road Segment: e/o Jamboree Rd.							
SITE SPECIFIC INPUT DATA	1				L INPUT	5	
Highway Data		Site Con	ditions (Har	d = 10, So	oft = 15)		
Average Daily Traffic (Adt): 22,200 vehic	les			Autos:	15		
Peak Hour Percentage: 10%		Me	dium Trucks	(2 Axles):	15		
Peak Hour Volume: 2,220 vehic	les	He	avy Trucks (3	3+ Axles):	15		
Vehicle Speed: 50 mph		Vehicle	Mix				
Near/Far Lane Distance: 72 feet			icleTvpe	Dav	Evening	Night	Dailv
Site Data			Autos	: 77.5%		9.6%	97.429
Barrier Height: 0.0 feet		M	edium Trucks	: 84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm): 0.0		1	Heavy Trucks	: 86.5%	2.7%	10.8%	0.749
Centerline Dist. to Barrier: 64.0 feet		Noise O	ource Elevat				
Centerline Dist. to Observer: 64.0 feet		Noise So			eet)		
Barrier Distance to Observer: 0.0 feet		A 4 - 11 -	Autos: m Trucks:	0.000 2.297			
Observer Height (Above Pad): 5.0 feet			n Trucks: vy Trucks:	2.297	Grade Ad	ustmont	0.0
Pad Elevation: 0.0 feet		near	y mucks.	8.006	Graue Auj	usuneni	0.0
Road Elevation: 0.0 feet		Lane Eq	uivalent Dis	tance (in	feet)		
Road Grade: 0.0%			Autos:	53.151			
Left View: -90.0 degr	ees			52.984			
Right View: 90.0 deg	rees	Heav	ry Trucks:	53.000			
FHWA Noise Model Calculations							
VehicleType REMEL Traffic Flow				resnel	Barrier Att		m Atten
Autos: 70.20 1.0	-	0.50	-1.20	-4.70	0.0		0.00
Medium Trucks: 81.00 -16.1		0.48	-1.20	-4.88	0.0		0.00
Heavy Trucks: 85.38 -20.1	4 -	0.48	-1.20	-5.31	0.0	000	0.00
Unmitigated Noise Levels (without Topo an							
VehicleType Leq Peak Hour Leq D		q Evening	Leq Nigh		Ldn		VEL
Autos: 69.6	67.7	65.9		59.8	68.5		69.
Medium Trucks: 63.1	61.6	55.3	-	53.7	62.2		62.
Heavy Trucks: 63.6	62.1	53.1		54.3	62.7		62.
Vehicle Noise: 71.3	69.5	66.5	6	61.7	70.2	2	70.
Centerline Distance to Noise Contour (in fe		70 /04	05 10 1	- I			10.4
		70 dBA 66	65 dBA 143	6	307		dBA
	Ldn:						62
	CNEL:	71	153		330		12

	IGHWA	TNOISE	REDICTIO				
Scenario: TPO 2019 With Project				ame: Autol	lation		
Road Name: East Coast Hwy.			Job Nun	nber: 9831			
Road Segment: w/o MacArthur Bl.							
SITE SPECIFIC INPUT DATA		011 0				5	
Highway Data		Site Co	nditions (H				
Average Daily Traffic (Adt): 15,700 vehicles				Autos			
Peak Hour Percentage: 10%			edium Truci	, ,			
Peak Hour Volume: 1,570 vehicles		н	eavy Trucks	(3+ Axles)	: 15		
Vehicle Speed: 50 mph		Vehicle	Mix				
Near/Far Lane Distance: 72 feet		Ve	hicleType	Day	Evening	Night	Daily
Site Data			Au	os: 77.5	% 12.9%	9.6%	97.429
Barrier Height: 0.0 feet		٨	ledium Truc	ks: 84.89	6 4.9%	10.3%	1.849
Barrier Type (0-Wall, 1-Berm): 0.0			Heavy Truc	ks: 86.5	% 2.7%	10.8%	0.749
Centerline Dist. to Barrier: 64.0 feet		Noise S	Source Elev	ations (in	feet)		
Centerline Dist. to Observer: 64.0 feet			Autos:	0.000			
Barrier Distance to Observer: 0.0 feet		Medi	im Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet			wy Trucks:	8.006	Grade Adj	ustment:	0.0
Pad Elevation: 0.0 feet							
Road Elevation: 0.0 feet		Lane E	quivalent D		feet)		
Road Grade: 0.0%			Autos:	53.151			
Left View: -90.0 degrees			um Trucks:	52.984			
Right View: 90.0 degrees		Hea	vy Trucks:	53.000			
FHWA Noise Model Calculations		1					
VehicleType REMEL Traffic Flow	Distanc		e Road	Fresnel	Barrier Atte		n Atter
Autos: 70.20 -0.45	-1	0.50	-1.20	-4.70		00	0.00
Medium Trucks: 81.00 -17.69		0.48	-1.20	-4.88		00	0.00
Heavy Trucks: 85.38 -21.64	-	0.48	-1.20	-5.31	0.0	00	0.00
Unmitigated Noise Levels (without Topo and ba		,					
VehicleType Leq Peak Hour Leq Day		q Evening	Leq Ni	,	Ldn	CN	
Autos: 68.1 66	6.2	64.4		58.3	67.0		67.
		53.	-	52.2	60.7		60.
Medium Trucks: 61.6 60		51.0	ő	52.8	61.2		61.
Medium Trucks: 61.6 60 Heavy Trucks: 62.1 60					68.7	,	69
Medium Trucks: 61.6 60 Heavy Trucks: 62.1 60).6 3.0	65.	0	60.2	00.7		00.
Medium Trucks: 61.6 60 Heavy Trucks: 62.1 60 Vehicle Noise: 69.8 68	3.0		-				
Medium Trucks: 61.6 60 Heavy Trucks: 62.1 60 Vehicle Noise: 69.8 68 Centerline Distance to Noise Contour (in feet) 61 61	3.0	70 dBA	65 dE	A	60 dBA	55 0	1BA
Medium Trucks: 61.6 60 Heavy Trucks: 62.1 60 Vehicle Noise: 69.8 68 Centerline Distance to Noise Contour (in feet) 61 61	3.0 In:		-	A			dBA 26

	FHWA	A-RD-77-108 HIG	HWAY I	NOISE PI	REDICTI		DEL			
Road Nam	o: TPO 2019 Wi e: East Coast H nt: e/o MacArthu	wy.			Project Job Ni	Name: A Imber: 9		ation		
SITE	SPECIFIC INP	UT DATA			N	OISE N	IODE	L INPUTS	5	
Highway Data				Site Cor	ditions ('Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 16	,200 vehicles				A	Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Tru	cks (2 A	xles):	15		
Peak H	our Volume: 1	,620 vehicles		He	avy Truc	ks (3+ A	xles):	15		
Vei	hicle Speed:	35 mph	-	Vehicle	Mise					
Near/Far Lai	ne Distance:	48 feet	-		icleType		Dav	Evening	Night	Dailv
Site Data				ven			Day 77.5%	•	9.6%	
				14	edium Tr		84.8%		10.3%	1.84%
	rier Height:	0.0 feet			Heavy Tr		86.5%		10.8%	0.74%
Barrier Type (0-W	. ,	0.0			icuvy m	ucho. 1	00.070	2.170	10.070	0.7470
Centerline Dis Centerline Dist		52.0 feet		Noise S	ource Ele	evations	s (in fe	et)		
Barrier Distance		52.0 feet 0.0 feet			Autos	: 0.0	000			
				Mediu	m Trucks	: 2.2	297			
Observer Height (Above Pad): ad Flevation:	5.0 feet 0.0 feet		Heav	/y Trucks	: 8.0	006	Grade Adj	ustment	0.0
	ad Elevation:	0.0 feet	ŀ	l ano Fo	uivalent	Distanc	o (in i	foot)		
	Road Grade:	0.0%	F	Lune Ly	Autos			001/		
1		-90.0 degrees		Modiu	m Trucks					
	Right View:	90.0 degrees			/v Trucks					
	•	Solo degrees		11001	<i>y 110010</i>					
FHWA Noise Mode										
VehicleType			istance		Road	Fresn		Barrier Atte		m Atten
Autos:	64.30	1.24	0.3		-1.20		-4.66	0.0		0.000
Medium Trucks:	75.75	-16.00	0.4		-1.20		-4.87	0.0		0.000
Heavy Trucks:	81.57	-19.96	0.4	1	-1.20		-5.41	0.0	00	0.000
Unmitigated Noise	e Levels (withou									
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq I	Vight		Ldn		VEL
Autos:	64.7	62.8		61.1		55.0		63.6		64.2
Medium Trucks:	59.0	57.4		51.1		49.5		58.0		58.2
Heavy Trucks:	60.8	59.4		50.4		51.6		60.0		60.1
Vehicle Noise:	67.0	65.2		61.8		57.4		65.9		66.4
Centerline Distance	ce to Noise Con	tour (in feet)								
				dBA	65 0		6	i0 dBA		dBA
		Ldn:	2	28	6	0		129	2	79
		CNEL:	3	30	6	4		138	2	98

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Wednesday, June 08, 2016

Road Name: Newport Bi. Job. Road Segment: n/o West Coast Hwy. Site Specific INPUT DATA Highway Data Site Condition. Average Daily Traffic (Adt): 10,700 vehicles Barler Height: 0.00 vehicles Peak Hour Volume: 1,070 vehicles Heavy Tr Vehicle Speed: 45 mph Vehicle Mix Vehicle Speed: 72 feet Vehicle Typ. Site Data Barrier Height: 0.0 feet	Autos: rucks (2 Axles): ucks (2 Axles): e Day Autos: 77.5% frucks: 84.8% frucks: 86.5% elevations (in fease: 0.000 cs: 2.297 cs: 8.006 td bistance (in filtistance) 1000	L INPUTS if = 15) 15 15 15 Evening 12.9% 4.9% 2.7% 2.7% set) Grade Adju	Night Daily 9.6% 97.42% 10.3% 1.84%
Road Segment: n/o West Coast Hwy. SITE SPECIFIC INPUT DATA Highway Data Site Condition Average Daily Traffic (Adt): 10,700 vehicles Medium T Peak Hour Percentage: 10% Medium T Peak Hour Volume: 1,070 vehicles Medium T Vehicle Speed: 45 mph Vehicle Mix Vehicle Speed: 45 mph Vehicle Mix Barrier Height: 0.0 feet Medium T Barrier Height: 0.0 feet Medium Tue Centerline Dist. to Barrier: 64.0 feet Moise Source: 4u Deserver Height (Above Pad): 5.0 feet Heavy Truc Pad Elevation: 0.0 feet Heavy Truc Road Grade: 0.0% Left View: -90.0 degrees Kight View: 90.0 degrees Medium Truc Heavy Truc Fileway Truc	NOISE MODE: (Hard = 10, Sc Autos: rucks (2 Axles): vicks (2 Axles): e Day Autos: 77.5% Trucks: 84.8% Trucks: 84.5% Elevations (in fe ss: 0.000 (s: 2.297 (s: 8.066 M Distance (in filteration) 1000	It It 15 15 15 15 15 15 12.9% 4.9% 2.7% 2.7% set) Grade Adjut	Night Daily 9.6% 97.429 10.3% 1.849 10.8% 0.749
SITE SPECIFIC INPUT DATA Highway Data Site Condition Average Daily Traffic (Adt): 10,700 vehicles Site Condition Peak Hour Parcentage: 10% Medium T Peak Hour Volume: 1,070 vehicles Heavy Tm Vehicle Speed: 45 mph Vehicle Mix Near/Far Lane Distance: 72 feet Vehicle Mix Barrier Height: 0.0 feet Medium T Barrier Type (0-Walt, 1-Berm): 0.0 Heavy Centerline Dist. to Doserver: 64.0 feet Moise Source 1 Deserver Height (Above Pad): 5.0 feet Medium True Pad Elevation: 0.0 feet Heavy True Pad Elevation: 0.0 feet Aut Road Grade: 0.0% Left View: -90.0 degrees Light View: 90.0 degrees Medium True FHWA Noise Model Calculations D	i (Hard = 10, So Autos: rucks (2 Axles): icks (3+ Axles): e Day Autos: 77.5% trucks: 84.8% trucks: 84.8% Elevations (in ference): 0.000 ts: 2.297 ts: 8.006 td Distance (in ference): 10.001	It It 15 15 15 15 15 15 12.9% 4.9% 2.7% 2.7% set) Grade Adjut	Night Daily 9.6% 97.429 10.3% 1.849 10.8% 0.749
Site Condition: Average Daily Traffic (Adt): 10,700 vehicles Site Condition: Peak Hour Percentage: 10% Medium T Peak Hour Volume: 1,070 vehicles Heavy Tri Vehicle Speed: 45 mph Vehicle Mix Near/Far Lane Distance: 72 feet Vehicle Mix Barrier Height: 0.0 feet Medium T Barrier Type (0-Wall, 1-Berm): 0.0 Moise Source I Centerline Dist. to Desrver: 64.0 feet Moise Source I Barrier Distance to Observer: 6.0 feet Medium Truc Pad Elevation: 0.0 feet Medium Truc Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees Medium Truc FHWA Noise Model Calculations D.0	i (Hard = 10, So Autos: rucks (2 Axles): icks (3+ Axles): e Day Autos: 77.5% trucks: 84.8% trucks: 84.8% Elevations (in ference): 0.000 ts: 2.297 ts: 8.006 td Distance (in ference): 10.001	It It 15 15 15 15 15 15 12.9% 4.9% 2.7% 2.7% set) Grade Adjut	Night Daily 9.6% 97.42% 10.3% 1.849 10.8% 0.74%
Average Daily Traffic (Adt): 10,700 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 1,070 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 72 feet Site Data Medium T Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist to Barrier: 64.0 feet Barrier Distance to Observer: 0.0 feet Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist to Barrier: 64.0 feet Barrier Distaree to Observer: 0.0 feet Pad Elevation: 0.0 feet Road Grade: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0 feet Right View: 90.0 degrees Medium Truc Heavy Truc FWWA Noise Model Calculations 0.1	Autos: rucks (2 Axles): ucks (2 Axles): e Day Autos: 77.5% frucks: 84.8% frucks: 86.5% elevations (in fease: 0.000 cs: 2.297 cs: 8.006 td bistance (in filtistance) 1000	15 15 15 12.9% 4.9% 2.7% Grade Adju	9.6% 97.42% 10.3% 1.84% 10.8% 0.74%
Peak Hour Percentage: 10% Medium T Peak Hour Volume: 1,070 vehicles Heavy Tr Vehicle Speed: 45 mph Vehicle Mix Near/Far Lane Distance: 72 feet Vehicle Mix Site Data Medium T Vehicle Mix Barrier Height: 0.0 feet Medium T Barrier Height: 0.0 feet Medium Tu Centerline Dist. to Observer: 64.0 feet Moise Source Observer Height (Above Pad): 5.0 feet Heavy Truc Pad Elevation: 0.0 feet Heavy Truc Road Grade: 0.0% Left View: 90.0 degrees Right View: 90.0 degrees Medium Truc FHWA Noise Model Calculations 90.0 degrees Medium Truc	rucks (2 Axles): ccks (3+ Axles): e Day Autos: 77.5% frucks: 84.8% clevations (in fe ss: 0.000 (s: 2.297 (s: 8.006 tt Distance (in fe	15 15 15 12.9% 4.9% 2.7% Grade Adju	9.6% 97.42% 10.3% 1.84% 10.8% 0.74%
Peak Hour Volume: 1,070 vehicles Heavy Tm Vehicle Speed: 45 mph Vehicle Mix Near/Far Lane Distance: 72 feet Vehicle Mix Barrier Height: 0.0 feet Medium Barrier Jype (0-Wall, 1-Berm): 0.0 Heavy Centerline Dist. to Doserver: 64.0 feet Medium Barrier Distance to Observer: 64.0 feet Medium Deserver Height (Above Pad): 5.0 feet Heavy Truc Pad Elevation: 0.0 feet Aut Road Grade: 0.0% Left View: Left View: 90.0 degrees Medium Truc FHWA Noise Model Calculations 90.0 degrees Heavy Truc	e Day Autos: 77.5% Frucks: 84.8% Frucks: 86.5% Elevations (in fe ss: 0.000 ks: 2.297 ks: 8.006 et Distance (in f	15 Evening 12.9% 4.9% 2.7% Grade Adju	9.6% 97.42% 10.3% 1.84% 10.8% 0.74%
Vehicle Speed: 45 mph Near/Far Lane Distance: 72 feet Vehicle Mix Vehicle Mix Vehicle Typ. Site Data Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 64.0 feet Centerline Dist. to Barrier: 64.0 feet Centerline Dist. to Barrier: 64.0 feet Barrier Distance to Observer: 0.0 feet Barrier Distance to Observer: 0.0 feet Barrier Dist. to Observer: 64.0 feet Barrier Dist. to Observer: 64.0 feet Barrier Dist. to Observer: 64.0 feet Barrier Dist. to Observer: 0.0 feet Read Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees FHWA Noise Model Calculations	e Day Autos: 77.5% Frucks: 84.8% Frucks: 86.5% Elevations (in fe os: 0.000 (s: 2.297 (s: 8.006 tt Distance (in f	Evening 12.9% 4.9% 2.7% wet) Grade Adju	9.6% 97.42% 10.3% 1.84% 10.8% 0.74%
Near/Far Lane Distance: 72 feet Vehicle With Site Data Wehicle Typ Wehicle Typ Barrier Height: 0.0 feet Medium Barrier Type (0-Wall, 1-Berm): 0.0 Medium Centerline Dist. to Barrier: 64.0 feet Noise Source I Centerline Dist. to Observer: 64.0 feet Medium Truc Observer Height (Above Pad): 5.0 feet Heavy Truc Road Elevation: 0.0 feet Heavy Truc Road Grade: 0.0% Aut Left View: -90.0 degrees Medium Truc Right View: 90.0 degrees Medium Truc FHWA Noise Model Calculations 0.0 feet Left View:	Autos: 77.5% Frucks: 84.8% Frucks: 86.5% Elevations (in fepse: 0.000 cs: 2.297 cs: 8.006 tt Distance (in fepse: 0.001	12.9% 4.9% 2.7% Grade Adju	9.6% 97.42% 10.3% 1.84% 10.8% 0.74%
Site Data Venicle i yr. Barrier Height: 0.0 feet Medium Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Centerline Dist. to Barrier: 64.0 feet Noise Source Centerline Dist. to Observer: 64.0 feet Aut Barrier Distance to Observer: 64.0 feet Medium True Observer Height (Above Pad): 5.0 feet Heavy True Pad Elevation: 0.0 feet Let View: 90.0 degrees Right View: 90.0 degrees Medium True Aut FHWA Noise Model Calculations D Descrease Heavy True	Autos: 77.5% Frucks: 84.8% Frucks: 86.5% Elevations (in fepse: 0.000 cs: 2.297 cs: 8.006 tt Distance (in fepse: 0.001	12.9% 4.9% 2.7% Grade Adju	9.6% 97.42% 10.3% 1.84% 10.8% 0.74%
Barrier Height: 0.0 feet Medium Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Centerline Dist. to Barrier: 64.0 feet Noise Source 1 Centerline Dist. to Observer: 64.0 feet Noise Source 1 Distrace to Observer: 64.0 feet Medium True Observer Height (Above Pad): 5.0 feet Medium True Pad Elevation: 0.0 feet Heavy True Road Grade: 0.0% Left View: 90.0 degrees Right View: 90.0 degrees Heavy True FHWA Noise Model Calculations D Dest	rucks: 84.8% rucks: 86.5% Elevations (in fe os: 0.000 (s: 2.297 (s: 8.006 tt Distance (in f	4.9% 2.7% eet) Grade Adju	10.3% 1.849 10.8% 0.749
Barrier Type (O-Wall, 1-Berm): 0.0 Heavy Centerline Dist. to Barrier: 64.0 feet Noise Source I Centerline Dist. to Observer: 64.0 feet Aut Barrier Distance to Observer: 0.0 feet Medium Truc Observer Height (Above Pad): 5.0 feet Heavy Truc Pad Elevation: 0.0 feet Lane Equivale Road Elevation: 0.0 feet Lane Equivale Road Carde: 0.0% Aut Left View: -90.0 degrees Medium Truc Right View: 90.0 degrees Heavy Truc	Trucks: 86.5% Elevations (in feases: 0.000 xs: 0.2297 xs: 8.006 tt Distance (in feases)	2.7% eet) Grade Adju	10.8% 0.74%
Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Centerline Dist. to Barrier: 64.0 feet Centerline Dist. to Dsarrer: 64.0 feet Barrier Dist. to Observer: 64.0 feet Dserver Height (Above Pad): 5.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Aut Left View: -90.0 degrees Right View: 90.0 degrees FHWA Noise Model Calculations	Elevations (in fease os: 0.000 xs: 2.297 xs: 8.006 bt Distance (in fease)	eet) Grade Adju	
Centerline Dist. to Observer: 64.0 feet Aut Barrier Distance to Observer: 0.0 feet Aut Observer Height (Above Pad): 5.0 feet Heavy Truc Pad Elevation: 0.0 feet Lane Equivale Road Grade: 0.0% Aut Left View: 90.0 degrees Medium Truc Right View: 90.0 degrees Heavy Truc	os: 0.000 (s: 2.297 (s: 8.006 (in f	Grade Adju	stment: 0.0
Barrier Distance to Observer: 0.0 feet Auti Medium Truc Observer Height (Above Pad): 5.0 feet Heavy Truc Pad Elevation: 0.0 feet Lane Equivalen Road Grade: 0.0% Auti Left View: -90.0 degrees Medium Truc FHWA Noise Model Calculations 5.0 feet Lane Equivalen	ks: 2.297 ks: 8.006 ht Distance (in f	,	stment: 0.0
Observer Height (Above Pad): 5.0 feet Medium Truc Heavy Truc Pad Elevation: 0.0 feet Heavy Truc Road Elevation: 0.0 feet Lane Equivale Road Grade: 0.0% Aut Left View: -90.0 degrees Medium Truc Right View: 90.0 degrees Heavy Truc FHWA Noise Model Calculations Function Function	ks: 8.006 At Distance (in f	,	stment: 0.0
Pad Elevation: 0.0 feet Heavy Truc Road Elevation: 0.0 feet Lane Equivale Road Grade: 0.0% Aut Left View: -90.0 degrees Heavy Truc FHWA Noise Model Calculations	nt Distance (in f	,	stment: 0.0
Road Elevation: 0.0 feet Lane Equivalet Road Grade: 0.0% Aut Left View: -90.0 degrees Medium Truc Right View: 90.0 degrees Heavy Truc		feet)	
Road Grade: 0.0% Aut Left View: -90.0 degrees Medium Truc Right View: 90.0 degrees Heavy Truc FHWA Noise Model Calculations		eel)	
Left View: -90.0 degrees Medium Truc Right View: 90.0 degrees Heavy Truc FHWA Noise Model Calculations			
Right View: 90.0 degrees Heavy Truc			
VehicleType REMEL Traffic Flow Distance Finite Road			
remeter for Distance Think Road	Fresnel	Barrier Attei	n Berm Atten
Autos: 68.46 -1.66 -0.50 -1.20	-4.70	0.00	0.00
Medium Trucks: 79.45 -18.90 -0.48 -1.20	-4.88	0.00	0.00
Heavy Trucks: 84.25 -22.85 -0.48 -1.20	-5.31	0.00	0.00
Unmitigated Noise Levels (without Topo and barrier attenuation)			
	Night	Ldn	CNEL
Autos: 65.1 63.2 61.4	55.4	64.0	64.
Medium Trucks: 58.9 57.4 51.0	49.5	57.9	58.
Heavy Trucks: 59.7 58.3 49.3	50.5	58.9	59.
Vehicle Noise: 66.9 65.2 62.0	57.4	65.9	66
Centerline Distance to Noise Contour (in feet) 70 dBA 63		0 dBA	55 dBA
Ldn: 34	dBA 6	159	342
CNEL: 37	dBA 6 74		

