Appendix G Noise Impact Analysis

Residences at Newport Center

NOISE IMPACT ANALYSIS

CITY OF NEWPORT BEACH

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TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

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
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Residences at Newport Center
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Residences at Newport Center development ("Project"). The project is located at the southwest intersection of Newport Center Drive and Anacapa Drive in Newport Center in the heart of Newport Center. The Project is proposed to involve the demolition and removal of "The Newport Beach Car Wash," which consists of a 2,085 gross square foot single-story building that operates as a car wash facility with associated convenience market and gas station and the development of a four-story structure that would contain 28 luxury condominium units and common space areas over a two-level below-grade parking garage. The building footprint (first floor) would be approximately 27,006 sq. ft and the residential units, interior circulation, lobbies, fitness areas, and other communal gathering areas would collectively result in a total gross building area of 103,158 gross sq. ft. The below-grade parking areas would comprise approximately 71,456 gross sq. ft. The podium wall (the outside wall that forms the foundation of the structure) would provide physical separation between the proposed residential units and the adjacent commercial developments to the south and west of the Project site. The unit mix will include 8 residential units on the ground floor, 16 flats on levels 2 and 3 and four penthouses on Level 4.

The results of this Residences at Newport Center Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA. All impacts are considered less than significant without mitigation.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

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

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Residences at Newport Center ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for an analysis of the potential Project-related long-term operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The Project site is located at 150 Newport Center Drive in the City of Newport Beach, as shown on Exhibit 1-A. The Project is located at the southwest intersection of Newport Center Drive and Anacapa Drive in Newport Center in the heart of Newport Center. The site is currently occupied by a 2,085 gross square foot single-story building that operates as a car wash facility with associated convenience market and gas station.

1.2 PROJECT DESCRIPTION

The proposed involves the demolition and removal of "The Newport Beach Car Wash," and redevelopment of the site with a proposed four-story structure that would contain 28 luxury condominium units and common space areas over a two-level below-grade parking garage. The building footprint (first floor) would be approximately 27,006 sq. ft and the residential units, interior circulation, lobbies, fitness areas, and other communal gathering areas would collectively result in a total gross building area of 103,158 gross sq. ft. The below-grade parking areas would comprise approximately 71,456 gross sq. ft. The podium wall (the outside wall that forms the foundation of the structure) would provide physical separation between the proposed residential units and the adjacent commercial developments to the south and west of the Project site. The Project proposes a change in the General Plan land use designation from Regional Commercial Office (CO-R) to Multi-Unit Residential (RM).

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN

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2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those

sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearest residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (4)

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (4)

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 to sensitive land uses are minimized. (5)

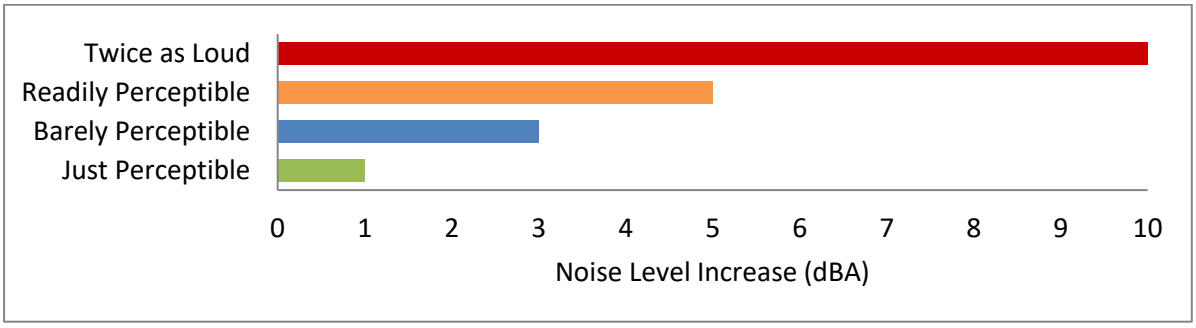
2.7 COMMUNITY RESPONSE TO NOISE

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

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. 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. (6) 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. (6) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



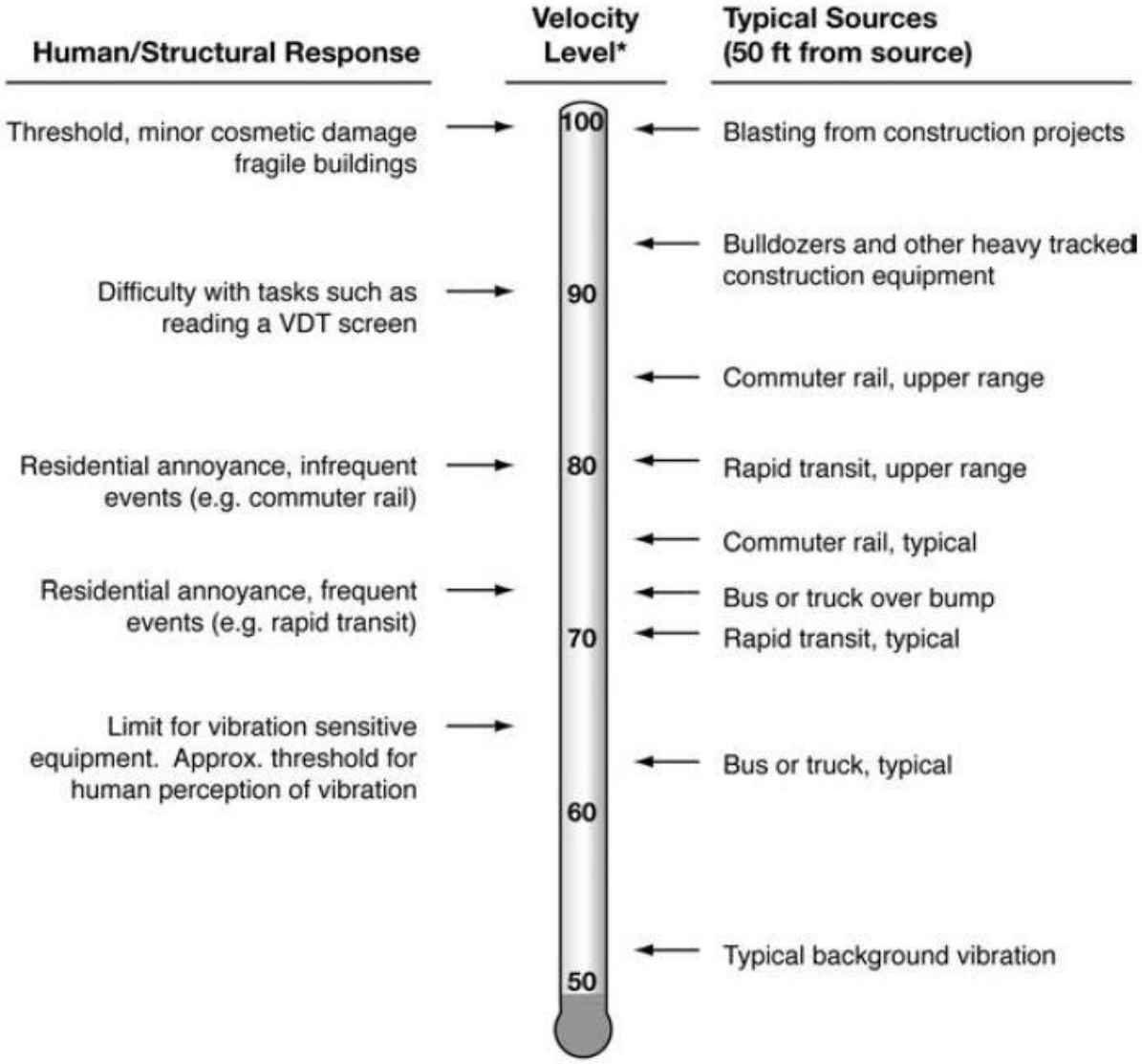
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (7), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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