	FHWA	-RD-77-108	HIGH	IWAY N	OISE PF	REDICT		DDEL			
Scenario: Cu Road Name: Irvi Road Segment: n/o	ne Av.	019 Without	Proje	ct			t Name: Number:		ation		
SITE SPEC	IFIC INP	UT DATA				I	NOISE	MODE	L INPUT	s	
Highway Data				3	Site Con	ditions	(Hard	= 10, S	oft = 15)		
Average Daily Traffic	(Adt): 15,	400 vehicles	\$					Autos:	15		
Peak Hour Percer	ntage:	10%			Mee	dium Ti	rucks (2	Axles):	15		
Peak Hour Vo	lume: 1,	540 vehicles	5		Hea	avy Tru	icks (3+	Axles):	15		
Vehicle S	peed:	40 mph		1	/ehicle I	Nix					
Near/Far Lane Dist	tance:	48 feet		-		cleTyp	e	Day	Evening	Night	Daily
Site Data							Autos:	77.5%	•		97.42
Barrier H	oiaht:	0.0 feet			Me	dium T	rucks:	84.8%	4.9%	10.3%	
Barrier Type (0-Wall, 1-E		0.0 1001			F	leavy T	rucks:	86.5%	5 2.7%	10.8%	0.749
Centerline Dist. to B	,	52.0 feet									
Centerline Dist. to Obs		52.0 feet		/	Voise So				eet)		
Barrier Distance to Obs		0.0 feet				Auto		.000			
Observer Height (Above		5.0 feet			Mediur			.297			
Pad Elev	,	0.0 feet			Heav	y Trucl	KS.' 8	.006	Grade Ad	ustment	: 0.0
Road Elev		0.0 feet		1	ane Equ	uivaler	nt Dista	nce (in	feet)		
Road 0	Grade:	0.0%				Auto	os: 46	6.400			
Left	View:	-90.0 degree	s		Mediur	n Trucl	ks: 46	6.209			
Right	View:	90.0 degree	es		Heav	y Trucl	ks: 46	5.228			
FHWA Noise Model Cald											
		raffic Flow	Dis	tance	Finite		Fres		Barrier Att		m Atter
Autos:	66.51	0.44		0.38		-1.20		-4.66		000	0.00
Medium Trucks:	77.72	-16.80		0.41		-1.20		-4.87		000	0.00
Heavy Trucks:	82.99	-20.76		0.41		-1.20		-5.41	0.0	000	0.00
Unmitigated Noise Leve		t Topo and	barri		í ,						
	eak Hour	Leq Day		Leq E	· ·	Leq	Night		Ldn	-	NEL
Autos:	66.1		64.2		62.5		56		65.0		65
Medium Trucks:	60.1		58.6		52.3		50		59.2		59
Heavy Trucks:	61.4		60.0		51.0		52		60.6		60
Vehicle Noise:	68.1		66.4		63.1		58	.6	67.1		67
Centerline Distance to N	loise Con	tour (in feet))								
			L	70 c			dBA	(50 dBA		dBA
			Ldn:	33			72		155		34
		CI	IEL:	36	õ		77		166	3	58

	FHV	VA-RD-77-108	HIGHW	AY N	IOISE PR	REDICTIO	N MODE	L		
Road Nam	io: Cumulative e: Dover Dr. nt: n/o Westcli	2019 Without F ff Dr.	Project			Project Na Job Nun	ame: Au aber: 983			
	SPECIFIC IN	PUT DATA			0/4- 0				5	
Highway Data					Site Con	aitions (H		, Soft = 15)		
Average Daily	, ,	4,900 vehicles					Au			
	Percentage:	10%				dium Truci	,	,		
	lour Volume: hicle Speed:	490 vehicles			Hea	avy Trucks	(3+ AXI	<i>es):</i> 15		
		45 mph		1	Vehicle I	Nix				
Near/Far La	ne Distance:	12 feet			Vehi	cleType	Da	y Evening	Night	Daily
Site Data						Au	os: 77	.5% 12.9%	9.6%	97.429
Bai	rrier Height:	0.0 feet			Me	edium Truc	ks: 84	.8% 4.9%	10.3%	1.84%
Barrier Type (0-W	all, 1-Berm):	0.0			H	leavy Truc	ks: 86	.5% 2.7%	10.8%	0.74%
Centerline Dis	st. to Barrier:	28.0 feet			Noise So	ource Elev	ations (n feet)		
Centerline Dist.	to Observer:	28.0 feet		-	10.00 00	Autos:	0.000	,		
Barrier Distance	to Observer:	0.0 feet			Modiur	n Trucks:	2.297			
Observer Height (Above Pad):	5.0 feet				v Trucks:	8.006		ustment.	0.0
	ad Elevation:	0.0 feet				· · · ·				
	ad Elevation:	0.0 feet		1	Lane Equ	uivalent D		, ,		
1	Road Grade:	0.0%				Autos:	27.803	-		
	Left View:	-90.0 degree				n Trucks:	27.483			
	Right View:	90.0 degree	s		Heav	y Trucks:	27.514			
FHWA Noise Mod		-								
VehicleType	REMEL	Traffic Flow	Distar		Finite		Fresnel	Barrier Att		m Atten
Autos:	68.46	-5.05		3.72	-	-1.20	-4.			0.00
Medium Trucks:	79.45	-22.29		3.80	-	-1.20	-4.			0.00
Heavy Trucks:	84.25	-26.24		3.79	-	-1.20	-5.	83 0.0	00	0.00
Unmitigated Noise VehicleType	E Levels (with Leg Peak Hou				vening	Leg Ni	and a d	l dn	0	NFI
Autos:	Leg Peak Hot	1 1	i4.0	ey Ev	62.3	Leq M	56.2	64.8		VEL 65.
Medium Trucks:	59		4.0 8.2		51.9		50.2	58.6		59.
	60		9.2		50.1		51.4	59.7		59.
Heavy Trucks			6.0		62.9		58.2	66.8		67.
Heavy Trucks: Vehicle Noise:	67		0.0		02.0		00.2	00.0		07.
Vehicle Noise:	67	ntour (in feet)								
Vehicle Noise:		ontour (in feet)	-	70 c	dBA	65 dE	A	60 dBA	55	dBA
			.dn:	70 c		65 dE 37	A	60 dBA 79		dBA 70

	FH\	NA-RD-77-108 H	HIGHWAY	NOISE P	REDICTIC	N MODEL			
Road Nam	io: Cumulative ne: Dover Dr. nt: s/o Westcli	2019 Without P ff Dr.	roject			lame: Auto mber: 9831			
SITE	SPECIFIC IN	IPUT DATA			NC	DISE MOD	EL INPUT	S	
Highway Data				Site Col	nditions (H	lard = 10, 3	Soft = 15)		
Average Daily	Traffic (Adt):	12,600 vehicles				Auto	s: 15		
Peak Hour	Percentage:	10%		Me	edium Truc	ks (2 Axles): 15		
Peak H	lour Volume:	1,260 vehicles		He	eavy Truck	s (3+ Axles): 15		
Ve	hicle Speed:	45 mph		Vehicle	Mix				
Near/Far La	ne Distance:	48 feet			nicleType	Day	Evening	Night	Daily
Site Data						itos: 77.5	•	9.6%	
Ba	rrier Height:	0.0 feet		M	ledium Tru	cks: 84.8	% 4.9%	10.3%	1.84%
Barrier Type (0-W		0.0			Heavy Tru	cks: 86.5	% 2.7%	10.8%	0.74%
Centerline Di	. ,	52.0 feet		Noise S	ource Ele	vations (in	foot)		
Centerline Dist.	to Observer:	52.0 feet		10130 0	Autos:		1001)		
Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucks:				
Observer Height	(Above Pad):	5.0 feet			vy Trucks:		Grade Ad	liustment:	0.0
P	ad Elevation:	0.0 feet						,	
	ad Elevation:	0.0 feet		Lane Eq		Distance (ii	n feet)		
	Road Grade:	0.0%			Autos:	46.400			
	Left View:	-90.0 degrees			m Trucks:				
	Right View:	90.0 degrees	S	Hea	vy Trucks:	46.228			
FHWA Noise Mod	el Calculation	s		1					
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresnel	Barrier At	ten Berr	m Atten
Autos:	68.46	-0.95		.38	-1.20	-4.6		000	0.000
Medium Trucks:	79.45	-18.19).41	-1.20	-4.8		000	0.000
Heavy Trucks:	84.25	-22.14	C	0.41	-1.20	-5.4	1 0.0	000	0.000
Unmitigated Nois	e Levels (with								
VehicleType	Leq Peak Hou		,	Evening	Leq N	•	Ldn		VEL
Autos:	66		4.8	63.0		57.0	65.		66.2
Medium Trucks:	60		9.0	52.6		51.1	59.		59.8
Heavy Trucks:	61		9.9	50.9		52.1	60.	-	60.6
Vehicle Noise:	68	.5 6	6.8	63.6		59.0	67.	5	68.0
Centerline Distan	ce to Noise C	ontour (in feet)							
				'0 dBA	65 dl		60 dBA		dBA
			dn:	35	76		165	-	55
		CN	EL:	38	82		177	3	81

Wednesday, June 08, 2016

	FHW	A-RD-77-108 HIC	GHWAY I	NOISE PI	REDICTION	MOD	EL			
	e: Dover Dr.	2019 Without Proj	ject		Project Na Job Num			on		
SITE S	PECIFIC INF	PUT DATA			NO	SE M	ODEL	INPUTS	;	
Highway Data				Site Con	ditions (Ha	ard = 1	0, Soft	= 15)		
Average Daily T	raffic (Adt): 14	4,400 vehicles				A	utos:	15		
Peak Hour F	Percentage:	10%		Me	dium Truck	s (2 Ax	(les):	15		
Peak Ho	our Volume: 1	,440 vehicles		He	avy Trucks	(3+ Ax	(les):	15		
Veh	icle Speed:	45 mph	ŀ	Vehicle	Mix					
Near/Far Lan	e Distance:	48 feet	ŀ		icleType		av E	vening	Night	Daily
Site Data				1011	Auto		7.5%	12.9%	9.6%	
Par	rier Height:	0.0 feet		M	edium Truci	ks: 8	4.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa		0.0		ŀ	leavy Truc	ks: 8	6.5%	2.7%	10.8%	0.74%
Centerline Dis	. ,	52.0 feet	-	Noise Se	ource Eleva	ations	(in foo	<i>t</i>)		
Centerline Dist. to	o Observer:	52.0 feet	ŀ	10/30 00	Autos:	0.00		9		
Barrier Distance to	o Observer:	0.0 feet		Modiu	m Trucks:	2.29				
Observer Height (A	Above Pad):	5.0 feet			v Trucks:	8.00		rade Adju	istment	0.0
Pa	d Elevation:	0.0 feet								
Roa	d Elevation:	0.0 feet		Lane Eq	uivalent Di	stance	e (in fee	et)		
R	oad Grade:	0.0%			Autos:	46.40				
	Left View:	-90.0 degrees			m Trucks:	46.20				
	Right View:	90.0 degrees		Heav	y Trucks:	46.22	28			
FHWA Noise Mode	I Calculations									
VehicleType	REMEL	Traffic Flow E	Distance	Finite	Road	Fresne	I Ba	arrier Atte	en Ber	m Atten
Autos:	68.46	-0.37	0.3	8	-1.20	-4	4.66	0.0	00	0.00
Medium Trucks:	79.45	-17.61	0.4		-1.20		4.87	0.0		0.00
Heavy Trucks:	84.25	-21.56	0.4	1	-1.20	-5	5.41	0.0	00	0.00
Unmitigated Noise	Levels (witho	ut Topo and bar	rier attei	nuation)						
,,	Leq Peak Hour			vening	Leq Nig		L	.dn		NEL
Autos:	67.3			63.6		57.6		66.2		66.
Medium Trucks:	61.1		-	53.2		51.6		60.1		60.
Heavy Trucks:	61.9		-	51.4		52.7		61.0		61.
Vehicle Noise:	69.1	67.4	1	64.2		59.5		68.1		68.
Centerline Distance	e to Noise Cor	ntour (in feet)								
				dBA	65 dB/	۹		dBA		dBA
		Ldn		39	84			80		88
		CNEL	: 4	12	90		1	93	4	16