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



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

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

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 City governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is generally left to by local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each County and City adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (8) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING CODE

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

3.3 CITY OF NEWPORT BEACH GENERAL PLAN NOISE ELEMENT

The City of Newport Beach has adopted a Noise Element of the General Plan to control noise in the planning process in order to maintain compatible land use with environmental noise levels and to ensure that Newport Beach residents will be protected from excessive noise intrusion. (9)

3.3.1 NOISE POLICIES

To protect City of Newport Beach residents from excessive noise, the Noise Element contains the following policies related to the Project:

N 1.1 *Noise Compatibility of New Development: Require that all proposed projects are compatible with the noise environment through use of Table N2 and enforce the interior and exterior noise standards shown in Table N3.*

N 1.4 *New Developments in Urban Areas: Require that applicants of residential portions of mixed-use projects and high density residential developments in urban areas (such as the Airport Area and Newport Center) demonstrate that the design of the structure will adequately isolate noise between adjacent uses and units (common floor/ceilings) in accordance with the California Building Code. (Imp 7.1)*

N 1.8 *Significant Noise Impacts: Require the employment of noise mitigation measures for existing sensitive uses when a significant noise impact is identified. A significant noise impact occurs when there is an increase in the ambient CNEL produced by new development impacting existing sensitive uses. The CNEL increase is shown in the table below.*

CNEL (dBA)	***dBA increase***
55	3
60	2
65	1
70	1
Over 75	Any increase is considered significant

N 2.1 *New Development: Require that proposed noise-sensitive uses in areas of 60 dBA and greater, as determined the analyses stipulated by Policy N1.1, demonstrate that they meet interior and exterior noise levels.*

N 2.2 *Design of Sensitive Land Uses: Require the use of walls, berms, interior noise insulation, double paned windows, or other noise mitigation measures, as appropriate, in the design of new residential or other new noise sensitive land uses that are adjacent to major roads. Application of the Noise Standards in Table N3 shall govern this requirement.*

N 3.1 *New Development: Ensure new development is compatible with the noise environment by using airport noise contours no larger than those contained in the 1985 JWA Master Plan, as guides to future planning and development decisions. (Imp 2.1, 3.1, 4.1)*

N 3.2 *Residential Development: Require that residential development in the Airport Area be located outside of the 65 dBA CNEL noise contour no larger than shown in the 1985 JWA Master Plan and require residential developers to notify prospective purchasers or tenants of aircraft overflight and noise. (Imp 2.1, 3.1, 4.1)*

N 4.1 *Stationary Noise Sources: Enforce interior and exterior noise standards outlined in Table N3, and in the City's Municipal Code to ensure that sensitive noise receptors are not exposed to excessive noise levels from stationary noise sources, such as heating, ventilation, and air conditioning equipment.*

N 4.6 Maintenance or Construction Activities: Enforce the Noise Ordinance noise limits and limits on hours of maintenance or construction activity in or adjacent to residential areas, including noise that results from in-home hobby or work-related activities.

N 5.1 Limiting Hours of Activity: Enforce the limits on hours of construction activity.

3.3.2 LAND USE COMPATIBILITY

The noise criteria identified in the City of Newport Beach Noise Element (Table N2) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels and prevent noise/land use conflicts. The *Land Use Noise Compatibility Matrix* in the City of Newport Beach General Plan provides guidelines to evaluate the acceptability of transportation-related noise level impacts.

EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY MATRIX

Table N2 Land Use Noise Compatibility Matrix

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

The Project's residential uses are considered *normally compatible* with exterior noise levels below 65 dBA CNEL. For *normally compatible* uses, new construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation feature in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

In addition, the City of Newport Beach Noise Element indicates that while California requires that interior noise levels in multi-family residential uses not exceed 45 LDN (day-night noise level); it is commonly used as an interior standard for all residential uses, but is not required under the California Administrative Code, Title 24, and Part 2. This is consistent the City of Newport Beach Noise Element Policy N 1.5 that requires an interior noise standard of 45 dBA CNEL.

3.4 CITY OF NEWPORT BEACH STATIONARY (NON-TRANSPORTATION) NOISE STANDARDS

In addition to the noise/land use compatibility guidelines contained in the General Plan Noise Element, the City of Newport Beach has adopted Community Noise Control policies and standards as part of its Municipal Code to limit unnecessary, excessive and annoying noise in the City. To analyze noise impacts originating from a designated fixed location or private property such as the Residences at Newport Center Project, stationary-source noise such as the expected roof-top mechanical exhaust, dog park activity, and pool activity 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, Chapter 10.26 *Community Noise Control*, establishes the permissible exterior noise levels that may intrude into a neighboring property. According to Section 10.26.025(A) exterior noise levels at single-, two or multiple-family residential land uses (Noise Zone 1) shall not exceed 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (10) For commercial uses, exterior noise levels shall not exceed 65 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 60 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.).

According to Section 10.26.025(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. While the Section 10.26.025(C) of City of Newport Beach Municipal Code permits the use of the existing ambient noise level to describe the base exterior noise level standards, this analysis relies on the more conservative and restrictive standards in Section 10.26.025(A). The City of Newport Beach Municipal Code, Chapter10.26 *Community Noise Control* exterior noise level standards are shown on Table 3-1 and are included in Appendix 3.1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

City	Land Use	Time Period	Base Exterior Noise Level Standards (dBA L_{eq})[2]
Newport Beach[1]	Residential (Noise Zone I)	Daytime	55
		Nighttime	50
	Commercial (Noise Zone II)	Daytime	65
		Nighttime	60

[1] Source: City of Newport Beach Municipal Code, Section 10.26.025 (Appendix 3.1).
[2] Base exterior noise level standards. If the ambient level exceeds allowable exterior Leq noise level, the ambient shall be the standard per Section 10.26.025 (C) of the City of Newport Beach Municipal Code.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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 (included in Appendix 3.2), 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. (11)

TABLE 3-2: CONSTRUCTION NOISE STANDARDS

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

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

Neither the City of Newport Beach General Plan Noise Element or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers. Therefore, a numerical comparison is provided herein based on the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*, which considers a daytime exterior construction noise level of 80 dBA L_{eq} as reasonable for noise sensitive residential land use. (7 p. 179)

3.5 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. (7) 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. (7) Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity.

The City of Newport Beach has not identified or adopted vibration standards. However, the 2006 General Plan Environmental Impact Report (EIR) (12) identified a limit of 72 VdB for frequent events (more than 70 vibrations events per day) at residential uses and buildings where people normally sleep. (7) For infrequent events with fewer than 70 vibration events per day, the vibration limit is 80 VdB. These limits were derived from the FTA guidelines (7) for determining the relative significance of potential Project vibration impacts due to on-site construction activities as shown on Table 3-3.

TABLE 3-3 CONSTRUCTION VIBRATION STANDARDS

Vibration Criteria	Vibration Decibels (VdB) at 25 feet[1]
2006 GP EIR - Human Annoyance (Residential)[1]	72
FTA - Human Annoyance (Residential Daytime)[2]	78
FTA - Human Annoyance (Residential Nighttime)[2]	72
FTA - Human Annoyance (Office)[2]	84

[1] City of Newport Beach General Plan EIR
[2] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.

It should be noted that the General Plan EIR conservatively identified a residential-nighttime threshold of 72 VdB for all circumstances of vibrational energy; including for construction activities which would almost never be expected to occur during the nighttime period (10pm to 7am). The FTA has established vibration criteria of 72 VbB for Residential-Nighttime land use, when no construction activities would be allowed per City of Newport Beach Code Section 10.28.040. The FTA criteria for Residential-Daytime land use is 78 VdB, which would be more applicable to the daytime construction activities. Based on the FTA interpretation for Residential-Daytime use, at 78 VdB Vibration is barely felt.

3.6 AIRPORT LAND USE COMPATIBILITY

John Wayne Airport (JWA) is located approximately 3.6 miles north/northeast of the Project site. The AELUP (13) prepared by the Orange County Airport Land Use Commission (ALUC), identifies noise compatibility policies *to safeguard the general welfare of the inhabitants within the vicinity of the airport and to ensure the continued operation of the airport. Specifically, the AELUP plan seeks to protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable airspace.*

The basic function of the AELUP is to promote compatibility between the airport and the land uses that surround it. As required by State law, the AELUP provides guidance to affected local jurisdictions regarding airport land use compatibility. The main objective of the AELUP is to avoid future compatibility conflicts rather than to remedy existing incompatibilities. Also, the AELUP is

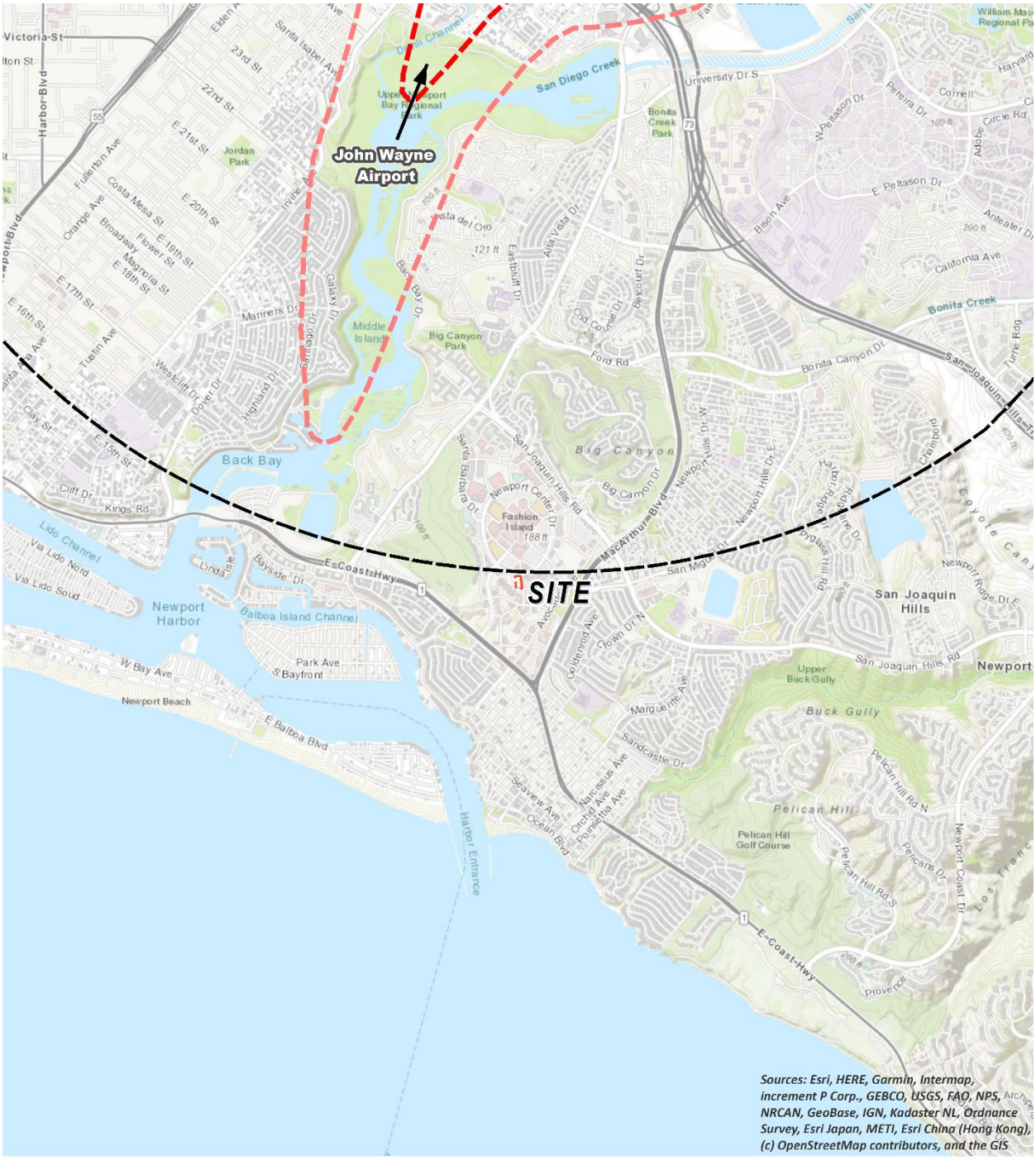
aimed at addressing future land uses and development, not airport activity. The AELUP does not place any restrictions on the present and future role, configuration, or use of the airport. The AELUP establishes aircraft noise exposure exterior noise level compatibility thresholds for new developments by land use category. According to the exterior noise thresholds outlined in Table 1 of the AELUP, residential development is considered *normally consistent* with exterior noise levels of less than 60 dBA CNEL, *conditionally consistent* with exterior noise levels between 60 and 65 dBA CNEL and *normally inconsistent* with exterior noise level above 65 dBA CNEL.

As shown on Exhibit 3-B, the Project site is located outside the 55 dBA CNEL aircraft noise level contour boundaries of JWA. Therefore, according to the AELUP, the Project residential land use is considered *normally consistent* with JWA aircraft noise exposure exterior noise level compatibility thresholds. In addition, the County of Orange has adopted the General Aviation Noise Ordinance (GANO) that prohibits commercial aircraft departures between the hours of 10:00 p.m. and 7:00 a.m. and arrivals between the hours of 11:00 p.m. and 7:00 a.m. (14) These restrictions substantially reduce the aircraft noise levels impacts during the noise sensitive nighttime hours for residential use.