	IWA-RD-71	-108 HIG	HWAY	NOISE PF	EDICTI		DEL			
Scenario: Cumulativ		hout Proje	ect		Project			ation		
Road Name: Jamboree	Rd.				Job Ni	imber: 9	9831			
Road Segment: n/o East 0	Coast Hwy.									
SITE SPECIFIC I	NPUT DA	TA						L INPUT	S	
Highway Data				Site Con	ditions (Hard =	10, So	oft = 15)		
Average Daily Traffic (Adt):	19,400 ve	hicles				,	Autos:	15		
Peak Hour Percentage:	10%			Mee	dium Tru	cks (2 A	(xles):	15		
Peak Hour Volume:	1,940 ve	hicles		Hea	avy Truc	ks (3+ A	(xles):	15		
Vehicle Speed:	55 m	ph		Vehicle I	<i>lix</i>					
Near/Far Lane Distance:	72 fe	et			cleType		Dav	Evening	Night	Daily
Site Data					A	utos:	77.5%	12.9%	9.6%	97.42
Barrier Height:	0.0 f	eet		Me	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berm):	0.0			H	leavy Tr	ucks:	86.5%	2.7%	10.8%	0.74
Centerline Dist. to Barrier:	64.0 fe	eet			-					
Centerline Dist. to Observer:	64.0 fe			Noise So				eet)		
Barrier Distance to Observer:	0.0 fe				Autos		000			
Observer Height (Above Pad):	5.0 fe	eet			n Trucks		297	Crada Ad	i colmont	
Pad Elevation:	0.0 fe	eet		Heav	y Trucks	: 8.0	006	Grade Ad	usunen	0.0
Road Elevation:	0.0 fe	eet		Lane Equ	uivalent	Distand	ce (in i	feet)		
Road Grade:	0.0%				Autos	: 53.	151			
Left View:	-90.0 d	egrees		Mediur	n Trucks	: 52.9	984			
Right View:	90.0 d	legrees		Heav	y Trucks	: 53.0	000			
FHWA Noise Model Calculatio	ns									
VehicleType REMEL	Traffic F	low Di	istance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atter
Autos: 71.7	-	0.06	-0.5		-1.20		-4.70		000	0.00
Medium Trucks: 82.4		7.18	-0.4		-1.20		-4.88		000	0.00
Heavy Trucks: 86.4) -2	1.14	-0.4	18	-1.20		-5.31	0.0	000	0.00
Unmitigated Noise Levels (wit			-							
VehicleType Leq Peak Ho		q Day		vening	Leq I	·		Ldn	-	VEL
	0.1	68.2		66.5		60.4		69.0		69
	3.5	62.0		55.7		54.1		62.6		62
	3.6	62.2 70.0		53.1		54.4 62.1		62.7		62 71
				67.0		62.1		70.7	·	/1
Centerline Distance to Noise (Contour (in	feet)	70	dBA	65 0	ID A	6	0 dBA	55	dBA
		Ldn:		<i>ава</i> 71	15		6	330		ава 11
								330		

Wednesday, June 08, 2016

					REDICTIO	-				
	Without P	roject						ation		
					Job Nu	imber:	9831			
Coast Hy	vy.									
INPUT	DATA								S	
			51	te Con	aitions (Hara	-	,		
							/			
· · ·				He	avy Truc	ks (3+	Axles):	15		
			Ve	ehicle I	Mix					
72	feet			Veh	icleType		Day	Evening	Night	Daily
					Α	utos:	77.5%	12.9%	9.6%	97.42
0.0) feet			M	edium Tru	ucks:	84.8%	4.9%	10.3%	1.84
0.0)			ŀ	leavy Tru	icks:	86.5%	2.7%	10.8%	0.74
			No	oise So	ource Ele	vatio	ns (in f	eet)		
					Autos	: C	.000			
				Mediu	m Trucks	: 2	.297			
				Heav	v Trucks	: 8	.006	Grade Ad	ljustment	: 0.0
0.1			-						-	
0.1			Lá	ne Eq				feet)		
0.1										
00.										
90.0) degrees	6		Heav	ry Trucks	: 53	3.000			
			-	Finite		Fres				rm Atter
-										0.00
-										0.0
-					-1.20		-5.31	0.	000	0.00
					1000	light	1	l de		NFI
			Eve	· ·	Leq	· ·	4		-	IVEL 67
	-								-	60
	-								-	60
	-									69
		7.9		04.9		00	. 1	00.	0	09
Contour	(in reet)					04		0.404		10.4
		7	() dF	A I	65 0					
		dn:	70 dE 52	8A	65 a 11			60 dBA 241		dBA 519
	ar Bi, Coast Hw INPUT 1 12,100 10' 1,210 555 72 0.0. 64.0 0.0.	Jr Bl. Coast Hwy. Coast Hwy. INPUT DATA 10% 12,100 vehicles 10% 1,210 vehicles 55 mph 72 feet 0.0 feet 64.0 feet 0.0 feet 90.0 degrees 90.0 degrees 00 rds 1.99 00 19.23 10 10 19.23 10 19.23 10 19.23 10 19.23 10 19.23 10 19.23 10 19.3 10.40 19.3 10.5 <td>Coast Hwy. INPUT DATA INPUT DATA INPUT DATA INPUT DATA IDV chicles 10% 1,210 vehicles 55 mph 72 feet 0.0 feet 64.0 feet 64.0 feet 64.0 feet 64.0 feet 0.0 feet 0.0 feet 0.0 feet 0.0 feet 1.0.0 feet 1.0.0</td> <td>ar Bl. Coast Hwy. INPUT DATA S/ 12,100 vehicles 10% 1,210 vehicles 55 mph 72 feet 0.0 f</td> <td>ar BI. Coast Hwy. INPUT DATA Site Con 12,100 vehicles 10% Me 55 mph 72 feet Vehicles 0.0 feet Me 0.0 feet Moise St 64.0 feet Moise St 0.0 feet Heav 0.0 feet Heav 100% Heav</td> <td>Job Nu Coast Hwy. Job Nu INPUT DATA Site Conditions (10% Site Conditions (10% Site Conditions (10% Medium Tru 10% Medium Tru 12100 vehicles Medium Tru 1270 ret Vehicle Mix 72 feet Vehicle Mix 0.0 feet Noise Source Ete 64.0 feet Medium Trucks 0.0 feet Heavy Trucks 0.00 feet Heavy Trucks 0.00 feet Heavy Trucks 0.00 feet Lane Equivalent 100 1.23 -0.48 1.20 101 Leq Day Lag Evening Leg Val 102 L</td> <td>Job Number: Coast Hwy. INPUT DATA NOISE Site Conditions (Hard: 12,100 vehicles Medium Trucks (3+ 10% Medium Trucks (3+ 55 mph Vehicle Mix 72 feet Vehicle Mix 0.0 feet Medium Trucks: 0.0 feet Autos: 0.0 feet Heavy Trucks: 0.0 feet Autos: 0.0 feet Heavy Trucks: 0.0 feet Lane Equivalent Distat 0.0 - 19.23 -0.48 -1.20 100 -19.23 -0.48 -1.20 100 -19.23 -0.48 -</td> <td>Job Number: 9831 Coast Hwy. INPUT DATA NOISE MODE INPUT DATA Site Conditions (Hard = 10, S) 12,100 vehicles Autos: 10% Jean Y Trucks (2 Avles): 12,100 vehicles Heavy Trucks (2 Avles): 55 mph Vehicle Mix 72 feet Vehicle Mix 0.0 feet Autos: 64.0 feet Medium Trucks: 84.5% 0.0 feet Medium Trucks: 84.5% 0.0 feet Medium Trucks: 84.5% 0.0 feet Moise Source Elevations (in f 64.0 feet Medium Trucks: 82.984 0.0 feet Medium Trucks: 52.984 90.0 degrees Medium Trucks: 53.000 on 1.20 -4.70 90.19.23 -0.48 -1.20 -4.88 90.20 -1.20 -4.70 90.31 -1.20 -4.70 90.32 -0.48 -1.20 -5.31 10 -2.319 -0.48 -1.20 -4.88 10 -2.319 -0.48 -1.20 -5.31 10 -2.319 -0.48 -1.20 -5.31 10 -2.319 -0.</td> <td>Job Number: 9831 Coast Hwy. Job Number: 9831 INPUT DATA NOISE MODEL INPUT Site Conditions (Hard = 10, Soft = 15) 10% Autos: 15 10% Autos: 15 10% Medium Trucks (2 Axles): 15 1210 vehicles Autos: 77.5% 72 feet Vehicle Mix 72 feet Noise Source Elevations (in feet) 64.0 feet Noise Source Elevations (in feet) 64.0 feet Medium Trucks: 84.8% 4.9% 0.0 Elevations (in feet) 64.0 feet Moles Source Elevations (in feet) 64.0 feet Medium Trucks: 2.297 5.0 feet Medium Trucks: 2.297 9.0.0 feet Medium Trucks: 53.000 77 Distance Finite Road 78 -1.99 -0.50 -1.20 90.0 degrees Medium Trucks: 53.000 77 Distance Finite Road 78 -1.99 -0.50 -1.20 73 -4.88 0.0 74 Distance Finite Road 77 Distance Finite Road 78 -1.99 -0.50 -1.20 90.0 degrees Medium Trucks: 53.000 75 Distance Finite</td> <td>Job Number: 9831 Coast Hwy. INPUT DATA NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15) 12,100 vehicles Autos: 15 10% Medium Trucks (2 Axles): 15 55 Total Wehicle Mix 72 feet Vehicle Mix 0.0 feet Medium Trucks: (2 Axles): 15 Oay Evening Night 0.0 feet Medium Trucks: 86.5% 2.7% 10.8% 0.0 feet Medium Trucks: 84.8% 4.48% 4.9% 0.00 Medium Trucks: 84.8% 4.9% 0.00 Medium Trucks: 86.5% 2.7% 10.8% 0.0 feet Medium Trucks: 2.297 Medium Trucks: 2.297 Haevy Trucks: 53.000 Only feet Medium Trucks: 53.151 Only feet Distance Finite Road Fresnel Barrier Atten Ret 0.0 degrees Medium Trucks: 53.000 Only feet Lare Equivale</td>	Coast Hwy. INPUT DATA INPUT DATA INPUT DATA INPUT DATA IDV chicles 10% 1,210 vehicles 55 mph 72 feet 0.0 feet 64.0 feet 64.0 feet 64.0 feet 64.0 feet 0.0 feet 0.0 feet 0.0 feet 0.0 feet 1.0.0	ar Bl. Coast Hwy. INPUT DATA S/ 12,100 vehicles 10% 1,210 vehicles 55 mph 72 feet 0.0 f	ar BI. Coast Hwy. INPUT DATA Site Con 12,100 vehicles 10% Me 55 mph 72 feet Vehicles 0.0 feet Me 0.0 feet Moise St 64.0 feet Moise St 0.0 feet Heav 0.0 feet Heav 100% Heav	Job Nu Coast Hwy. Job Nu INPUT DATA Site Conditions (10% Site Conditions (10% Site Conditions (10% Medium Tru 10% Medium Tru 12100 vehicles Medium Tru 1270 ret Vehicle Mix 72 feet Vehicle Mix 0.0 feet Noise Source Ete 64.0 feet Medium Trucks 0.0 feet Heavy Trucks 0.00 feet Heavy Trucks 0.00 feet Heavy Trucks 0.00 feet Lane Equivalent 100 1.23 -0.48 1.20 101 Leq Day Lag Evening Leg Val 102 L	Job Number: Coast Hwy. INPUT DATA NOISE Site Conditions (Hard: 12,100 vehicles Medium Trucks (3+ 10% Medium Trucks (3+ 55 mph Vehicle Mix 72 feet Vehicle Mix 0.0 feet Medium Trucks: 0.0 feet Autos: 0.0 feet Heavy Trucks: 0.0 feet Autos: 0.0 feet Heavy Trucks: 0.0 feet Lane Equivalent Distat 0.0 - 19.23 -0.48 -1.20 100 -19.23 -0.48 -1.20 100 -19.23 -0.48 -	Job Number: 9831 Coast Hwy. INPUT DATA NOISE MODE INPUT DATA Site Conditions (Hard = 10, S) 12,100 vehicles Autos: 10% Jean Y Trucks (2 Avles): 12,100 vehicles Heavy Trucks (2 Avles): 55 mph Vehicle Mix 72 feet Vehicle Mix 0.0 feet Autos: 64.0 feet Medium Trucks: 84.5% 0.0 feet Medium Trucks: 84.5% 0.0 feet Medium Trucks: 84.5% 0.0 feet Moise Source Elevations (in f 64.0 feet Medium Trucks: 82.984 0.0 feet Medium Trucks: 52.984 90.0 degrees Medium Trucks: 53.000 on 1.20 -4.70 90.19.23 -0.48 -1.20 -4.88 90.20 -1.20 -4.70 90.31 -1.20 -4.70 90.32 -0.48 -1.20 -5.31 10 -2.319 -0.48 -1.20 -4.88 10 -2.319 -0.48 -1.20 -5.31 10 -2.319 -0.48 -1.20 -5.31 10 -2.319 -0.	Job Number: 9831 Coast Hwy. Job Number: 9831 INPUT DATA NOISE MODEL INPUT Site Conditions (Hard = 10, Soft = 15) 10% Autos: 15 10% Autos: 15 10% Medium Trucks (2 Axles): 15 1210 vehicles Autos: 77.5% 72 feet Vehicle Mix 72 feet Noise Source Elevations (in feet) 64.0 feet Noise Source Elevations (in feet) 64.0 feet Medium Trucks: 84.8% 4.9% 0.0 Elevations (in feet) 64.0 feet Moles Source Elevations (in feet) 64.0 feet Medium Trucks: 2.297 5.0 feet Medium Trucks: 2.297 9.0.0 feet Medium Trucks: 53.000 77 Distance Finite Road 78 -1.99 -0.50 -1.20 90.0 degrees Medium Trucks: 53.000 77 Distance Finite Road 78 -1.99 -0.50 -1.20 73 -4.88 0.0 74 Distance Finite Road 77 Distance Finite Road 78 -1.99 -0.50 -1.20 90.0 degrees Medium Trucks: 53.000 75 Distance Finite	Job Number: 9831 Coast Hwy. INPUT DATA NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15) 12,100 vehicles Autos: 15 10% Medium Trucks (2 Axles): 15 55 Total Wehicle Mix 72 feet Vehicle Mix 0.0 feet Medium Trucks: (2 Axles): 15 Oay Evening Night 0.0 feet Medium Trucks: 86.5% 2.7% 10.8% 0.0 feet Medium Trucks: 84.8% 4.48% 4.9% 0.00 Medium Trucks: 84.8% 4.9% 0.00 Medium Trucks: 86.5% 2.7% 10.8% 0.0 feet Medium Trucks: 2.297 Medium Trucks: 2.297 Haevy Trucks: 53.000 Only feet Medium Trucks: 53.151 Only feet Distance Finite Road Fresnel Barrier Atten Ret 0.0 degrees Medium Trucks: 53.000 Only feet Lare Equivale