In addition, a review of the AELUP as shown on Exhibit 3-B suggests that the Project may be located just outside the JWA notification area. For Projects located within the notification area, all future residents shall be notified of potential aircraft overflight consistent with the requirements of the AELUP as follows:

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

EXHIBIT 3-B: JOHN WAYNE AIRPORT NOISE LEVEL CONTOUR BOUNDARIES



LEGEND:

N

- Site Boundary
- AELUP Notification Area
- 60 dBA CNEL
- 65 dBA CNEL

Source: Land Use Plan for John Wayne Airport (John Wayne Airport Impact Zones) Amended: April 17, 2008.

4 SIGNIFICANCE CRITERIA

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

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

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

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

While the City of 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, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearest public and private airports, if any, and the Project's land use compatibility.

4.1 AIRPORT NOISE

John Wayne Airport (JWA) is located approximately 3.6 miles north/northeast of the Project site outside the 55 dBA CNEL aircraft noise level contour boundaries. Therefore, the Project site is not located within two miles of a public airport or the vicinity of a private airstrip, and as such, no impact related to the exposure of people residing or working in the Project area to excessive airport related noise levels is anticipated.

4.2 SIGNIFICANCE CRITERIA FOR CONSTRUCTION NOISE AND VIBRATION

The Project's construction noise and vibration impacts are significant if:

- If Project-related construction activities that generate noise are not in compliance with the City of Newport Beach Municipal Code, Section 10.28.040.
- If short-term Project generated construction vibration levels exceed the FTA's vibration threshold of 78 VdB at residential daytime use. (7)

4.3 SIGNIFICANCE CRITERIA FOR OPERATION

The Project's operational noise impacts are significant if:

- If Project-related operational (stationary-source) noise levels exceed the exterior 55 dBA L_{eq} daytime or 50 dBA L_{eq} nighttime noise level standards at nearby noise sensitive residential receiver locations (City of Newport Beach Municipal Code, Section 10.26.025).
- If Project-related operational (stationary-source) noise levels exceed the exterior 65 dBA L_{eq} daytime or 60 dBA L_{eq} nighttime noise level standards at nearby commercial receiver locations (City of Newport Beach Development Code, Section 10.26.025).

- If the existing ambient noise levels at the noise-sensitive receivers near the Project site:
  - are less than 55 dBA CNEL and the Project creates a barely perceptible 3 dBA CNEL or greater Project-related noise level increase; or
  - range from 55 to 60 dBA CNEL and the Project creates a 2 dBA CNEL or greater Project-related noise level increase; or
  - range from 60 to 75 dBA CNEL and the Project creates a 1 dBA CNEL or greater Project-related noise level increase; or
  - already exceed 75 dBA CNEL, and the Project create any noise level increase.

4.4 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY MATRIX

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
On-Site Traffic Noise[1]	Residential	Interior Noise Level Standard	45 dBA CNEL	
Operational Noise	Residential[2]	Exterior Noise Level Standards	55 dBA L_{eq}	50 dBA L_{eq}
	Commercial[2]	Exterior Noise Level Standards	65 dBA L_{eq}	60 dBA L_{eq}
	Noise-Sensitive[3]	If ambient is < 55 dBA CNEL	≥ 3 dBA CNEL Project Increase	
		If ambient is 55 - 60 dBA CNEL	≥ 2 dBA CNEL Project Increase	
		If ambient is 60 - 75 dBA CNEL	≥ 1 dBA CNEL Project Increase	
		If ambient is > 75 dBA CNEL	Any Project Increase	
Construction	All[4]	Noise Level Threshold	Compliance with Municipal Code Section 10.28.040	
	Residential[5]	Vibration Level Threshold	78	n/a

[1] City of Newport Beach General Plan Noise Element Policy N 1.5.
[2] City of Newport Beach Municipal Code, Section 10.26.025 (Appendix 3.1).
[3] City of Newport Beach General Plan Policy N 1.8
[4] Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual.
[5] City of Newport Beach 2006 General Plan EIR.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.;
"n/a" = No nighttime construction activity is permitted, so no nighttime construction noise level limits are identified; "VdB" = Vibration Decibels

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at three locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, August 10th, 2016 to support the existing conditions data reported from the prior CEQA compliance work on this property. No new noise level measurements were collected to support this analysis since the existing conditions are not representative of a normal baseline condition due to the COVID-19 stay-at-home orders.

On August 10th, 2016, the existing use at the Project site was a car wash that includes noise sources such as pressure washers, cars pulling in and out of the lot, vacuums, and dryers. All of the noise level meters were located such that the noise levels from the existing operations of the car wash would be reduced (i.e. closer to Newport Center Drive and away from open-area noise-sources such as the eastern property line).

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. (15)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to*

characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community. (7)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (7) 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 nearest sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels. Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

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

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located at the northern property line of the Project site adjacent to Newport Center Drive.	60.4	53.3	62.0
L2	Located adjacent to the western Project site boundary and an existing parking lot, south of Newport Center Drive.	58.7	50.6	59.8
L3	Located south of the Project site adjacent to Anacapa Drive and an existing parking lot.	57.5	49.2	58.6

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

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

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6 METHODS AND PROCEDURES

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

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (16) This is consistent with the approach used for the City of Newport Beach General Plan Update EIR. (12) 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. (17) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (18)

6.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 6-1. Based on the City of Newport Beach General Plan Circulation Element, Newport Center Drive is classified as a Major Road and Anacapa Drive is classified as a Secondary Road. (19) To predict the future on-site noise environment at the Project site, parameters including the number of lanes and the future buildout average daily traffic volumes were obtained from the City of Newport Beach General Plan Update Environmental Impact Report, Table 4.13-1.

For the purposes of this analysis, soft site conditions were used to analyze the on-site traffic noise impacts for the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (18)

TABLE 6-1: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification[1]	Average Daily Traffic Volume[2]	Speed (mph)[3]	Site Conditions
Newport Center Dr.	6	Major	51,000	40	Soft
Anacapa Dr.	4	Secondary	23,000	40	Soft

[1] City of Newport Beach General Plan Figure CE1 Master Plan of Streets and Highways
[2] City of Newport Beach General Plan Update EIR Table 4.13-1.
[3] Posted speed limit.

The site plan is used to identify the relationship between the roadway centerline elevation, the pad elevation and the centerline distance to any intervening noise barriers, and the building façade. The exterior noise level receiver locations were placed five feet above the finished floor elevation for each floor. Table 6-2 presents the time-of-day vehicle splits and Table 6-3 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-2: TIME OF DAY VEHICLE SPLITS

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

[1] Source: Typical Southern California vehicle mix.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-3: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

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

[1] Source: Typical Southern California vehicle mix.

7 ON-SITE NOISE IMPACTS FROM TRAFFIC

An on-site exterior noise impact analysis has been completed to determine the traffic noise exposure and to identify potential necessary noise abatement measures for the proposed Residences at Newport Center Project. The primary source of traffic noise affecting the Project site is anticipated to be from Newport Center Drive and Anacapa Drive. The Project will also experience some background traffic noise impacts from nearest drive aisles and parking lots, however, due to the low traffic volumes, distance and intervening structures, these are not anticipated to make a significant contribution to the exterior noise levels at the Project site.