	FHWA-	RD-77-108 HIG	HWAY I	NOISE PF	REDICTI	ON MOI	DEL			
Scenario: 0 Road Name: 1 Road Segment: v	7th St.	19 Without Proje	ect			Name: / umber: 9		ition		
SITE SPE	CIFIC INPU	T DATA			N	OISE N	IODEI		5	
Highway Data				Site Con	ditions	(Hard =	10, So	ft = 15)		
Average Daily Traf	fic (Adt): 11,8	00 vehicles					Autos:	15		
Peak Hour Per	centage:	10%		Me	dium Tru	icks (2 A	xles):	15		
Peak Hour	Volume: 1,1	80 vehicles		He	avy Truc	:ks (3+ A	xles):	15		
Vehicle	e Speed:	35 mph	-	Vehicle I	Mix					
Near/Far Lane D	Distance:	48 feet	ŀ		icleType		Day	Evening	Night	Daily
Site Data				veni			77.5%	12.9%	9.6%	
				M	ر edium Tr		84.8%	4.9%	10.3%	1.84%
		0.0 feet			leavy Tr		86.5%		10.8%	0.74%
Barrier Type (0-Wall,		0.0							10.070	0.7470
Centerline Dist. to Centerline Dist. to O		2.0 feet	_	Noise Sc	ource El	evations	s (in fe	et)		
Barrier Distance to C		0.0 feet			Autos	s: 0.0	000			
Observer Height (Abo		5.0 feet		Mediur	n Trucks	3: 2.2				
0 1	,	0.0 feet		Heav	y Trucks	s: 8.0	006	Grade Adj	ustment.	0.0
		0.0 feet	F	Lane Eq	uivalent	Distanc	e (in f	eet)		
		0.0%	F	Lano Lq	Autos			000		
		0.0 /8 10.0 dearees		Mediur	n Trucks					
-		0.0 degrees			y Trucks					
FHWA Noise Model C	alculations									
VehicleType F	REMEL Tra	affic Flow Di	istance	Finite	Road	Fresn	el I	Barrier Att	en Ber	m Atten
Autos:	64.30	-0.14	0.3	38	-1.20		-4.66	0.0	000	0.000
Medium Trucks:	75.75	-17.38	0.4	11	-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	81.57	-21.33	0.4	11	-1.20		-5.41	0.0	000	0.000
Unmitigated Noise Le	vels (without	Topo and barr	ier attei	nuation)						
	Peak Hour	Leq Day	Leq E	vening	Leq	Night		Ldn	-	VEL
Autos:	63.3	61.4		59.7		53.6		62.2		62.9
Medium Trucks:	57.6	56.1		49.7		48.2		56.6		56.9
Heavy Trucks:	59.4	58.0		49.0		50.2		58.6		58.7
Vehicle Noise:	65.6	63.9		60.4		56.0		64.6	6	65.0
Centerline Distance to	Noise Conto	our (in feet)			-	-		-		
				dBA	65 (0 dBA		dBA
		Ldn:		23	4	-		105		26
		CNEL:	2	24	5	2		112	2	41

Wednesday, June 08, 2016

	FHV	VA-RD-77-108	HIGHW	AY NO	DISE PR	EDICTIC	N MO	DEL			
	e: Westcliff D		Project	_		Project N Job Nui			ation		
SITE S	PECIFIC IN	IPUT DATA				NC	DISE N	IODE	L INPUTS	6	
Highway Data				S	ite Con	ditions (I	lard =	10, So	oft = 15)		
Average Daily T	raffic (Adt):	10,200 vehicles	5				,	Autos:	15		
Peak Hour F	Percentage:	10%			Med	dium Truc	:ks (2 A	xles):	15		
Peak Ho	our Volume:	1,020 vehicles	6		Hea	avy Truck	s (3+ A	(xles):	15		
Veh	icle Speed:	35 mph		V	ehicle I	Aiy.					
Near/Far Lan	e Distance:	48 feet		v		cleType		Dav	Evening	Niaht	Dailv
Site Data					10/1			77.5%	0	9.6%	
	rier Height:	0.0 feet			Me	dium Tru	cks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wa	•	0.0			H	leavy Tru	cks:	86.5%	2.7%	10.8%	0.749
Centerline Dis		52.0 feet			laise Sa	urce Ele	vation	s (in fi	oot)		
Centerline Dist. to	o Observer:	52.0 feet		~	0130 00	Autos:		000			
Barrier Distance te	o Observer:	0.0 feet			Modiur	n Trucks:		297			
Observer Height (A	Above Pad):	5.0 feet				v Trucks:		006	Grade Adj	istment	0.0
Pa	d Elevation:	0.0 feet				·					
	d Elevation:	0.0 feet		L	ane Equ	ivalent l			feet)		
R	oad Grade:	0.0%				Autos:					
	Left View:	-90.0 degree				n Trucks:					
	Right View:	90.0 degree	es		Heav	y Trucks:	46.	228			
FHWA Noise Mode	I Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista		Finite		Fresn		Barrier Atte		m Atter
Autos:	64.30	-0.77		0.38		-1.20		-4.66	0.0		0.00
Medium Trucks:	75.75	-18.01		0.41		-1.20		-4.87	0.0		0.00
Heavy Trucks:	81.57	-21.97		0.41		-1.20		-5.41	0.0	00	0.00
Unmitigated Noise											
	Leq Peak Hou	1 1		eq Ev	· ·	Leq N	·		Ldn		NEL
Autos:	62		60.8		59.0		53.0		61.6		62
Medium Trucks:	56		55.4		49.1		47.5		56.0		56
Heavy Trucks:	58		57.4		48.3		49.6		58.0		58
Vehicle Noise:	64		63.2		59.8		55.4		63.9		64
Centerline Distance	e to Noise Co	ontour (in feet))	70 di	ри Г	65 dl	DA	4	0 dBA	FC	dBA
			dn:	20		65 di 44			95		05
			Lan: IFI :	20		44			95 102	-	19
		Ch	VL_L	22		47			102	4	15

	FHW	A-RD-77-108 H	IIGHWA	Y NOISE P	REDICT	ION MO	DEL			
	West Coast H	,	roject			Name: lumber:		ation		
SITE SP	ECIFIC INP	UT DATA							s	
Highway Data				Site Co	nditions	(Hard =	10, S	oft = 15)		
Average Daily Tra	affic (Adt): 16	,900 vehicles					Autos:	15		
Peak Hour Pe	ercentage:	10%		Me	edium Tr	ucks (2 A	(xles)	15		
Peak Hou	r Volume: 1	,690 vehicles		He	eavy Tru	cks (3+ A	(xles)	15		
Vehic	le Speed:	45 mph		Vehicle	Mix					
Near/Far Lane	Distance:	72 feet			nicleType		Dav	Evening	Night	Daily
Site Data							77.5%	•		97.429
Barrie	er Height:	0.0 feet		N	ledium T	rucks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wall,	•	0.0			Heavy T	rucks:	86.5%	2.7%	10.8%	0.749
Centerline Dist.	,	64.0 feet		Noice C	ouroo E	levation	o (in f	0.04)		
Centerline Dist. to	Observer:	64.0 feet		NUISE 3	Auto		5 (111 1) 200	eel)		
Barrier Distance to	Observer:	0.0 feet		Modiu	m Truck		297			
Observer Height (Ab	ove Pad):	5.0 feet			vy Truck		206	Grade Ad	iustment	.00
Pad	Elevation:	0.0 feet							lounom	0.0
Road	Elevation:	0.0 feet		Lane Ec	luivalen	t Distan		feet)		
	ad Grade:	0.0%			Auto					
		-90.0 degrees			m Truck					
R	ight View:	90.0 degrees	5	Hea	vy Truck	s: 53.	000			
FHWA Noise Model	Calculations			1						
VehicleType	REMEL	Traffic Flow	Distan	ce Finite	Road	Fresn	iel	Barrier Att	en Ber	m Atter
Autos:	68.46	0.33		0.50	-1.20		-4.70		000	0.00
Medium Trucks:	79.45	-16.91		0.48	-1.20		-4.88		000	0.00
Heavy Trucks:	84.25	-20.87	-	0.48	-1.20		-5.31	0.0	000	0.00
Unmitigated Noise L				,						
<i>,</i> ,	eq Peak Hour	Leq Day		q Evening		Night		Ldn		NEL
Autos:	67.1		5.2	63.4		57.4		66.0		66
Medium Trucks:	60.9 61.7		9.3 0.3	53.0 51.2		51.4 52.5		59.9 60.9		60 61
Heavy Trucks: Vehicle Noise:	68.9	-	7.2	64.0		52.5		67.9		68
		-	1.2	04.0		59.4	•	07.3	9	00.
Centerline Distance	to Noise Con	tour (in feet)		70 dBA	65	dBA		60 dBA	55	dBA
		1	dn:	70 ава 46		00		215		64
		L	un i.	+0		00		210	4	

		VA-RD-77-108		ATN	DISE PI			-			
		2019 Without	Project					AutoN	ation		
Road Name Road Segmen	e: West Coas					Job N	lumber.	9831			
•										_	
SITE S Highway Data	SPECIFIC IN	PUT DATA		s	ite Con				L INPUT oft = 15)	5	
Average Daily 1	Fraffic (Adt):	9 200 vehicle	\$					Autos:	,		
Peak Hour F	, ,	10%			Me	dium Tr	ucks (2				
		2,920 vehicle	s		He	avy Tru	cks (3+	Axles):	15		
Veh	nicle Speed:	40 mph		L.	ehicle	Miy					
Near/Far Lan	e Distance:	72 feet				icleType	9	Dav	Evening	Night	Dailv
Site Data							Autos:	77.5%	v		97.42
Rari	rier Heiaht:	0.0 feet			M	edium T	rucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wa		0.0			F	Heavy T	rucks:	86.5%	2.7%	10.8%	0.74
Centerline Dis	t. to Barrier:	64.0 feet		٨	loise So	ource E	levatio	ns (in f	eet)		
Centerline Dist. t	o Observer:	64.0 feet		-		Auto		.000			
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Truck		.297			
Observer Height (A	Above Pad):	5.0 feet				/v Truck		.006	Grade Ad	liustmen	t: 0.0
	d Elevation:	0.0 feet								,	
Roa	d Elevation:	0.0 feet		L	ane Eq	uivalen			feet)		
R	load Grade:	0.0%				Auto		3.151			
	Left View:	-90.0 degre				m Truck		2.984			
	Right View:	90.0 degre	es		Heav	/y Truck	is: 53	3.000			
FHWA Noise Mode	l Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista			Road	Fres		Barrier At		rm Atte
Autos:	66.51	3.21		-0.50		-1.20		-4.70		000	0.0
Medium Trucks:	77.72	-14.02		-0.48		-1.20		-4.88		000	0.0
Heavy Trucks:	82.99	-17.98		-0.48		-1.20		-5.31	0.	000	0.0
Unmitigated Noise											
	Leq Peak Hou			eq Ev		Leq	Night		Ldn		NEL
Autos:	68 62		66.1 60.5		64.4 54.1		58 52		66. 61.		67
Medium Trucks:			61.9		54.1 52.9		52 54		62		61
Heavy Trucks:	63 70	-	61.9 68.3		52.9 65.0		54 60		62. 69.		62
	70				05.0		60	.J	69.	U	65
Vehicle Noise:)								
Venicle Noise: Centerline Distanc	e to Noise Co	ontour (in feet	, 	70 d	RA	65	dBA	1	SO dBA	55	dBA
	e to Noise Co		, I dn:	70 d			dBA 19	(60 dBA 255		6 dBA

FHW	A-RD-77-108 HIG	HWAY	NOISE P	REDICTIO		DEL			
Scenario: Cumulative 2 Road Name: West Coast I Road Segment: e/o Tustin Av	Hwy.	ect		Project I Job Nu	Vame: A mber: 9		ition		
SITE SPECIFIC INF	UT DATA			N	DISE M	IODE	L INPUT	S	
Highway Data			Site Cor	nditions (Hard =	10, So	ft = 15)		
Average Daily Traffic (Adt): 29 Peak Hour Percentage:	0,800 vehicles 10%		Ме	edium True		Autos: xles):	15 15		
Peak Hour Volume: 2	980 vehicles		He	avy Truck	ks (3+ A	xles):	15		
Vehicle Speed:	40 mph	-	Vehicle	Mix					
Near/Far Lane Distance:	72 feet	-		nicleType		Day	Evening	Night	Daily
Site Data			ver			77.5%	12.9%	9.6%	
Develop Helpha	0.0 feet		М	edium Tri		84.8%	4.9%	10.3%	
Barrier Height: Barrier Type (0-Wall, 1-Berm):	0.0 feet			Heavy Tru	icks: 8	36.5%	2.7%	10.8%	
Centerline Dist. to Barrier:	64.0 feet	-				1	- 41		
Centerline Dist, to Observer:	64.0 feet	-	Noise S	ource Ele			et)		
Barrier Distance to Observer:	0.0 feet			Autos:					
Observer Height (Above Pad):	5.0 feet			m Trucks			0		
Pad Elevation:	0.0 feet		Hea	vy Trucks.	: 8.0	06	Grade Ad	ustment	0.0
Road Elevation:	0.0 feet	ľ	Lane Eq	uivalent	Distanc	e (in f	eet)		
Road Grade:	0.0%	Ī		Autos:	53.1	51			
Left View:	-90.0 degrees		Mediu	m Trucks:	52.9	984			
Right View:	90.0 degrees		Hea	vy Trucks:	53.0	000			
FHWA Noise Model Calculations									
VehicleType REMEL	Traffic Flow Di	istance	Finite	Road	Fresne	-	Barrier Att	en Ber	m Atten
Autos: 66.51	3.30	-0.5	50	-1.20	-	4.70	0.0	000	0.000
Medium Trucks: 77.72	-13.94	-0.4	18	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks: 82.99	-17.89	-0.4	18	-1.20	-	5.31	0.0	000	0.000
Unmitigated Noise Levels (witho	ut Topo and barr	ier attei	nuation)						
VehicleType Leq Peak Hour	Leq Day	Leq E	vening	Leq N	light		Ldn		NEL
Autos: 68.1			64.4		58.4		67.0		67.6
Medium Trucks: 62.1			54.2		52.7		61.1		61.4
Heavy Trucks: 63.4	62.0		53.0		54.2		62.6	6	62.7
Vehicle Noise: 70.1	68.4		65.1		60.6		69.1		69.5
Centerline Distance to Noise Cor	ntour (in feet)								
		70	dBA	65 d	BA	6	0 dBA	55	dBA
	Ldn:	Ę	56	12	0		259	5	58
	CNEL:	6	60	12	9		277	5	97

Wednesday, June 08, 2016

Wednesday, June 08, 2016

	FH\	WA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTIO		DEL			
	: West Coas		Project			Project I Job Nu	Vame: 1 mber: 1		ation		
SITE S	PECIFIC IN	IPUT DATA							L INPUTS	5	
Highway Data				S	ite Con	ditions (Hard =	10, So	oft = 15)		
	Percentage: ur Volume:	10% 3,710 vehicle				dium Tru avy Truci	cks (2 A	/	15		
	icle Speed:	40 mph		V	ehicle I	Mix					
Near/Far Lan	e Distance:	96 feet			Vehi	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	77.5%	12.9%	9.6%	97.42%
Barr	ier Heiaht:	0.0 feet			Me	edium Tru	icks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa		0.0			F	leavy Tru	icks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist		72.0 feet		N	oise So	ource Ele	vation	s (in f	eet)		
Centerline Dist. to	o Observer:	72.0 feet				Autos		000			
Barrier Distance to	o Observer:	0.0 feet			Mediur	n Trucks	2.5	297			
Observer Height (A	,	5.0 feet			Heav	y Trucks	8.0	006	Grade Adj	ustmen	t: 0.0
	d Elevation:	0.0 feet					Distant	//	6		
	d Elevation:	0.0 feet		L	ane Eq	uivalent			teet)		
R	oad Grade:	0.0%				Autos.					
	Left View: Right View:	-90.0 degre 90.0 degre				n Trucks. y Trucks.					
FHWA Noise Model	Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	66.51	4.25		-0.59		-1.20		-4.72	0.0	00	0.00
Medium Trucks:	77.72	-12.98		-0.57		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	82.99	-16.94		-0.57		-1.20		-5.26	0.0	00	0.00
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType L	eq Peak Hou	ur Leq Day	/ L	eq Eve	ening	Leq N	light		Ldn	C	NEL
Autos:	69		67.1		65.3		59.3		67.9		68.5
Medium Trucks:	63		61.5		55.1		53.5		62.0		62.2
Heavy Trucks:	64	-	62.9		53.8		55.1		63.4		63.0
Vehicle Noise:	71	.0	69.3		66.0		61.4		70.0)	70.4
Centerline Distance	e to Noise Co	ontour (in feet)	70 dł		65 d	DA		60 dBA		dBA
			L day	70 di 72							
			Ldn: NFL:	72		15 16			332 356		716 767
		CI	VĽL.	11		16	0		330		107

FHWA-RD-77-108 HIG	HWAY	NOISE PR	EDICTIO	N MODE	il.		
Scenario: Cumulative 2019 Without Proj Road Name: West Coast Hwy. Road Segment: e/o Bayside Dr.	ect		Project Na Job Nun				
SITE SPECIFIC INPUT DATA			NO	ISE MC	DEL INPU	тѕ	
Highway Data		Site Con	ditions (H	lard = 10), Soft = 15)		
Average Daily Traffic (Adt): 32,600 vehicles				Au	tos: 15		
Peak Hour Percentage: 10%		Med	dium Truci	ks (2 Axl	es): 15		
Peak Hour Volume: 3,260 vehicles		Hea	avy Trucks	3 (3+ Axl	es): 15		
Vehicle Speed: 50 mph		Vehicle N	Also	-			
Near/Far Lane Distance: 96 feet			nix cleTvpe	Di	ay Evenin	Night	Dailv
Site Data		veni			2.5% 12.9%		
		Me	dium Truc		.8% 4.9%		
Barrier Height: 0.0 feet			leavy Truc		.5% 4.57		
Barrier Type (0-Wall, 1-Berm): 0.0			leavy IIu	<i>xs.</i> ot	0.0% 2.7%	0 10.07	0.747
Centerline Dist. to Barrier: 72.0 feet	[Noise So	urce Elev	ations (in feet)		
Centerline Dist. to Observer: 72.0 feet	[Autos:	0.00	D		
Barrier Distance to Observer: 0.0 feet		Mediun	n Trucks:	2.29	7		
Observer Height (Above Pad): 5.0 feet		Heav	y Trucks:	8.00	6 Grade A	djustmen	t: 0.0
Pad Elevation: 0.0 feet		Lano Equ	uivalent D	listanco	(in foot)		
Road Elevation: 0.0 feet Road Grade: 0.0%		Lane Ly	Autos:	53.89	, ,		
Left View: -90.0 degrees		Modium	n Trucks:	53.69	-		
Right View: 90.0 degrees			y Trucks:	53.75			
FHWA Noise Model Calculations							
	listance	Finite		Fresnel		tten Be	rm Atten
Autos: 70.20 2.72	-0.5		-1.20			0.000	0.00
Medium Trucks: 81.00 -14.51	-0.5		-1.20			0.000	0.00
Heavy Trucks: 85.38 -18.47	-0.5	57	-1.20	-5	.26	0.000	0.00
Unmitigated Noise Levels (without Topo and bar		<u> </u>					
VehicleType Leq Peak Hour Leq Day		vening	Leq Ni		Ldn	-	NEL
Autos: 71.1 69.2		67.5		61.4		0.0	70.
Medium Trucks: 64.7 63.2		56.8		55.3		3.8	64.
Heavy Trucks: 65.1 63.7		54.7		55.9		1.3	64.
Vehicle Noise: 72.8 71.1		68.0		63.3	7	.8	72.
Centerline Distance to Noise Contour (in feet)	70	10.4	05 -15		00 - ID A		- 104
Ldn:		dBA 95	65 dE 205		60 dBA 441		5 dBA 949
Lan: CNEL:		95 02	205		441 473		949 .020
CIVEL:	. 1	02	220		4/3	1	,020

F	HWA	A-RD-77-108 I	HIGI	WAY N	NOISE PR	EDICTI	ON MO	DDEL				
<i>Scenario:</i> Cumulat <i>Road Name:</i> East Co <i>Road Segment:</i> e/o Jami	ast H	wy.	Proje	ct		Project Job N	Name: umber:		lation			
SITE SPECIFIC	INP	UT DATA			Site Con					TS		
Highway Data					Site Con	antions	(Hara :		,			
Average Daily Traffic (Adt)								Autos				
Peak Hour Percentage		10%				dium Tru						
Peak Hour Volume		,450 vehicles			Hea	avy Truc	:KS (3+	Axles)	: 15			
Vehicle Speed		50 mph			Vehicle I	<i>lix</i>						
Near/Far Lane Distance	e -	72 feet			Vehi	cleType		Day	Evening	y Nie	ght	Daily
Site Data						A	lutos:	77.5%	6 12.9%	6 9	9.6%	97.429
Barrier Height		0.0 feet			Me	dium Tr	ucks:	84.8%	6 4.9%	6 10).3%	1.849
Barrier Type (0-Wall, 1-Berm)		0.0			H	leavy Tr	ucks:	86.5%	6 2.7%	6 10).8%	0.749
Centerline Dist. to Barrier		64.0 feet		F	Noise So	urco El	ovatio	ns (in i	(oot)			
Centerline Dist. to Observer		64.0 feet		F	10/30 00	Autos		.000	001/			
Barrier Distance to Observer	-	0.0 feet			Modiur	n Trucks		.297				
Observer Height (Above Pad)	:	5.0 feet				v Trucks		.006	Grade A	diust	nont	0.0
Pad Elevation	e:	0.0 feet			neav	y mucks	s. 0	.000	enddo /	ajuou	non.	0.0
Road Elevation	e:	0.0 feet			Lane Equ	ivalent	Distar	nce (in	feet)			
Road Grade	e -	0.0%				Autos	s: 53	.151				
Left View	c	-90.0 degree	s		Mediur	n Trucks	s: 52	.984				
Right View	c	90.0 degree	s		Heav	y Trucks	s: 53	.000				
FHWA Noise Model Calculati	ons											
VehicleType REMEL	1	raffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier A	tten	Berr	n Atten
Autos: 70.	20	1.48		-0.5	0	-1.20		-4.70	C	0.000		0.00
Medium Trucks: 81.	00	-15.76		-0.4	8	-1.20		-4.88	C	0.000		0.00
Heavy Trucks: 85.	38	-19.71		-0.4	8	-1.20		-5.31	C	0.000		0.00
Unmitigated Noise Levels (w	ithou	It Topo and b	oarri	er atter	nuation)							
VehicleType Leq Peak H	lour	Leq Day		Leq E	vening	Leq	Night		Ldn		C٨	IEL
Autos:	70.0	-	8.1		66.3		60.		68			69
Medium Trucks:	63.6	-	2.1		55.7		54	-		2.6		62
Heavy Trucks:	64.0	6	2.6		53.5		54	.8	63	3.1		63
Vehicle Noise:	71.7	6	9.9		66.9		62	.1	70).7		71
Centerline Distance to Noise	Con	tour (in feet)										
					dBA		dBA		60 dBA			dBA
		1	.dn:	7	'1	15	52		328		70	07

	FHW	A-RD-77-108 H	IGHWAY	Y NOISE F	PREDICT	ION MODE	iL.		
Road Nam	io: Cumulative 2 ne: East Coast H nt: w/o MacArth	łwy.	oject			Name: Au umber: 98			
SITE	SPECIFIC INF	PUT DATA					DEL INPUT	S	
Highway Data				Site Co	nditions	(Hard = 10), Soft = 15)		
Peak Hour	Traffic (Adt): 19 Percentage: lour Volume: 1	0,200 vehicles 10% I,920 vehicles				Au ucks (2 Axl ucks (3+ Axl	,		
Ve	hicle Speed:	50 mph		Vehicle	Mix				
Near/Far La	ne Distance:	72 feet		Ve	hicleType	Da	evening	Night	Daily
Site Data					A	Autos: 77	.5% 12.9%	9.6%	97.42%
Ba	rrier Heiaht:	0.0 feet		٨	/ledium Tr	ucks: 84	.8% 4.9%	10.3%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			Heavy Ti	ucks: 86	.5% 2.7%	10.8%	0.74%
Centerline Di		64.0 feet		Noise S	Source El	evations (in feet)		
Centerline Dist.		64.0 feet			Autos	s: 0.00)		
Barrier Distance		0.0 feet		Media	um Trucks	s: 2.29	7		
Observer Height (· · · ·	5.0 feet		Hea	vy Trucks	s: 8.00	Grade Ad	justment	: 0.0
	ad Elevation:	0.0 feet		1		Distance	(Inc. 6 1)		
	ad Elevation:	0.0 feet		Lane E		Distance	. ,		
	Road Grade:	0.0%			Autos				
	Left View:	-90.0 degrees			um Truck				
	Right View:	90.0 degrees		Hea	vy Truck	s: 53.00	D		
FHWA Noise Mod	el Calculations								
VehicleType		Traffic Flow	Distance		e Road	Fresnel	Barrier At		rm Atten
Autos:	70.20	0.42		.50	-1.20			000	0.000
Medium Trucks:	81.00	-16.81	-C	.48	-1.20	-4	.88 0.0	000	0.000
Heavy Trucks:	85.38	-20.77	-C	.48	-1.20	-5	.31 0.0	000	0.000
Unmitigated Noise				,					
VehicleType	Leq Peak Hour			Evening		Night	Ldn		NEL
Autos:	68.9			65.3		59.2	67.		68.4
Medium Trucks:	62.5		.0	54.6	-	53.1	61.	-	61.8
Heavy Trucks:	62.9	61	.5	52.5	5	53.7	62.	1	62.2
Vehicle Noise:	70.6	68	1.9	65.8	8	61.0	69.	6	70.1
Centerline Distant	ce to Noise Cor	ntour (in feet)				-			
				0 dBA		dBA	60 dBA	55	dBA
			in:	60		30	279		601
		CNE	L:	65	1:	39	300	6	646

Wednesday, June 08, 2016

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	FHV	VA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTIO	N MOI	DEL			
	 cumulative East Coast 	2019 Without	Project			Project N			ation		
Road Segmen						000 110					
SITES	SPECIFIC IN	IPUT DATA				NO	ISE N	IODE		s	
Highway Data				S	ite Con	ditions (H				-	
Average Daily	Traffic (Adt):	19,400 vehicles	3				1	Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	our Volume:	1,940 vehicles	6		He	avy Truck	s (3+ A	xles):	15		
Vel	nicle Speed:	35 mph		V	ehicle I	Niv					
Near/Far Lar	ne Distance:	48 feet				cleType		Dav	Evening	Night	Daily
Site Data					1011	1		77.5%	0	9.6%	
Par	rier Height:	0.0 feet			Me	dium Tru	cks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-W		0.0			ŀ	leavy Tru	cks:	86.5%	2.7%	10.8%	0.74
Centerline Dis	t. to Barrier:	52.0 feet		N	oise So	ource Elev	vations	s (in fe	et)		
Centerline Dist. t		52.0 feet				Autos:	0.0				
Barrier Distance t		0.0 feet			Mediur	n Trucks:	2.2	97			
Observer Height ()	,	5.0 feet			Heav	y Trucks:	8.0	006	Grade Ad	justmen	t: 0.0
	d Elevation:	0.0 feet					N- 4				
	d Elevation:	0.0 feet		L	ane Equ	Autos:			eet)		
F	Road Grade: Left View:	0.0% -90.0 degree	-		Madiu	n Trucks:	46.4 46.2				
	Right View:	90.0 degree				y Trucks:	46.2				
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	псе	Finite	Road	Fresn	el	Barrier Att	en Be	rm Atter
Autos:	64.30	2.02		0.38		-1.20		4.66	0.0	000	0.00
Medium Trucks:	75.75	-15.22		0.41		-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	81.57	-19.18		0.41		-1.20		-5.41	0.0	000	0.00
Unmitigated Noise					<u> </u>					-	
	Leq Peak Hou			eq Ev	~	Leq Ni	·		Ldn		NEL
Autos:	65		63.6		61.8		55.8		64.4	-	65.
Medium Trucks:	59		58.2		51.9		50.3		58.8	-	59
Heavy Trucks:	61		50.2		51.1		52.4		60.7		60.
Vehicle Noise:	67		6.0		62.6		58.2		66.7	(67.
Centerline Distanc	e to Noise Co	ontour (in feet,		70 di	BA	65 dF	BA	6	0 dBA	54	i dBA
			l dn:	31		68			146		314
			IEL:	34		72			156		336
				• •							

	FHW	A-RD-77-108 H	GHWA	Y NOISE P	REDICTIO	N MOE	DEL			
		2019 With Proje	st		Project N			ation		
	e: Newport BI.				Job Nun	nber: 9	831			
Road Segme	nt: n/o West Co	ast Hwy.								
	SPECIFIC IN	PUT DATA						L INPUT	S	
Highway Data				Site Cor	nditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt): 1	0,800 vehicles				A	utos:	15		
Peak Hour	Percentage:	10%		Me	dium Truci	ks (2 A	xles):	15		
Peak H	lour Volume:	1,080 vehicles		He	avy Trucks	s (3+ A	xles):	15		
	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ne Distance:	72 feet			icleType	1	Day	Evening	Night	Daily
Site Data					Au	tos: T	77.5%	12.9%	9.6%	97.42
Ba	rrier Height:	0.0 feet		М	edium Truc	cks: 8	34.8%	4.9%	10.3%	1.849
Barrier Type (0-W	•	0.0			Heavy Truc	cks: 8	36.5%	2.7%	10.8%	0.749
Centerline Di	. ,	64.0 feet		Noice C	ource Elev	otions	lin fi	0.041		
Centerline Dist.	to Observer:	64.0 feet		NOISE 3	Autos:	0.0		eel)		
Barrier Distance	to Observer:	0.0 feet		Madiu	m Trucks:	2.2				
Observer Height (Above Pad):	5.0 feet			/y Trucks:	8.0		Grade Ad	iustmont	0.0
Pa	ad Elevation:	0.0 feet		Tieat	ly muchs.	0.0	00	Orade Au	usunon	0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent D	listanc	e (in	feet)		
	Road Grade:	0.0%			Autos:	53.1				
	Left View:	-90.0 degrees			m Trucks:	52.9				
	Right View:	90.0 degrees		Heav	/y Trucks:	53.0	00			
FHWA Noise Mod	el Calculations	;		1						
VehicleType		Traffic Flow	Distance		Road	Fresne		Barrier Att		m Atter
Autos:	68.46	-1.62	-	0.50	-1.20		4.70		000	0.00
Medium Trucks:	79.45	-18.86).48	-1.20		4.88		000	0.00
Heavy Trucks:	84.25	-22.81	-0).48	-1.20	-	5.31	0.0	000	0.00
Unmitigated Nois										
VehicleType	Leq Peak Hour			Evening	Leq Ni			Ldn		VEL
Autos:	65.1			61.5		55.4		64.0		64
Medium Trucks:	58.9			51.0		49.5		58.0		58
Heavy Trucks: Vehicle Noise:	59.8		-	49.3		50.6		58.9		59
	67.0		2	62.1		57.4		66.0)	66
Centerline Distant	ce to Noise Co	ntour (in feet)		0 dBA	65 dE		4	60 dBA	FF	dBA
		Ld		34	05 UE 74	271	C	160		ив <i>а</i> 44
			<i>i</i> .		/4			100	-	

	FHV	VA-RD-77-108	HIGH	WAY	NOISE PH	REDICTIO	NMO	DEL			
	o: Cumulative e: Irvine Av. nt: n/o 19th St.		oject			Project N Job Nur			ation		
	SPECIFIC IN	PUT DATA							L INPUT	s	
Highway Data					Site Con	ditions (H	lard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 1	5,500 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%				dium Truc		/	15		
Peak H	our Volume:	1,550 vehicle	s		He	avy Truck	s (3+ /	Axles):	15		
Vei	hicle Speed:	40 mph		F	Vehicle I	Nix					
Near/Far Lai	ne Distance:	48 feet		F	Vehi	cleType		Day	Evening	Night	Daily
Site Data						Au	tos:	77.5%	12.9%	9.6%	97.42
Bar	rier Height:	0.0 feet			Me	dium Tru	cks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tru	cks:	86.5%	2.7%	10.8%	0.74
Centerline Dis		52.0 feet			Noise So	urce Ele	ation/	s (in fe	eet)		
Centerline Dist.		52.0 feet				Autos:	0.	000			
Barrier Distance		0.0 feet			Mediur	n Trucks:	2.	297			
Observer Height (J	,	5.0 feet			Heav	y Trucks:	8.	006	Grade Ad	justment	: 0.0
	d Elevation:	0.0 feet		-		,					
	d Elevation:	0.0 feet		-	Lane Eq	uivalent L			teet)		
ŀ	Road Grade:	0.0%				Autos:		400			
	Left View: Right View:	-90.0 degre 90.0 degre				n Trucks: y Trucks:		209 228			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Frest	nel	Barrier Att	en Ber	m Atter
Autos:	66.51	0.46		0.3	8	-1.20		-4.66	0.0	000	0.00
Medium Trucks:	77.72	-16.77		0.4	1	-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	82.99	-20.73		0.4	1	-1.20		-5.41	0.0	000	0.00
Unmitigated Noise											
	Leq Peak Hou			Leq E	vening	Leq N	<u> </u>		Ldn		NEL
Autos:	66	-	64.3		62.5		56.4		65.1		65
Medium Trucks:	60	-	58.6		52.3		50.7		59.2	-	59
Heavy Trucks:	61		60.0		51.0		52.3	-	60.6	-	60
Vehicle Noise:	68		66.4		63.2		58.6	6	67.2	2	67
Centerline Distanc	e to Noise Co	ontour (in fee	t)	-				1			10.4
			L		dBA	65 dE	3A	6	0 dBA		dBA
			Ldn:	-	4	72			156		36
		C	NFI :	- 3	6	77			167		60

	FHV	VA-RD-77-108 HIG	GHWAY	NOISE PI	REDICTI	ON MOI	DEL			
Scenario Road Name Road Segment	: Dover Dr.	2019 With Project				Name: / umber: 9		ation		
SITE S	PECIFIC IN	PUT DATA			N	OISE N	IODE	L INPUTS	5	
Highway Data				Site Cor	ditions	(Hard =	10, So	oft = 15)		
Average Daily T	raffic (Adt):	5,000 vehicles					Autos:	15		
Peak Hour F	Percentage:	10%		Me	dium Tru	icks (2 A	xles):	15		
Peak Ho	ur Volume:	500 vehicles		He	avy Truc	:ks (3+ A	xles):	15		
Veh	icle Speed:	45 mph		Vehicle	Mix					
Near/Far Lan	e Distance:	12 feet			icleType		Day	Evening	Night	Dailv
Site Data							77.5%	•	9.6%	97.42%
Barr	ier Height:	0.0 feet		М	edium Tr	ucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wa		0.0			Heavy Tr	ucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist	. ,	28.0 feet		Noise S	ource El	ovation	: (in fe	oot)		
Centerline Dist. to	Observer:	28.0 feet		110/30 0	Autos		000			
Barrier Distance to	o Observer:	0.0 feet		Madiu	m Trucks					
Observer Height (A	bove Pad):	5.0 feet			v Trucks		006	Grade Adj	ustment	0.0
Pad	d Elevation:	0.0 feet		Tiear	y mucha	s. 0.0	000	Grado / laj	dounioni	0.0
Road	d Elevation:	0.0 feet		Lane Eq	uivalent	Distanc	e (in :	feet)		
R	oad Grade:	0.0%			Autos					
	Left View:	-90.0 degrees		Mediu	m Trucks	3: 27.4	183			
	Right View:	90.0 degrees		Heav	y Trucks	s: 27.5	514			
FHWA Noise Mode	Calculation:	s								
VehicleType	REMEL	Traffic Flow D	Distance	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	68.46	-4.96	3.7	72	-1.20		-4.46	0.0	00	0.000
Medium Trucks:	79.45	-22.20	3.8		-1.20		-4.86	0.0		0.000
Heavy Trucks:	84.25	-26.16	3.7	79	-1.20		-5.83	0.0	00	0.000
Unmitigated Noise	Levels (with									
	.eq Peak Hou			evening	Leq I	· ·		Ldn		VEL
Autos:	66.			62.4		56.3		64.9		65.5
Medium Trucks:	59.			52.0		50.4		58.9		59.1
Heavy Trucks:	60.			50.2		51.5		59.8		60.0
Vehicle Noise:	67	.9 66.1		63.0		58.3		66.9	1	67.3
Centerline Distance	e to Noise Co	ontour (in feet)					r			
				dBA	65 0		6	i0 dBA		dBA
		Ldn		17	3			80		73
		CNEL	: '	19	4	0		86	1	85