7.1 EXTERIOR NOISE ANALYSIS

The analysis shows that the future unmitigated on-site exterior traffic noise levels in private outdoor living patios are estimated to range from 66.2 to 69.7 dBA CNEL at residential dwelling units proposed adjacent to Newport Center Drive and Anacapa Drive as shown on Table 7-1. With the planned 3.5- to 6-foot-high screen walls for the private terraces and patios, the future onsite exterior traffic noise levels are estimated to range from 60.9 to 63.2 dBA CNEL. This satisfies the City of Newport Beach's 65 dBA CNEL *normally compatible* exterior land use compatibility criteria for residential use. Therefore, future exterior traffic noise impacts will be *less than significant*. Appendix 7.1 includes the on-site traffic noise level calculations.

TABLE 7-1: EXTERIOR TRAFFIC NOISE LEVELS

Flat	Roadways	Exterior Noise Level (dBA CNEL)	Mitigated Exterior Noise Level (dBA CNEL)[2]	Exterior Noise Level Threshold (dBA CNEL)[3]	Planned Barrier Height (feet)	Threshold Exceeded?
Flat 1	Anacapa Dr.	66.2	62.2	65	3.5	No
Flat 6	Newport Center Dr.	69.5	62.7	65	6.0	No
Flat 8	Newport Center Dr.	69.7	63.2	65	6.0	No
Flat 8	Anacapa Dr.	67.8	60.9	65	6.0	No

[1] As shown on the Project site plan (Exhibit 1-B)

[2] Combined future exterior noise levels at the building façade. Calculations are included in Appendix 7-1.

[3] City of Newport Beach Land Use Noise Compatibility Thresholds Table N2 (Exhibit 3-A).

7.2 INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the City of Newport Beach 45 dBA CNEL interior noise level standards, future noise levels were calculated at the building façades. Table 7-2 shows that the future exterior noise levels at the first-floor residential building façade are expected to approach 62.9 dBA CNEL. Noise levels at the second, third and fourth floor residential building façade are expected to range from 65.5 to 68.8 dBA CNEL. Table 7-2, Table 7-3, Table 7-4, and Table 7-5 shows that the estimated interior noise levels using typical building construction and standard windows will provide an interior noise level reduction of 25 dBA. With

the standard windows, units facing Newport Center Drive and Anacapa Drive will experience interior levels of up to 43.8 dBA CNEL. This satisfies the City of Newport Beach 45 dBA CNEL interior noise level standards and is *less than significant*.

TABLE 7-2: FIRST FLOOR INTERIOR NOISE LEVELS (CNEL)

1st Floor Building Facade	Floor	Noise Level at Façade[1]	Required Interior NR[2]	Typical Interior NR[3]	Interior Noise Level	Threshold	Threshold Exceeded?
Flat 1	1	56.8	11.8	25.0	31.8	45	No
Flat 6	1	62.8	17.8	25.0	37.8	45	No
Flat 8	1	62.9	17.9	25.0	37.9	45	No
Flat 8	1	60.5	15.5	25.0	35.5	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standard for residential uses.
[3] Typical building construction interior noise reduction with the standard windows.
"NR" = Noise Reduction

TABLE 7-3: SECOND FLOOR INTERIOR NOISE LEVELS (CNEL)

2nd Floor Building Façade Above	Floor	Noise Level at Façade[1]	Required Interior NR[2]	Typical Interior NR[3]	Interior Noise Level	Threshold	Threshold Exceeded?
Flat 1	2	67.2	22.2	25.0	42.2	45	No
Flat 6	2	68.6	23.6	25.0	43.6	45	No
Flat 8	2	68.8	23.8	25.0	43.8	45	No
Flat 8	2	66.7	21.7	25.0	41.7	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standard for residential uses.
[3] Typical building construction interior noise reduction with the standard windows.
"NR" = Noise Reduction

TABLE 7-4: THIRD FLOOR INTERIOR NOISE LEVELS (CNEL)

3rd Floor Building Façade Above	Floor	Noise Level at Façade[1]	Required Interior NR[2]	Typical Interior NR[3]	Interior Noise Level	Threshold	Threshold Exceeded?
Flat 1	3	66.0	21.0	25.0	41.0	45	No
Flat 6	3	68.6	23.6	25.0	43.6	45	No
Flat 8	3	68.8	23.8	25.0	43.8	45	No
Flat 8	3	66.7	21.7	25.0	41.7	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standard for residential uses.
[3] Typical building construction interior noise reduction with the standard windows.
"NR" = Noise Reduction

TABLE 7-5: FOURTH FLOOR INTERIOR NOISE LEVELS (CNEL)

4th Floor Building Façade Above	Floor	Noise Level at Façade[1]	Required Interior NR[2]	Typical Interior NR[3]	Interior Noise Level	Threshold	Threshold Exceeded?
Flat 1	4	65.5	20.5	25.0	40.5	45	No
Flat 6	4	68.2	23.2	25.0	43.2	45	No
Flat 8	4	68.4	23.4	25.0	43.4	45	No
Flat 8	4	66.1	21.1	25.0	41.1	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise standard for residential uses.
[3] Typical building construction interior noise reduction with the standard windows.
"NR" = Noise Reduction

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8 SENSITIVE RECEIVER LOCATIONS

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

To describe the potential off-site Project noise levels, four receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. 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. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents the existing noise sensitive residence at 1110 Granville Drive, approximately 746 feet west of the Project site. R1 is placed at the private outdoor living areas (backyards) facing the Project site. Existing noise level measurement location L1 is used to describe the existing ambient noise environment.

R2: Location R2 represents existing office use at 210 Newport Center Drive, approximately 165 feet east of the Project site. Receiver R2 is placed at the building façade. Existing noise level measurement location L2 is used to describe the existing ambient noise environment.

R3: Location R3 represents the Civic Center Park at 100 Civic Center Drive, approximately 1,002 feet southeast of the Project site. Receiver R3 is placed at the park boundary along Avocado Avenue. Existing noise level measurement location L3 is used to describe the existing ambient noise environment.

R4: Location R4 represents existing office use at 160 Newport Center Drive, approximately 99 feet south of the Project site. Receiver R4 is placed at the building façade. Existing noise level measurement location L3 is used to describe the existing ambient noise environment.

EXHIBIT 8-A: RECEIVER LOCATIONS

9 OPERATIONAL NOISE IMPACTS

The proposed residential development is considered a noise-sensitive receiving land use and is not expected to include any specific type of operational noise levels beyond the typical noise sources associated with residential land use in the Project study area. However, this section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from the typical the operation of the Crestview Apartments Project. Exhibit 9-A identifies the representative noise source locations used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

This noise analysis describes the noise level impacts associated with the expected typical operational activities related to residential mixed use at the Project site. The on-site Project-related operational noise sources are expected to include: roof-top mechanical exhaust, dog park activity, and pool activity.

9.2 REFERENCE OPERATIONAL NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top mechanical exhaust, dog park activity, and pool activity. Appendix 9.1 includes the detailed calculations for the Project operational noise levels presented in this section.