Wednesday, June 08, 2016

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	FHV	VA-RD-77-108	HIGHWA	Y NO	DISE PR	EDICTIC	ON MOI	DEL			
		2019 With Pro	ject	_		Project N			ation		
Road Name		" D-				Job Nu	mber: 9	9831			
Road Segmen	t: s/o westcli	ff Dr.									
	PECIFIC IN	IPUT DATA							L INPUTS	6	
Highway Data				S	ite Con	ditions (Hard =	10, Sc	oft = 15)		
Average Daily T	raffic (Adt):	12,600 vehicles					/	Autos:	15		
Peak Hour F	Percentage:	10%			Med	lium Truc	cks (2 A	xles):	15		
Peak Ho	our Volume:	1,260 vehicles			Hea	avy Truck	(3+ A	xles):	15		
Veh	icle Speed:	45 mph		v	ehicle N	Nix					
Near/Far Lan	e Distance:	48 feet		ŀ		cleType		Dav	Evening	Niaht	Dailv
Site Data					10/11			77.5%	•	9.6%	
Bor	ier Height:	0.0 feet			Me	dium Tru	icks:	84.8%	4.9%	10.3%	1.849
Barrier Type (0-Wa		0.0			н	leavy Tru	icks:	86.5%	2.7%	10.8%	0.74%
Centerline Dis	. ,	52.0 feet			oiso So	urce Ele	vation	(in f	not)		
Centerline Dist. te	o Observer:	52.0 feet		~	0136 30	Autos		000			
Barrier Distance to	o Observer:	0.0 feet			Modium	n Trucks:		97			
Observer Height (A	bove Pad):	5.0 feet				v Trucks:		006	Grade Adj	istmont	0.0
Pa	d Elevation:	0.0 feet			neav	y muchs.	0.0	100	Orade Adj	Journern.	0.0
Roa	d Elevation:	0.0 feet		L	ane Equ	livalent	Distand	e (in :	feet)		
R	oad Grade:	0.0%				Autos:	46.4	400			
	Left View:	-90.0 degree	s		Mediun	n Trucks:	46.2	209			
	Right View:	90.0 degree	S		Heav	/ Trucks:	46.2	228			
FHWA Noise Mode	I Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	е	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	68.46	-0.95		0.38		-1.20		4.66	0.0	00	0.00
Medium Trucks:	79.45	-18.19		0.41		-1.20		4.87	0.0	00	0.00
Heavy Trucks:	84.25	-22.14		0.41		-1.20		-5.41	0.0	00	0.00
Unmitigated Noise	Levels (with	out Topo and I	barrier a	tenu	ation)						
	Leq Peak Hou	1.7		q Ev	ening	Leq N	·		Ldn		VEL
Autos:	66		64.8		63.0		57.0		65.6		66.
Medium Trucks:	60		59.0		52.6		51.1		59.5		59.
Heavy Trucks:	61	-	59.9		50.9		52.1		60.5		60.
Vehicle Noise:	68		6.8		63.6		59.0		67.5		68.
Centerline Distance	e to Noise Co	ontour (in feet)									
				70 dl	ЗA	65 d		6	0 dBA		dBA
		-	_dn: IFI :	35 38		76 82			165 177	-	55 81

		-RD-77-108 HI	-	NOISE PI	REDICTIO		DEL			
Scenario: Cum		019 With Project	:t		Project I			ation		
Road Name: Dove					Job Ni	imber: 9	9831			
Road Segment: s/o 1	oth St.			1						
SITE SPECIF	IC INP	UT DATA							5	
Highway Data				Site Con	ditions (Hard =	10, So	,		
Average Daily Traffic (A							Autos:	15		
Peak Hour Percente	•	10%			dium Tru			15		
Peak Hour Volu		450 vehicles		He	avy Truc	ks (3+ A	(xles):	15		
Vehicle Spe		45 mph		Vehicle	Mix					
Near/Far Lane Dista	nce:	48 feet		Veh	icleType		Day	Evening	Night	Daily
Site Data					A	utos:	77.5%	12.9%	9.6%	97.42
Barrier Hei	ght:	0.0 feet		M	edium Tru	ucks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Be	rm):	0.0		1	leavy Tri	ucks:	86.5%	2.7%	10.8%	0.74
Centerline Dist. to Bar	rier:	52.0 feet		Noise So	ource Ele	vation	s (in fi	et)		
Centerline Dist. to Obser	ver:	52.0 feet			Autos		000	,01)		
Barrier Distance to Obser	ver:	0.0 feet		Mediu	n Trucks		297			
Observer Height (Above P	ad):	5.0 feet			v Trucks		006	Grade Ad	ustment	0.0
Pad Eleva	tion:	0.0 feet								
Road Eleva		0.0 feet		Lane Eq				feet)		
Road Gr		0.0%			Autos					
Left V		-90.0 degrees			m Trucks					
Right V	iew:	90.0 degrees		Heav	ry Trucks	: 46.2	228			
FHWA Noise Model Calcu	lations									
VehicleType REM			Distance		Road	Fresn		Barrier Att		m Atter
	68.46	-0.34		.38	-1.20		-4.66		000	0.00
	79.45	-17.58		.41	-1.20		-4.87		000	0.00
Heavy Trucks:	84.25	-21.53	0	.41	-1.20		-5.41	0.0	000	0.00
Unmitigated Noise Levels	· · · · ·		-	,						
VehicleType Leq Pea		Leq Day	_	Evening	Leq N	·		Ldn		VEL
Autos:	67.3	65.		63.6		57.6		66.2		66
Medium Trucks:	61.1	59.	-	53.2		51.7		60.1		60
Heavy Trucks:	61.9	60.	-	51.5		52.7		61.1		61
Vehicle Noise:	69.1	67.	4	64.3		59.6		68.1		68
Centerline Distance to No	ise Con	tour (in feet)			0.5					10.4
				0 dBA	65 0		6	0 dBA		dBA
		Ldi		39	84			181		90
		CNEL		42	90	J		194	4	18

Scenario: Cumul	ative	2019 With Pro	piect			Project N	ame:	AutoNa	ation		
Road Name: Jambo			5,000			Job Nur					
Road Segment: n/o Ea	st Co	ast Hwy.									
SITE SPECIFI		PUT DATA							L INPUT	s	
Highway Data					Site Con	ditions (H	lard =	: 10, Sc	oft = 15)		
Average Daily Traffic (Ad	<i>tt):</i> 1	9,500 vehicle	s					Autos:	15		
Peak Hour Percentag	je:	10%			Me	dium Truc	ks (2 .	Axles):	15		
Peak Hour Volun	ne:	1,950 vehicle	s		He	avy Truck	s (3+.	Axles):	15		
Vehicle Spee	ed:	55 mph		-	Vehicle I	Mix					
Near/Far Lane Distant	e:	72 feet		-		icleType	1	Day	Evening	Night	Daily
Site Data						Au	tos:	77.5%	12.9%	9.6%	97.42
Barrier Heig	ht.	0.0 feet			Me	edium True	cks:	84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berr	n):	0.0			ŀ	leavy Tru	cks:	86.5%	2.7%	10.8%	0.74
Centerline Dist. to Barn		64.0 feet			Noise So	ource Elev	ation/	s (in fe	et)		
Centerline Dist. to Observ		64.0 feet				Autos:	0.	000			
Barrier Distance to Observ		0.0 feet			Mediur	n Trucks:	2.	297			
Observer Height (Above Pa	·	5.0 feet			Heav	v Trucks:	8.	006	Grade Ad	justment	: 0.0
Pad Elevation		0.0 feet		-							
Road Elevation		0.0 feet		-	Lane Equ	uivalent L			reet)		
Road Gra		0.0%			Mar allow	Autos: n Trucks:		.151 .984			
Left Vie Riaht Vie		-90.0 degre 90.0 degre				v Trucks:		.984			
FHWA Noise Model Calcula			00			,					
VehicleType REME		Traffic Flow	Di	stance	Finite	Road	Fres	nol	Barrier Att	on Bor	rm Attei
	1.78	0.08	Di	-0.5		-1.20	1103	-4.70		000	0.0
	2.40	-17.16		-0.4	-	-1.20		-4.88		000	0.0
	6.40	-21.12		-0.4	-	-1.20		-5.31		000	0.0
Unmitigated Noise Levels (witho	ut Topo and	barri	ier atter	uation)						
VehicleType Leq Peak	Hour	 Leq Day 	/	Leq E	vening	Leq Ni	ight		Ldn	C	NEL
Autos:	70.	2	68.3		66.5		60.	4	69.1	1	69
Medium Trucks:	63.	-	62.1		55.7		54.		62.6	-	62
Heavy Trucks:	63.	6	62.2		53.1		54.	4	62.7	7	62
Vehicle Noise:	71.	7	70.0		67.0		62.	2	70.7	7	71
Centerline Distance to Nois	e Co	ntour (in feel)	_				1			
					dBA	65 dE		6	0 dBA		dBA
		_	Ldn: NFL:		'1 '7	154 165			331		/13
									356		767

FHW	A-RD-77-108 HIG	HWAY N	IOISE PRI	EDICTION				
Scenario: Cumulative Road Name: MacArthur E Road Segment: n/o East Co	si.		I	Project Na Job Num	me: Auto ber: 9831			
SITE SPECIFIC IN	PUT DATA					EL INPUT	s	
Highway Data		4	Site Cona	litions (Ha	ard = 10,	Soft = 15)		
Average Daily Traffic (Adt): 1	2,200 vehicles				Auto	s: 15		
Peak Hour Percentage:	10%			ium Truck				
	1,220 vehicles		Hea	vy Trucks	(3+ Axles	s): 15		
Vehicle Speed:	55 mph		Vehicle M	ix				
Near/Far Lane Distance:	72 feet	-	Vehic	leType	Day	Evening	Night	Daily
Site Data				Auto	os: 77.5	% 12.9%	9.6%	97.42%
Barrier Height:	0.0 feet		Med	dium Truc	ks: 84.8	% 4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0		He	eavy Truc	ks: 86.5	% 2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	64.0 feet	-	Noise Sou	wee Flow	tione (in	fact		
Centerline Dist. to Observer:	64.0 feet	- F	NUISE SUL	Autos:	0.000	leel)		
Barrier Distance to Observer:	0.0 feet		Madium	Trucks:	2.297			
Observer Height (Above Pad):	5.0 feet			Trucks:	8.006	Grade Ad	liustment	· 0.0
Pad Elevation:	0.0 feet						,	
Road Elevation:	0.0 feet	1	Lane Equ			n feet)		
Road Grade:	0.0%			Autos:	53.151			
Left View:	-90.0 degrees			Trucks:	52.984			
Right View:	90.0 degrees		Heavy	Trucks:	53.000			
FHWA Noise Model Calculations	1							
VehicleType REMEL	Traffic Flow Dis	stance	Finite F	Road	Fresnel	Barrier At	ten Ber	m Atten
Autos: 71.78	-1.96	-0.5	-	-1.20	-4.7		000	0.000
Medium Trucks: 82.40	-19.20	-0.4	-	-1.20	-4.8		000	0.000
Heavy Trucks: 86.40	-23.15	-0.4	8	-1.20	-5.3	1 0.	000	0.000
Unmitigated Noise Levels (witho								
VehicleType Leq Peak Hour		Leq E	0	Leq Nig		Ldn		NEL
Autos: 68.			64.5		58.4	67.		67.6
Medium Trucks: 61.			53.7		52.1	60.		60.8
Heavy Trucks: 61.			51.1		52.4	60.		60.8
Vehicle Noise: 69.			65.0		60.1	68.	1	69.1
Centerline Distance to Noise Co	ntour (in feet)						1	
	[dBA	65 dB/	4	60 dBA		dBA
	Ldn:	5		112		242		22
	CNEL:	5	o	121		260	5	61

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	FHW	A-RD-77-108 HIG	HWAY I		REDICTIO			
Road Name		2019 With Project				ame: AutoN aber: 9831	lation	
SITE S	SPECIFIC IN	PUT DATA			NO	ISE MODE	L INPUTS	
Highway Data				Site Con	ditions (H	ard = 10, S	oft = 15)	
Average Daily	Traffic (Adt): 1	1,800 vehicles				Autos.	: 15	
Peak Hour	Percentage:	10%		Me	dium Truck	s (2 Axles).	: 15	
Peak H	our Volume:	1,180 vehicles		He	avy Trucks	(3+ Axles)	: 15	
Vel	hicle Speed:	35 mph	-	Vehicle I	liv			
Near/Far Lar	ne Distance:	48 feet	ŀ		icleType	Dav	Evening	Night Daily
Site Data				VCIII	Aut		0	9.6% 97.42%
		0.0 feet		Me	edium Truc			10.3% 1.84%
Barrier Type (0-W	rier Height:	0.0 reet			leavy Truc			10.8% 0.74%
Centerline Dis	. ,	52.0 feet						
Centerline Dist. t		52.0 feet	-	Noise Sc		ations (in f	eet)	
Barrier Distance t		0.0 feet			Autos:	0.000		
Observer Height (/	Above Pad):	5.0 feet			n Trucks:	2.297	Our de Adia	
0 1	d Elevation:	0.0 feet		Heav	y Trucks:	8.006	Grade Adju	stment: 0.0
Roa	d Elevation:	0.0 feet		Lane Eq	uivalent D	istance (in	feet)	
F	Road Grade:	0.0%	ſ		Autos:	46.400		
	Left View:	-90.0 degrees		Mediur	n Trucks:	46.209		
	Right View:	90.0 degrees		Heav	y Trucks:	46.228		
FHWA Noise Mode	el Calculations							
VehicleType	REMEL		listance	Finite		Fresnel	Barrier Atter	
Autos:	64.30	-0.14	0.3		-1.20	-4.66	0.00	
Medium Trucks:	75.75	-17.38	0.4		-1.20	-4.87		
Heavy Trucks:	81.57	-21.33	0.4	1	-1.20	-5.41	0.00	0 0.000
Unmitigated Noise			i					
	Leq Peak Hour			vening	Leq Nig		Ldn	CNEL
Autos:	63.			59.7		53.6	62.2	62.
Medium Trucks:	57.0 59.4			49.7		48.2 50.2	56.6 58.6	56.9
Heavy Trucks: Vehicle Noise:	59.4			49.0 60.4		50.2	58.6	58.
			'	00.4		50.0	04.0	65.
Centerline Distanc	e to Noise Co	ntour (in feet)	70	dBA	65 dB	4	60 dBA	55 dBA
		Ldn:		23	49		105	226
		CNEL:		24	52		112	241

FHWA-RD-77-108 HIG	HWAY N	OISE PR	EDICTIO	N MOE	EL					
Scenario: Cumulative 2019 With Project Road Name: Westcliff Dr. Road Segment: e/o Irvine Av.		Project Name: AutoNation Job Number: 9831								
SITE SPECIFIC INPUT DATA			NO	ISE M	ODE	L INPUT	5			
Highway Data	5	Site Con	ditions (H	lard =	10, So	oft = 15)				
Average Daily Traffic (Adt): 10,300 vehicles				A	utos:	15				
Peak Hour Percentage: 10%		Med	dium Truc	ks (2 A	xles):	15				
Peak Hour Volume: 1,030 vehicles		Hea	avy Truck	s (3+ A	xles):	15				
Vehicle Speed: 35 mph		/ehicle N								
Near/Far Lane Distance: 48 feet	,		cleTvpe		Dav	Evening	Night	Dailv		
Site Data		Vern			7.5%	•	9.6%			
		Me	dium True		7.3% 34.8%		10.3%			
Barrier Height: 0.0 feet			leavy Truc		36.5%		10.8%			
Barrier Type (0-Wall, 1-Berm): 0.0		1	leavy mu	una. (0.3 /6	2.1 /0	10.076	0.747		
Centerline Dist. to Barrier: 52.0 feet Centerline Dist. to Observer: 52.0 feet	٨	loise So	urce Elev	ations/	(in fe	et)				
			Autos:	0.0	00					
Barrier Distance to Observer: 0.0 feet		Mediun	n Trucks:	2.2	97					
Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet		Heav	y Trucks:	8.0	06	Grade Adj	iustment	0.0		
Road Elevation: 0.0 feet	1	ano Fai	uivalent D	Distanc	o (in f	(oot)				
Road Grade: 0.0%	-	ane Lyi	Autos:	46.4		001/				
Left View: -90.0 degrees		Mediun	n Trucks:							
Right View: 90.0 degrees			y Trucks:	46.2						
FHWA Noise Model Calculations										
	istance	Finite		Fresne		Barrier Att		m Atten		
Autos: 64.30 -0.73	0.38		-1.20		4.66	0.0		0.00		
Medium Trucks: 75.75 -17.97	0.41		-1.20		4.87		000	0.00		
Heavy Trucks: 81.57 -21.93	0.41		-1.20	-	5.41	0.0	000	0.00		
Unmitigated Noise Levels (without Topo and barr	ier atten	uation)								
VehicleType Leq Peak Hour Leq Day	Leq Ev	•	Leq Ni	•		Ldn		VEL		
Autos: 62.8 60.9		59.1		53.0		61.7		62.		
Medium Trucks: 57.0 55.5		49.1		47.6		56.0		56.		
Heavy Trucks: 58.8 57.4		48.4		49.6		58.0		58.		
Vehicle Noise: 65.0 63.3		59.8		55.4		64.0)	64.		
Centerline Distance to Noise Contour (in feet)										
	70 d		65 dE	BA	6	0 dBA		dBA		
Ldn:			44			96		06		
CNEL:	22	2	47			102	2	20		