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a combination of Type 1 and Type 2 sound level meters. Each sound level meter was programmed in "slow" mode to record noise levels in "A" weighted form and calibrated prior to each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (15)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCES

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Ref. Distance (Feet)	Noise Source Height (Feet)	Min./Hour[4]		Reference Noise Level (dBA L_{eq})	
			Day	Night	@ Ref. Dist.	@ 50 Feet
Roof-Top Mechanical Exhaust[1]	5'	5’	60	60	67.3	47.3
Dog Park Activity[2]	5'	5'	60	60	62.5	42.5
Pool Activity[3]	5'	4'	60	0	68.7	48.7

[1] Reference Daikin submittal data sheet for 6-Ton VRV-IV Heat Recovery Unit REYQ272TTJU.
[2] As measured by Urban Crossroads, Inc. at La Paws Dog Park in the City of Mission Viejo.
[3] As measured by Urban Crossroads, Inc. in the outdoor patio area of Louie's by the Bay.
[4] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.2.2 REFERENCE ROOF-TOP MECHANICAL EXHAUST

To assess the noise levels created by the roof-top mechanical exhaust reference noise levels were obtained from product data from the Daikin submittal data sheet for 6-Ton VRV-IV Heat Recovery Unit REYQ272TTJU At a uniform reference distance of 50 feet, the reference noise level is 47.3 dBA L_{eq}. It is expected that during typical operating conditions the mechanical equipment will operate continuously during the daytime and nighttime hours.

9.2.3 DOG PARK ACTIVITY

A second reference noise level measurement was collected on Wednesday, October 8th, 2014 at La Paws Dog Park in the City of Mission Viejo. The reference noise level measurement at the small dog park also includes people talking, dogs running, playing fetch, chasing each other, growling, barking, and dog owners talking on cell phones. As shown on Table 9-1, at 5 feet from the noise source, a reference noise level of 62.5 dBA L_{eq} was measured. The dog park activities are estimated to operate continuously for up 60 minutes each hour.

9.2.4 POOL ACTIVITY

To represent the noise levels associated with pool activities, Urban Crossroads collected a reference noise level measurement at the Covenant Hill Clubhouse Pool in the unincorporated community of Ladera Ranch in the County of Orange. The measured reference noise level at the uniform 50-foot reference distance is 48.7 dBA L_{eq} for pool activity. The pool activity noise levels include kids playing, running, screaming, splashing, playing with a ball, and parents talking. Noise associated with pool activities is expected to occur for 60 minutes during all the daytime hours.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially

accurate Development Site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613 protocol, CadnaA 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 at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (PWL) to describe individual noise sources. While sound pressure levels (e.g. L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish from 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. A default ground attenuation factor of 0.0 was used in the CadnaA noise analysis to account for hard site conditions. Appendix 9.1 includes the detailed noise model inputs.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include roof-top mechanical exhaust, dog park activity, and pool activity, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Tables 9-3 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 29.5 to 48.8 dBA L_{eq}.

TABLE 9-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Roof-Top Mechanical Exhaust	23.2	32.9	21.5	26.9
Dog Park Activity	32.0	16.6	28.6	47.8
Pool Activity	41.2	24.6	14.3	41.9
Total (All Noise Sources)	**41.8**	**33.6**	**29.5**	**48.8**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

Table 9-4 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 28.6 to 46.9 dBA L_{eq}. The differences between the daytime and nighttime noise levels is largely related to the duration of noise activity (Table 9-1).

TABLE 9-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Roof-Top Mechanical Exhaust	23.2	32.9	21.5	26.9
Dog Park Activity	31.0	15.6	27.6	46.9
Pool Activity	0.0	0.0	0.0	0.0
Total (All Noise Sources)	**31.7**	**33.0**	**28.6**	**46.9**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against the City of Newport Beach exterior noise level standards at nearest noise-sensitive receiver locations. For the noise-sensitive residential land use, the City of Newport Beach has established exterior noise level standards of 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (10) 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 (Section 10.26.025(C)). While the Section 10.26.025(C) of City of Newport Beach Municipal Code permits the use of the existing ambient noise level to describe the base exterior noise level standards, this analysis relies on the more conservative and restrictive standards outlined in Section 10.26.025(A). Table 9-5 shows that the operational noise levels associated with Residences at Newport Center Project will satisfy the City of Newport Beach exterior noise level standards at all nearest receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearest noise-sensitive receiver locations.

TABLE 9-5: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	41.8	31.7	55	50	No	No
R2	33.6	33.0	55	50	No	No
R3	29.5	28.6	55	50	No	No
R4	48.8	46.9	55	50	No	No

[1] See Exhibit 9-A for the noise source and receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-3 and 9-4.
[3] Base exterior noise level standards as shown on Table 3-1. If the ambient level exceeds allowable exterior Leq noise level, the ambient shall be the standard per Section 10.26.025 (C) of the City of Newport Beach Municipal Code.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASE

To describe the Project operational noise level increase, the Project operational noise levels are combined with the existing ambient noise levels measurements for nearest 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. (2) Instead, they must be logarithmically added using the following base equation:

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level increase to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime ambient conditions are presented on Tables 9-6 and Table 9-7. As indicated on Table 9-6 and Table 9-7, the Project will generate a daytime operational noise level increases ranging from 0.0 to 0.6 dBA L_{eq} and nighttime noise ranging from 0.0 to 2.0 dBA L_{eq} at the nearby receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented on Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 9-6: PROJECT DAYTIME NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Threshold[7]	Threshold Exceeded?[7]
R1	41.8	L1	60.4	60.5	0.1	1	No
R2	33.6	L2	58.7	58.7	0.0	2	No
R3	29.5	L3	57.5	57.5	0.0	2	No
R4	48.8	L3	57.5	58.1	0.6	2	No

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

TABLE 9-7: PROJECT NIGHTTIME NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Threshold[7]	Threshold Exceeded?[7]
R1	31.7	L1	53.3	53.3	0.0	3	No
R2	33.0	L2	50.6	50.7	0.1	3	No
R3	28.6	L3	49.2	49.2	0.0	3	No
R4	46.9	L3	49.2	51.2	2.0	3	No

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

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10 CONSTRUCTION NOISE IMPACTS

Construction noise represents the combination of several types of equipment, the location of the equipment, and the duration of the noise-generating activities through different stages of construction. Each stage of construction involves the use of different types of construction equipment with unique noise characteristics operating at the varying distances within the construction activity area.

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

10.1 CONSTRUCTION NOISE SOURCES

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

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver. At distances of less than 50 feet the noise levels will increase at a rate of 6 dBA per halving of distance.