	FHV	/A-RD-77-10	8 HIGI	TWAYN	NOISE PR	EDICTIO	NMOD	EL			
Scenario: Road Name: Road Segment:	West Coast	,	roject			Project N Job Nur			ition		
	ECIFIC IN	PUT DATA			011 0					S	
Highway Data					Site Con	ditions (F		· ·			
Average Daily Tra	, ,		es					utos:	15		
Peak Hour Pe		10%				dium Truc	· ·		15		
Peak Hou		1,690 vehicle	es		Hea	avy Truck	s (3+ A)	des):	15		
	le Speed:	45 mph		_	Vehicle N	/lix					
Near/Far Lane	Distance:	72 feet		_	Vehi	cleType	Ľ	Day	Evening	Night	Daily
Site Data						Au	tos: 7	7.5%	12.9%	9.6%	97.42
Barrie	r Heiaht:	0.0 feet			Me	dium Tru	cks: 8	4.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall,	1-Berm):	0.0			н	leavy Tru	cks: 8	6.5%	2.7%	10.8%	0.74
Centerline Dist. t		64.0 feet			Noise So	urce Elev	ations/	(in fe	et)		
Centerline Dist. to		64.0 feet				Autos:	0.00	00			
Barrier Distance to		0.0 feet			Mediun	n Trucks:	2.29	97			
Observer Height (Ab	,	5.0 feet			Heav	v Trucks:	8.00	06	Grade Ad	iustment	: 0.0
	Elevation:	0.0 feet		-							
	Elevation:	0.0 feet		1	Lane Equ				eet)		
	ad Grade:	0.0%				Autos:	53.1				
	Left View: ight View:	-90.0 degre 90.0 degre				n Trucks: y Trucks:	52.94 53.0				
FHWA Noise Model (Calculation	1									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresne	1 1	Barrier Att	en Ber	rm Atte
Autos:	68.46	0.33	3	-0.5	0	-1.20	~	4.70	0.0	000	0.0
Medium Trucks:	79.45	-16.91	1	-0.4	8	-1.20	~	4.88	0.0	000	0.0
Heavy Trucks:	84.25	-20.87	7	-0.4	8	-1.20	4	5.31	0.0	000	0.0
Unmitigated Noise L											
VehicleType Le Autos:	q Peak Hou 67		65.2	Leq E	vening 63.4	Leq Ni	gnt 57.4		Ldn		NEL
	67. 60.		65.2 59.3		63.4 53.0		57.4 51.4		66.0 59.9		66
Medium Trucks:		-									60 61
Heavy Trucks: Vehicle Noise:	61.		60.3		51.2		52.5		60.9		
	68.	-	67.2		64.0		59.4		67.9	,	68
Centerline Distance	to Noise Co	ntour (in fee	et)	70 /	dBA	65 dF	RA I	A	0 dBA	55	dBA
							// 1	0	U UDM	1 33	uDM
			1 dn	Λ	6	100			215		64
		C	Ldn:		-6 -0	100			215 231		164 197

	FHW	A-RD-77-108 HIG	HWAY I	NOISE PI	REDICTI	ON MOE	EL			
Road Nan	io: Cumulative 2 ne: West Coast H nt: e/o Newport I					Name: A umber: 9		ation		
SITE	SPECIFIC INP	UT DATA			N	OISE M	ODE	L INPUTS	5	
Highway Data				Site Con	ditions	(Hard = 1	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 29	,200 vehicles				A	utos:	15		
Peak Hour	Percentage:	10%		Me	dium Tru	icks (2 A	xles):	15		
Peak H	lour Volume: 2	,920 vehicles		He	avy Truc	ks (3+ A	xles):	15		
Ve	hicle Speed:	40 mph	-	Vehicle	Mix					
Near/Far La	ne Distance:	72 feet	-		icleType		Dav	Evening	Night	Dailv
Site Data				VCII			7.5%	12.9%	•	97.42%
				14	edium Tr		4.8%		10.3%	1.84%
	rrier Height:	0.0 feet 0.0			Heavy Tr		36.5%		10.8%	0.74%
Barrier Type (0-W		0.0 64.0 feet			ioury ii	uono. c	/0.0/0	2.170	10.070	0.1 170
Centerline Di Centerline Dist.		64.0 feet		Noise So	ource El	evations	(in fe	et)		
Barrier Distance		0.0 feet			Autos	s: 0.0	00			
Observer Height		5.0 feet		Mediu	m Trucks	3: 2.2	97			
	ad Flevation:	0.0 feet		Heav	y Trucks	8: 8.0	06	Grade Adjı	ustment:	0.0
	ad Elevation:	0.0 feet	F	Lane Eq	uivalent	Distanc	e (in i	eet)		
	Road Grade:	0.0%	F	Lano Lq	Autos			000		
		-90.0 degrees		Mediu	m Trucks					
	Right View:	90.0 degrees			v Trucks					
	3 • •	Solo degrees		//our	y maone	. 00.0				
FHWA Noise Mod										
VehicleType			istance		Road	Fresne		Barrier Atte		m Atten
Autos:	66.51	3.21	-0.5		-1.20		4.70	0.0		0.000
Medium Trucks:	=	-14.02	-0.4		-1.20		4.88	0.0		0.000
Heavy Trucks:	82.99	-17.98	-0.4	8	-1.20	-	5.31	0.0	00	0.000
Unmitigated Nois	e Levels (withou	ut Topo and barr	ier attei	nuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq	Night		Ldn	CI	IEL
Autos:	68.0	66.1		64.4		58.3		66.9		67.5
Medium Trucks:	62.0	60.5		54.1		52.6		61.1		61.3
Heavy Trucks:	63.3	61.9		52.9		54.1		62.5		62.6
Vehicle Noise:	70.0	68.3		65.0		60.5		69.0		69.5
Centerline Distan	ce to Noise Con	tour (in feet)								
				dBA		dBA	6	0 dBA		dBA
		Ldn:		55		19		255	-	50
		CNEL:	Ę	59	12	27		273	5	89

Wednesday, June 08, 2016

Wednesday, June 08, 2016

	FHV	VA-RD-77-108 I	HIGHWAY	NOISE	PREDICTIO	N MODEL		
	e: West Coas		ect		Project Na Job Nun	ame: Auto nber: 983		
	PECIFIC IN	PUT DATA					DEL INPUT	5
Highway Data				Site C	onditions (H	lard = 10,	Soft = 15)	
Average Daily 1	raffic (Adt): 2	29,900 vehicles				Auto	os: 15	
Peak Hour F	Percentage:	10%		Λ	Aedium Truck	ks (2 Axle	s <i>):</i> 15	
Peak Ho	our Volume:	2,990 vehicles		F	Heavy Trucks	s (3+ Axle	s <i>):</i> 15	
Veh	icle Speed:	40 mph		Vehicl	e Mix			
Near/Far Lan	e Distance:	72 feet			ehicleType	Dav	Evening	Night Daily
Site Data					Au	tos: 77.	0	9.6% 97.42%
Bari	rier Heiaht:	0.0 feet		1	Medium Truc	ks: 84.	3% 4.9%	10.3% 1.84%
Barrier Type (0-Wa		0.0			Heavy Truc	ks: 86.	5% 2.7%	10.8% 0.74%
Centerline Dis	t. to Barrier:	64.0 feet		Noise	Source Elev	ations (ii	1 feet)	
Centerline Dist. t	o Observer:	64.0 feet			Autos:	0.000		
Barrier Distance t	o Observer:	0.0 feet		Med	ium Trucks:	2.297		
Observer Height (A	Above Pad):	5.0 feet			avy Trucks:	8.006	Grade Ad	justment: 0.0
	d Elevation:	0.0 feet					-	
	d Elevation:	0.0 feet		Lane E	Equivalent D		in feet)	
R	oad Grade:	0.0%			Autos:	53.151		
	Left View:	-90.0 degrees			ium Trucks:	52.984		
	Right View:	90.0 degree	S	не	avy Trucks:	53.000		
FHWA Noise Mode								
VehicleType	REMEL	Traffic Flow	Distance		te Road	Fresnel	Barrier Att	
Autos:	66.51	3.32	-0.		-1.20	-4.7		0.00
Medium Trucks:	77.72	-13.92	-0.		-1.20	-4.8		0.00
Heavy Trucks:	82.99	-17.88		48	-1.20	-5.3	1 0.0	000 0.000
Unmitigated Noise		1			· ·			-
	Leq Peak Hou		,	Evening			Ldn	CNEL
Autos:	68		6.2	64		58.4	67.0	
Medium Trucks:	62 63		0.6 2.0	54 53		52.7 54.2	61.2 62.6	
Heavy Trucks: Vehicle Noise:	63		2.0 8.4	53 65		54.2 60.6	62.6	
			8.4	65	.1	00.6	69.1	69.0
Centerline Distanc	e to Noise Co	ontour (in feet)	7/) dBA	65 dE	4	60 dBA	55 dBA
		,	dn:	56	05 dE 120		259	559
		CN		50 60	120		259	599
		CN	LL.	00	129		210	399

	FHW	A-RD-77-108 HIC	GHWAY	NOISE PI	REDICTI	ON MO	DEL				
Road Nam	o: Cumulative 2 e: West Coast I nt: e/o Dover Dr		t	Project Name: AutoNation Job Number: 9831							
SITE	SPECIFIC INF	UT DATA			N	OISE N	IODE	L INPUT	s		
Highway Data				Site Con	ditions	(Hard =	10, Sc	oft = 15)			
Average Daily	Traffic (Adt): 37	,200 vehicles				,	Autos:	15			
Peak Hour	Percentage:	10%		Me	dium Tru	icks (2 A	Axles):	15			
Peak H	our Volume: 3	3,720 vehicles		He	avy Truc	ks (3+ A	Axles):	15			
Ve	hicle Speed:	40 mph		Vehicle	Mix						
Near/Far Lai	ne Distance:	96 feet			icleType		Dav	Evening	Night	Daily	
Site Data				VCII			77.5%	•	9.6%		
Barrier Height: 0.0 feet				M	edium Tr		84.8%		10.3%		
ваг Barrier Type (0-W		0.0 feet			leavy Tr		86.5%		10.8%		
Centerline Dis	. ,	72.0 feet									
Centerline Dist.		72.0 feet		Noise So				eet)			
Barrier Distance		0.0 feet			Autos		000				
Observer Height (5.0 feet			m Trucks		297				
0 1	d Flevation:	0.0 feet		Heav	y Trucks	:: 8.0	006	Grade Ad	iustment	0.0	
	d Elevation:	0.0 feet		Lane Eq	uivalent	Distan	ce (in i	feet)			
F	Road Grade:	0.0%			Autos	: 53.	898	í			
	Left View:	-90.0 degrees		Mediu	n Trucks	: 53.	734				
	Right View:	90.0 degrees		Heav	y Trucks	53.	750				
FHWA Noise Mode		L.							Т		
VehicleType			Distance		Road	Fresn		Barrier Att		m Atter	
Autos:	66.51	4.27	-0.		-1.20		-4.72		000	0.00	
Medium Trucks:	77.72	-12.97	-0.		-1.20		-4.88		000	0.00	
Heavy Trucks:	82.99	-16.93	-0.	57	-1.20		-5.26	0.0	000	0.00	
Unmitigated Noise			rier atte	nuation)							
	Leq Peak Hour			Evening	Leq	Vight		Ldn	-	VEL	
Autos:	69.0			65.3		59.3		67.9		68.	
Medium Trucks:	63.0			55.1		53.6		62.0		62.	
Heavy Trucks:	64.3			53.8		55.1		63.4		63.	
Vehicle Noise:	71.0		3	66.0		61.4	•	70.0)	70	
Centerline Distance	e to Noise Cor	ntour (in feet)	70							10.4	
				dBA	65 0		6	0 dBA		dBA	
		Ldn CNFI		72 77	15			333		17	
		CNEL		//	16	00		357		68	

FHWA-RD-77-	108 HIGHWA	Y NOISE PR	EDICTION	MODEL			
Scenario: Cumulative 2019 With Road Name: West Coast Hwy. Road Segment: e/o Bayside Dr.	Project		Project Narr Job Numb		ation		
SITE SPECIFIC INPUT DAT	ΓA	0/42 0 0 0 0				S	
Highway Data		Site Cond	litions (Har		,		
Average Daily Traffic (Adt): 32,800 veh	nicles			Autos:			
Peak Hour Percentage: 10%			lium Trucks				
Peak Hour Volume: 3,280 veh		Hea	vy Trucks (3	3+ Axles):	15		
Vehicle Speed: 50 mp		Vehicle M	lix				
Near/Far Lane Distance: 96 fee	t	Vehic	cleType	Day	Evening	Night	Daily
Site Data			Autos	77.5%	12.9%	9.6%	97.42
Barrier Height: 0.0 fe	et	Me	dium Trucks	: 84.8%	4.9%	10.3%	1.84
Barrier Type (0-Wall, 1-Berm): 0.0		H	eavy Trucks	: 86.5%	2.7%	10.8%	0.74
Centerline Dist. to Barrier: 72.0 fe	et	Noise So	urce Elevat	ions (in f	eet)		
Centerline Dist. to Observer: 72.0 fe	et	10130 001	Autos:	0.000			
Barrier Distance to Observer: 0.0 fe	et	Medium	Trucks:	2.297			
Observer Height (Above Pad): 5.0 fe	et		/ Trucks:	8.006	Grade Ad	iustment	0.0
Pad Elevation: 0.0 fe	et						
Road Elevation: 0.0 fe	et	Lane Equ	ivalent Dis		feet)		
Road Grade: 0.0%				53.898			
Left View: -90.0 de	egrees			53.734			
Right View: 90.0 de	grees	Heavy	/ Trucks:	53.750			
FHWA Noise Model Calculations							
VehicleType REMEL Traffic Fle				esnel	Barrier Att		rm Attei
		0.59	-1.20	-4.72		000	0.0
		0.57	-1.20	-4.88		000	0.0
		0.57	-1.20	-5.26	0.0	000	0.0
Unmitigated Noise Levels (without Topo		,	Les Minh		l dn		NFI
VehicleType Leq Peak Hour Leq Autos: 71.2	Day Leo 69.3	Evening 67.5	Leq Nigh	51.4	Lan 70.1		NEL 70
Medium Trucks: 64.7	63.2	56.9		5.3	63.8		64
Heavy Trucks: 65.2	63.7	54.7		55.5 56.0	64.3	-	64
Vehicle Noise: 72.9	71.1	68.1		33.3	71.8		72
Centerline Distance to Noise Contour (in	feet)						
		70 dBA	65 dBA	6	60 dBA	55	dBA
	I dn:	95	205		442		953
	Lan:	95	205		44Z	5	100

	FHW	A-RD-77-108 HIG	HWAY I	NOISE PI	REDICTI	ON MOE	DEL			
Road Nam	io: Cumulative 2 ne: East Coast H nt: e/o Jambore					Name: A umber: 9		ation		
SITE	SPECIFIC INF	UT DATA						L INPUTS	5	
Highway Data				Site Cor	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt): 24	,600 vehicles				A	utos:	15		
Peak Hour	Percentage:	10%				ıcks (2 A		15		
Peak H	lour Volume: 2	460 vehicles		He	avy Truc	:ks (3+ A	xles):	15		
Ve	hicle Speed:	50 mph	ŀ	Vehicle	Mix					
Near/Far La	ne Distance:	72 feet	ŀ		icleType		Day	Evening	Night	Daily
Site Data							77.5%	•	9.6%	
Ba	rrier Height:	0.0 feet		М	edium Ti	ucks: 8	34.8%	4.9%	10.3%	1.84%
Barrier Type (0-W		0.0			Heavy Tr	ucks: 8	36.5%	2.7%	10.8%	0.74%
Centerline Di	. ,	64.0 feet	ŀ	Noise S	Sures El	ovetions	lin fi	a (1		
Centerline Dist.	to Observer:	64.0 feet	ł	NOISE 3				el)		
Barrier Distance	to Observer:	0.0 feet		Madiu	Auto: m Truck:					
Observer Height	Above Pad):	5.0 feet			v Truck			Grade Adj	ustment	. 0.0
P	ad Elevation:	0.0 feet							aounom	. 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distanc	e (in :	feet)		
	Road Grade:	0.0%			Autos					
	Left View:	-90.0 degrees			m Trucks					
	Right View:	90.0 degrees		Heav	ry Trucks	s: 53.0	00			
FHWA Noise Mod	el Calculations		1							
VehicleType	REMEL	Traffic Flow Di	istance	Finite	Road	Fresne	e/	Barrier Atte	en Ber	m Atten
Autos:	70.20	1.50	-0.5		-1.20		4.70	0.0		0.000
Medium Trucks:	81.00	-15.74	-0.4	8	-1.20		4.88	0.0	00	0.000
Heavy Trucks:	85.38	-19.69	-0.4	8	-1.20	-	5.31	0.0	00	0.000
Unmitigated Noise	e Levels (witho	ut Topo and barr	ier atter	nuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq	Night		Ldn	C	NEL
Autos:	70.0			66.3		60.3		68.9		69.5
Medium Trucks:	63.6			55.7		54.2		62.6		62.9
Heavy Trucks:	64.0			53.5		54.8		63.1		63.3
Vehicle Noise:	71.7	70.0		66.9		62.1		70.7		71.1
Centerline Distan	ce to Noise Cor	ntour (in feet)								
				dBA		dBA	6	60 dBA		dBA
		Ldn:		71		53		329		'09
		CNEL:	7	76	10	64		354	7	62

Wednesday, June 08, 2016

Wednesday, June 08, 2016

Wednesday, June 08, 2016

	FHW	/A-RD-77-108	HIGHWA	Y NOISE PI	REDICT	ION MODEL				
	o: Cumulative		ject	Project Name: AutoNation						
	e: East Coast				JOD IN	umber: 983	1			
•	nt: w/o MacArth			1						
	SPECIFIC IN	PUT DATA					DEL INPUTS			
Highway Data				Site Cor	ditions	(Hard = 10,	Soft = 15)			
Average Daily	Traffic (Adt): 1	9,400 vehicles	;			Auto				
Peak Hour	Percentage:	10%		Me	dium Tr	ucks (2 Axles	· · ·			
		1,940 vehicles	;	He	avy Tru	cks (3+ Axles	s): 15			
	hicle Speed:	50 mph		Vehicle	Mix					
Near/Far Lai	ne Distance:	72 feet			icleType	e Day	Evening I	Night Daily		
Site Data						Autos: 77.5	0	9.6% 97.42%		
Bar	rier Height:	0.0 feet		М	edium T	rucks: 84.8	3% 4.9%	10.3% 1.84%		
Barrier Type (0-W	•	0.0		1	Heavy T	rucks: 86.5	5% 2.7%	10.8% 0.74%		
Centerline Dis		64.0 feet								
Centerline Dist.		64.0 feet		Noise Se		levations (in	i feet)			
Barrier Distance	to Observer:	0.0 feet			Auto					
Observer Height (5.0 feet			m Truck					
Pad Elevation: 0.0 feet				Heav	/y Truck	s: 8.006	Grade Adju	stment: 0.0		
Road Elevation: 0.0 feet				Lane Eq	uivalen	t Distance (i	n feet)			
F	Road Grade:	0.0%			Auto	s: 53.151				
	Left View:	-90.0 degree	s	Mediu	m Truck	s: 52.984				
	Right View:	90.0 degree	S	Heav	/y Truck	s: 53.000				
FHWA Noise Mode	el Calculations	5								
VehicleType	REMEL	Traffic Flow	Distanc		Road	Fresnel	Barrier Atter			
Autos:	70.20	0.47	-1	0.50	-1.20	-4.7	0.00	0 0.00		
Medium Trucks:	81.00	-16.77		0.48	-1.20	-4.8		0 0.00		
Heavy Trucks:	85.38	-20.72	-	0.48	-1.20	-5.3	1 0.00	0 0.00		
Unmitigated Noise				,				0.15		
21	Leq Peak Hou			Evening	Leq	Night	Ldn	CNEL		
Autos: Medium Trucks:	69. 62.	-	67.1 61.0	65.3 54.7		59.3 53.1	67.9 61.6	68. 61.		
	62.	-	51.0 51.5	54.7 52.5		53.1 53.8	61.6	61.		
Heavy Trucks:								02.		
Vehicle Noise:	70.		68.9	65.9		61.1	69.6	70.		
	ce to Noise Co	ntour (in feet,		70 dBA	6E	dBA	60 dBA	55 dBA		
Centerline Distand										
Centerline Distanc			dn:	61		30	281	55 UBA 606		

F	HWA-	RD-77-108	HIG	HWAY N	NOISE PF	REDICT		DEL				
Scenario: Cumulat	tive 20	19 With Pro	ject		Project Name: AutoNation							
Road Name: East Co	ast Hw	ıy.				Job I	lumber:	9831				
Road Segment: e/o Mac	Arthur	BI.										
SITE SPECIFIC	INPU	JT DATA							L INPUT	5		
Highway Data					Site Con	ditions	; (Hard =	: 10, Se	oft = 15)			
Average Daily Traffic (Adt)): 19,5	500 vehicle	s					Autos:	15			
Peak Hour Percentage	e:	10%			Me	dium Ti	rucks (2 .	Axles):	15			
Peak Hour Volume	e: 1,9	950 vehicle	s		He	avy Tru	icks (3+)	Axles):	15			
Vehicle Speed	f:	35 mph		-	Vehicle I	Mix						
Near/Far Lane Distance	e:	48 feet		-		icleTyp	0	Day	Evening	Night	Daily	
Site Data					1011		Autos:	77.5%	•	9.6%		
		0.0.4			Me		rucks:	84.8%		10.3%		
Barrier Height		0.0 feet					rucks:	86.5%		10.8%		
Barrier Type (0-Wall, 1-Berm)				L						10.070	0.7 1	
Centerline Dist. to Barrier Centerline Dist. to Observer		52.0 feet		L	Noise Sc	ource E	levation	is (in f	eet)			
Barrier Distance to Observer		52.0 feet 0.0 feet				Auto	os: 0.	000				
		5.0 feet			Mediur	n Truck	(s: 2.	297				
Observer Height (Above Pad, Pad Elevation		0.0 feet			Heav	y Truck	(s: 8.	006	Grade Ad	iustment	0.0	
Road Elevation		0.0 feet		-	Lane Eq	uivalor	t Distan	co (in	foot)			
Road Elevation Road Grade		0.0 reet		-	Lane Ly	Auto		400	ieel)			
Left View		0.0% 90.0 degree			Modiu	n Truck		.400				
Right View		90.0 degrei 90.0 degrei				y Truck		.209				
rught view	<i>.</i> :	solo degre	55		near	y mucr	13. 40.	220				
FHWA Noise Model Calculati												
VehicleType REMEL		affic Flow	Di	stance		Road	Fresi	-	Barrier Att		m Atter	
Autos: 64.		2.04		0.3		-1.20		-4.66		000	0.00	
Medium Trucks: 75.		-15.20		0.4		-1.20		-4.87		000	0.00	
Heavy Trucks: 81.	57	-19.15		0.4	1	-1.20		-5.41	0.0	000	0.00	
Unmitigated Noise Levels (w	rithout	Topo and	barri	ier atter	nuation)							
VehicleType Leq Peak H		Leq Day		Leq E	vening	Leq	Night		Ldn		NEL	
Autos:	65.5		63.6		61.9		55.8		64.4		65	
Medium Trucks:	59.8		58.3		51.9		50.3		58.8		59	
Heavy Trucks:	61.6		60.2		51.2		52.4	4	60.8	3	60	
Vehicle Noise:	67.8		66.0		62.6		58.	2	66.7	,	67	
Centerline Distance to Noise	Conte	our (in feet)									
					dBA		dBA	6	60 dBA		dBA	
			Ldn:		2		68		146		16	
		0	VFI :	2	4		73		156	3	37	

APPENDIX 9.1:

CADNAA NOISE MODEL DATA



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09831 - AutoNation

CadnaA Noise Prediction Model 09831-23 post review.cna Date: 14.06.16 Analyst: A.Wolfe

Receiver Noise Levels

Name	Level Lr	Height
	Day	
	(dBA)	(m)
R1	52.2	1.52
R2	57.5	1.52
R3	58.0	1.52
R4	51.8	1.52
R5	49.4	1.52
R6	55.6	1.52
R7	50.4	1.52
R8	45.6	1.52

Point Source(s)

Name	Lw / Li		Operating Time	Freq.	Height			
	Туре	Value	Day					
			(min)	(Hz)	(m)			
Service Bay 01	Lw	103.6	750.00	500	2.44			
Service Bay 02	Lw	103.6	750.00	500	2.44			
Service Bay 03	Lw	103.6	750.00	500	2.44			
Service Bay 04	Lw	103.6	750.00	500	2.44			
Service Bay 05	Lw	103.6	750.00	500	2.44			
Service Bay 06	Lw	103.6	750.00	500	2.44			
Service Bay 07	Lw	103.6	750.00	500	2.44			
Service Bay 08	Lw	103.6	750.00	500	2.44			
Service Bay 09	Lw	103.6	750.00	500	2.44			
Service Bay 10	Lw	103.6	750.00	500	2.44			
Service Bay 11	Lw	103.6	750.00	500	2.44			
Pressure Washing	Lw	97.2	375.00	500	1.52			
Pressure Washing	Lw	97.2	375.00	500	1.52			
Car Horn	Lw	107.3	375.00	500	1.22			
Car Horn	Lw	107.3	375.00	500	1.22			
Car Alarm	Lw	114.2	63.00	500	1.22			
Car Alarm	Lw	114.2	63.00	500	1.22			

Vertical Area Source(s)

Name	Lw	/ Li	Operating Time	Freq.
	Туре	Value	Day	
			(min)	(Hz)
High Speed Roll-Up Door	Lw	78.5	375.00	500
Roll-Up Door 1	Lw	78.5	375.00	500
Roll-Up Door 2	Lw	78.5	375.00	500
Roll-Up Door 3	Lw	78.5	375.00	500
Roll-Up Door 4	Lw	78.5	375.00	500
Louver Auto Lift West 1	Li	101	488.00	500
Louver Auto Lift East 1	Li	101	488.00	500
Louver Mech Room 1 East 1	Li	101	488.00	500
Louver Mech Room 1 West 1		101	488.00	500
Louver Mech Room 1 West 2		101	488.00	500
Louver Mech Room 1 East 2		101	488.00	500
Louver Mech Room 2 South 1		101	488.00	500
Louver Mech Room 2 South 1	Li	101	488.00	500
Louver Mech Room 3 West 1	Li	101	488.00	500
Louver Mech Room 3 East 1	Li	101	488.00	500
Louver Mech Room 3 South 1	Li	101	488.00	500
Louver HVAC Room East 1		101	488.00	500
Louver HVAC Room South 1		101	488.00	500

Area Source(s)

Name	Lw / Li		Operating Time	Freq.	
	Type Value		Day		
			(min)	(Hz)	
Service Entrance	Lw	95.5	750.00	500	
Car Transport Deliveries	Lw	112.4	250.00	500	
Employee Parking 1		95.5	750.00	500	

Name	Lw	/ Li	Operating Time	Freq.
	Туре	Value	Day	
			(min)	(Hz)
Employee Parking 2	Lw	95.5	750.00	500
Employee Parking 3	Lw	95.5	750.00	500
Service Parking 3		95.5	750.00	500
Inventory Parking 1		95.5	750.00	500
Employee & Inventory Parking 1	Lw	95.5	750.00	500
Employee & Inventory Parking 2		95.5	750.00	500
Service Parking 4		95.5	750.00	500
Service Parking 1	Lw	95.5	750.00	500
Customer Parking Area	Lw	95.5	750.00	500
Service Parking 2		95.5	750.00	500
Employee Parking 4		95.5	750.00	500

Source		Partial Level Day								
Name	M.	ID	R1	R2	R3	R4	R5	R6	R7	R8
Service Bay 01		Service Bay 1	38.6	33.2	24.5	26.9	29.9	34.5	28.1	24.3
Service Bay 02		Service Bay 1	38.4	33.6	36.2	25.2	30.5	34.6	28.3	24.1
Service Bay 03		Service Bay 1	38.0	33.5	35.5	25.6	30.6	34.6	28.5	23.6
Service Bay 04		Service Bay 1	37.4	44.1	34.2	23.9	30.5	34.5	26.4	22.3
Service Bay 05		Service Bay 1	37.2	37.7	25.0	21.7	30.4	34.5	25.5	20.2
Service Bay 06		Service Bay 1	39.5	34.0	23.9	20.7	30.2	34.4	24.0	20.0
Service Bay 07		Service Bay 1	34.1	35.8	26.2	25.8	22.8	29.6	26.3	21.1
Service Bay 08		Service Bay 1	34.1	37.2	26.8	23.0	23.1	29.3	27.5	21.6
Service Bay 09		Service Bay 1	31.4	49.7	32.8	34.7	22.6	32.6	32.9	27.6
Service Bay 10		Service Bay 1	39.5	49.2	35.2	37.2	23.3	37.0	31.4	27.8
Service Bay 11		Service Bay 1	38.9	33.2	26.3	27.2	24.4	34.5	28.1	26.8
Pressure Washing		Pressure Washing	28.0	22.4	17.6	18.3	31.8	24.7	13.3	9.5
Pressure Washing		Pressure Washing	27.1	23.4	20.5	18.4	31.6	38.6	28.4	24.2
Car Horn		Car Horn	33.4	40.9	38.3	39.9	23.1	29.2	27.9	27.7
Car Horn		Car Horn	43.7	50.1	46.4	45.8	25.3	29.9	35.7	23.4
Car Alarm		Car Alarm	31.0	44.3	42.7	32.7	38.3	36.8	36.0	31.7
Car Alarm		Car Alarm	32.4	39.2	34.0	31.2	30.7	42.0	46.0	36.7
Service Entrance		Service Entrance	34.0	35.5	31.1	25.5	21.9	26.4	23.0	18.7
Car Transport Deliveries		Car Transport Deliverie	42.3	37.2	33.6	34.2	47.6	54.2	44.9	41.4
Employee Parking 1		EmployeeParking1	35.5	38.1	34.0	32.0	32.5	39.2	29.1	25.7
Employee Parking 2		EmployeeParking2	39.6	37.3	33.7	32.9	31.6	36.3	30.1	28.3
Employee Parking 3		EmployeeParking3	38.5	42.4	39.5	34.1	30.7	36.6	33.0	28.2
Service Parking 3		Service \Parking3	38.7	44.0	45.0	39.4	20.5	26.9	27.6	19.8
Inventory Parking 1		Inventory Parking 1	27.8	40.2	39.1	29.4	31.0	31.6	30.9	25.3
		, <u> </u>	26.7	39.3	48.0	38.1	25.2	32.1	30.7	29.1
Employee & Inventory Parking 1 Employee & Inventory Parking 2		Employee&InventoryPark1 Employee&InventoryPark2	34.5	45.1	53.6	42.9	17.8	24.9	27.6	24.3
			27.7	36.8	38.6	35.8	28.8	32.0	30.5	26.0
Service Parking 4		ServiceParking4	30.1	36.3	29.1	28.9	28.6	33.5	29.6	20.0
Service Parking 1		ServiceParking1	23.5	28.6	30.8	23.0	25.6	35.4	35.6	31.5
Customer Parking Area		CustomerParkingArea	38.2	41.5	42.2	38.3	25.2	29.8	25.6	20.4
Service Parking 2		ServiceParking2	35.0	41.3	44.6	39.5	25.2	29.0	23.0	20.4
Employee Parking 4		EmployeeParking4	8.6	3.3	-3.2	-2.0	14.2	3.6	10.1	7.1
High Speed Roll-Up Door		High Speed Roll-Up Door	9.1	5.7	-7.3	-2.0	-3.3	9.3	-4.7	-8.4
Roll-Up Door 1		Roll-Up Door 1	24.9	19.3	7.5	-5.4	-3.3	9.3 21.6	15.1	-0.4
Roll-Up Door 2		Roll-Up Door 2	24.9 6.9	22.7	1.9	-2.7	-0.6	21.0	6.8	0.1
Roll-Up Door 3		Roll-Up Door 3					-0.6			
Roll-Up Door 4		Roll-Up Door 4	15.1	19.8	16.9	16.9	22.6	16.5	16.0	8.8
Louver Auto Lift West 1		Louver_AutoLift_West1	23.8	19.0	11.1	9.8 29.0	16.1	19.8 38.4	13.2	8.3 30.8
Louver Auto Lift East 1		Louver_AutoLift_East1	39.0	34.9	25.1				33.1	
Louver Mech Room 1 East 1		Louver_MechRoom1_East1	13.5	26.9	43.4	33.6	21.9	27.5	23.6	28.2
Louver Mech Room 1 West 1		Louver_MechRoom1_West 1	19.3	34.5	30.9	18.5	27.8	32.5	23.8	17.0
Louver Mech Room 1 West 2		Louver_MechRoom1_West2	27.6	38.7	32.3	25.4	28.1	32.8	25.5	17.5
Louver Mech Room 1 East 2		Louver_MechRoom1_East 2	19.8	28.8	46.0	39.4	22.0	20.3	25.2	29.5
Louver Mech Room 2 South 1		Louver_MechRoom2_S1	25.4	27.8	21.8	21.2	22.7	27.2	24.3	22.1
Louver Mech Room 2 South 1		Louver_MechRoom2_S1	24.8	35.5	23.4	23.5	23.8	27.3	25.3	22.4
Louver Mech Room 3 West 1		Louver_MechRoom3_W1	24.1	38.8	44.5	26.3	20.4	28.8	29.9	20.7
Louver Mech Room 3 East 1		Louver_MechRoom3_E1	21.5	34.0	34.1	38.3	19.0	28.0	28.7	30.1
Louver Mech Room 3 South 1		Louver_MechRoom3_S1	17.3	33.7	35.5	35.5	22.9	30.7	30.4	30.3
Louver HVAC Room East 1		Louver_HVACRoom_E1	21.9	35.3	41.4	32.8	17.7	25.7	25.6	25.8
Louver HVAC Room South 1		Louver_HVACRoom_S1	17.7	32.0	44.0	24.8	20.8	28.7	23.8	23.0

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