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

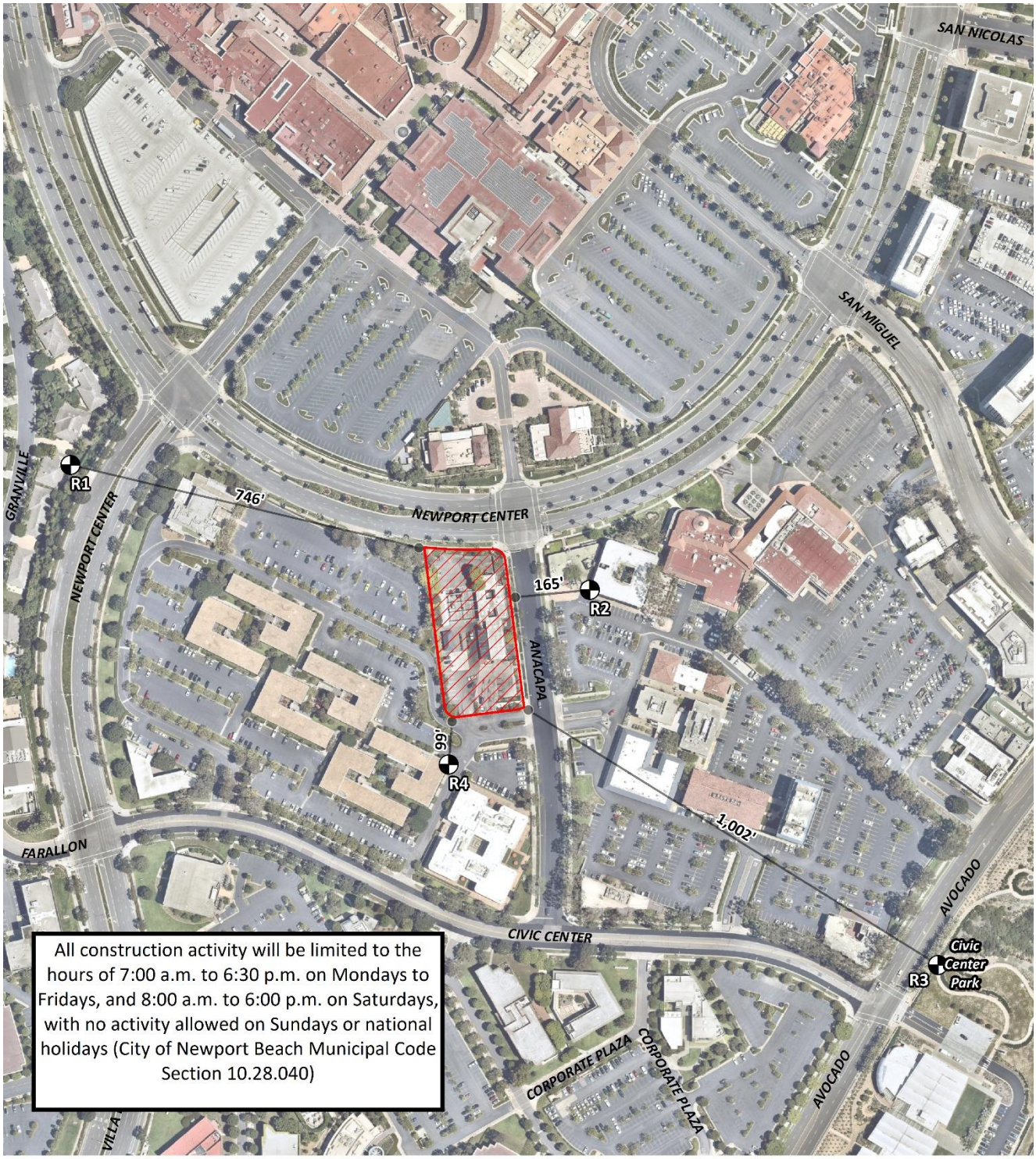
To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the construction reference noise level measurements for each stage of construction. Since the reference noise levels were collected at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

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Highest Reference Noise Level (dBA L_{eq})
Demolition	Demolition Activity	67.9	71.9
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Site Preparation	Scraper, Water Truck, & Dozer Activity	75.3	75.3
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Grading	Rough Grading Activities	73.5	73.5
	Water Truck Pass-By & Backup Alarm	71.9	
	Construction Vehicle Maintenance Activities	67.5	
Building Construction	Foundation Trenching	68.2	71.6
	Framing	62.3	
	Concrete Mixer Backup Alarms & Air Brakes	71.6	
Paving	Concrete Mixer Truck Movements	71.2	71.2
	Concrete Paver Activities	65.6	
	Concrete Mixer Pour & Paving Activities	65.9	
Architectural Coating	Air Compressors	65.2	65.2
	Generator	64.9	
	Crane	62.3	

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

EXHIBIT 10-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS



10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels, calculations of the Project construction noise level impacts at the nearest sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location.

Table 10-2 presents the highest reference short-term construction noise levels for the demolition, site preparation, and grading stage of construction. The reference construction noise levels used in the analysis include multiple pieces of equipment (scraper, water truck and dozer) operating at once. The highest reference noise source used in the Project construction noise analysis represents multiple pieces of construction equipment operating simultaneously to conservatively estimate Project construction noise levels. At distances of less than 50 feet the noise levels will increase at a rate of 6 dBA per halving of distance.

Table 10-2 provides a summary of the construction noise levels at the nearest noise-sensitive receiver locations using the highest reference noise level of 75.3 dBA L_{eq} from Table 10-1. The construction noise levels associated with the proposed Project are expected to create temporarily high noise levels at the nearest receiver locations. To assess the worst-case construction noise levels, this analysis shows the highest noise impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity to each receiver location. Appendix 10.1 includes the detailed calculations for the Project construction noise levels presented in this section.

TABLE 10-2: CONSTRUCTION ACTIVITY NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[3]
R1	53.5	56.9	55.1	53.2	52.8	46.8	56.9
R2	63.0	66.4	64.6	62.7	62.3	56.3	66.4
R3	51.3	54.7	52.9	51.0	50.6	44.6	54.7
R4	63.8	67.2	65.4	63.5	63.1	57.1	67.2

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

The applicant has stated that they will abide by restrictions set by The City of Newport Beach 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 (included in Appendix 3.2):

A. 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, unless authorized to do so in accordance with subsection (B) of this section.

B. The provisions of subsection (A) of this section shall not apply to the following:

   1. Work performed on any weekday, which is not a federal holiday, between the hours of 7:00 a.m. and 6:30 p.m.

   2. Work performed on a Saturday, in any area of the City that is not designated as a high-density area, between the hours of 8:00 a.m. and 6:00 p.m.

   3. Emergency work performed pursuant to written authorization of the Community Development Director, or his or her designee.

   4. 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:

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. (11) For informational purposes, the Project's construction noise levels are compared against the FTA's acceptable noise level of 80 dBA L_{eq} for sensitive receiver locations. Table 10-3 shows the highest construction noise levels at the potentially impacted receiver locations are estimated to range from 56.9 to 67.2 dBA L_{eq} The noise impact due to Project construction noise levels is considered a *less than significant* impact at all nearest sensitive receiver locations.

TABLE 10-3: CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE

Receiver Location[1]	Land Use[2]	Highest Construction Noise Levels (dBA L_{eq})[3]
R1 - (1110 Granville Dr.)	Residential	56.9
R2 - (210 Newport Center Drive)	Office	66.4
R3 - (Civic Center Park)	Park	54.7
R4 - (160 Newport Center Drive)	Office	67.2

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] City of Newport Beach Interactive Map (Zoning)
[3] Estimated construction noise levels during peak operating conditions, as shown on Table 10-2.

These *less than significant* findings are consistent with the 2006 General Plan Environmental Impact Report (EIR) (12): *Construction activities would be an ongoing occurrence in the City and, in particular cases, could occur in close proximity to noise-sensitive uses. Although the proposed General Plan Update limits construction activities to specific days of the week and hours of the day, construction equipment generates high noise levels, as shown in Table 4.9-9 and may not always be reducible to the levels specified in the City Noise Ordinance. Section 10.26.035 of the Municipal Code (Exemptions), exempts "noise sources associated with construction, repair, remodeling, demolition, or grading of any real property." Section 10.26.035 also states that construction noise should fall under the provisions of Section 10.28 of the Code (Loud and Unreasonable Noise). Thus, construction noise is not subject to the noise standards in the Municipal Code, but only during limited hours of the day and days of the week. In sum, existing and future construction noise levels at individual construction sites may not substantially differ, but previously unexposed areas could experience new sources of construction noise. Both existing and future noise would be exempt from the City code and when construction noise occurs, impacts would be considered less than significant.*

10.5 CONSTRUCTION VIBRATION IMPACTS

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 10-4. 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: $L_{VdB}(D) = L_{VdB}(25\text{ ft}) - 30\log(D/25)$.

TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Vibration Decibels (VdB) at 25 feet[1]
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large bulldozer	87

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

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

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to buildings, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.

- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Using the vibration source level of construction equipment provided on Table 10-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-5 shows the highest construction vibration levels are estimated to range from 42.8 to 69.1 VdB. Using the construction vibration assessment methods provided by the FTA, Project construction vibration levels would not exceed the FTA 78 VdB threshold at all receiver locations, and therefore, is considered a *less than significant* impact. 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 at the Project site perimeter.

TABLE 10-5: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Land Use	Distance to Construction Activity (Feet)	Receiver Vibration Levels (VdB)[2]					Threshold (VdB)[3]	Threshold Exceeded?[4]
			Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels		
R1	Residential	746'	13.8	34.8	41.8	42.8	42.8	78	No
R2	Office	165'	33.4	54.4	61.4	62.4	62.4	78	No
R3	Park	1,002'	9.9	30.9	37.9	38.9	38.9	78	No
R4	Office	99'	40.1	61.1	68.1	69.1	69.1	78	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 10-4.
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment.
[4] Does the vibration level exceed the FTA acceptable vibration level for the given land use?

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G & Amendments and Additions to the State CEQA Guidelines.* 2019.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* June, 1995.
5. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
6. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
7. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
8. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2018.
9. **City of Newport Beach.** *General Plan Noise Element.* November, 2006.
10. —. *Municipal Code, Chapter 10.26 Community Noise Control.*
11. —. *Municipal Code, Chapter 10.28 Loud and Unreasonable Noise.*
12. —. *Draft Environmental Impact Report General Plan 2006 Update.* April 2006.
13. **Orange County Airport Land Use Commission.** *Land Use Plan for John Wayne Airport.* April 2008.
14. **County of Orange.** *General Aviation Operations Sec. 2-1-30.5.* 2015.
15. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
16. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
17. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
18. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
19. **City of Newport Beach.** *General Plan Circulation Element Figure CE1 Master Plan of Streets and Highways.* September 2006.

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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 Residences at Newport Center 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 – City 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 CHAPTER 10.26

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Chapter 10.26
COMMUNITY NOISE CONTROL

Sections:

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.

“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:

Noise Zone I	—	All single-, two- and multiple-family residential properties;
Noise Zone II	—	All commercial properties;
Noise Zone III	—	The residential portion of mixed-use properties;
Noise 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:

NOISE ZONE	TYPE OF LAND USE	ALLOWABLE EXTERIOR NOISE LEVEL (Equivalent Noise Level, Leq) 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
II	Commercial	65 DBA	60 DBA
III	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:

NOISE ZONE	TYPE OF LAND USE	ALLOWABLE INTERIOR NOISE LEVEL (Equivalent Noise Level, Leq) 7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
I	Residential	45 DBA	40 DBA
III	Residential portions of mixed-use properties	45 DBA	40 DBA

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 10.28 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 10.28 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;

I. 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 10.28 and 10.58 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 7.20 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 10.26.045(B) 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 10.26.025 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 10.26.030 of this chapter until January 1, 1998.

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 10.26.005.

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 10.26.030 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 10.32 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 10.28 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 10.26.025 and 10.26.030 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.

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

APPENDIX 3.2:

CITY OF NEWPORT BEACH MUNICIPAL CODE CHAPTER 10.28

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Chapter 10.28
LOUD AND UNREASONABLE NOISE*

Sections:

* Sound-amplifying equipment—See Chapter 10.32.

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 20 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 1.04.010 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 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 1.04.010 of this Code. (Ord. 2001-4 § 3 (part), 2001: Ord. 95-38 § 3 (part), 1995)

10.28.040 Construction Activity—Noise Regulations.

A. 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, unless authorized to do so in accordance with subsection (B) of this section.

B. The provisions of subsection (A) of this section shall not apply to the following:

1. Work performed on any weekday, which is not a federal holiday, between the hours of 7:00 a.m. and 6:30 p.m.

2. Work performed on a Saturday, in any area of the City that is not designated as a high-density area, between the hours of 8:00 a.m. and 6:00 p.m.

3. Emergency work performed pursuant to written authorization of the Community Development Director, or his or her designee.

4. 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; or

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.

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. 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 1.04.010, or any successor section, of this Code.

E. Designated High-Density Area. The term “designated high-density area” shall mean any shaded area on the following map. See Exhibit A*. The geographical boundaries of a homeowners’ association, as defined in subsection (F) of this section, shall be excluded from the definition of a “designated high-density area” if the City Council adopts a resolution pursuant to subsection (F) of this section.

F. A homeowners’ association located within a designated high-density area may exclude the geographical boundaries of the homeowners’ association from the definition of a designated high-density area if:

1. The board of directors of the homeowners’ association votes to approve a resolution or letter declaring its desire to exempt its geographical boundaries from the definition of a designated high-density area;

2. The board of directors submits the approved resolution or letter to the City Clerk for consideration by the City Council; and

3. The City Council adopts a resolution finding that exempting the geographical boundaries of the homeowners’ association from the definition of a designated high-density area will not negatively affect surrounding property owners.

For the purpose of this subsection, a “homeowners’ association” means an organization consisting of at least thirty (30) voting members whose properties connect in a contiguous manner and whose operation is governed by a board of directors. (Ord. 2019-11 §§ 1, 2, 2019; Ord. 2019-9 § 1, 2019: Ord. 2013-11 § 35, 2013; Ord. 2001-4 § 3 (part), 2001: Ord. 95-38 § 3 (part), 1995)

*Exhibit A is on file in the City Clerk’s office.

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 6.04.055, 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 not be operated at a noise level that exceeds an A-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 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 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 1.04.010 of this Code. (Ord. 2019-9 § 2, 2019; Ord. 2001-4 § 3 (part), 2001: Ord. 95-38 § 3 (part), 1995)

APPENDIX 5.1:

STUDY AREA PHOTOS

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L1
33, 36' 43.829900", 117, 52' 32.114800"

L1_N
33, 36' 43.829900", 117, 52' 32.114800"

L1_NE
33, 36' 43.829900", 117, 52' 32.114800"

L1_W
33, 36' 43.829900", 117, 52' 32.114800"

L2
33, 36' 45.793700", 117, 52' 32.801500"

L2_N
33, 36' 45.793700", 117, 52' 32.801500"

L2_S
33, 36' 45.793700", 117, 52' 32.801500"

L2_W
33, 36' 42.305600", 117, 52' 34.806500"

L3_E
33, 36' 41.591400", 117, 52' 28.214700"

L3_N
33, 36' 41.591400", 117, 52' 28.214700"

L3_N2
33, 36' 40.245600", 117, 52' 32.499300"

L3_SE
33, 36' 41.591400", 117, 52' 28.214700"

L3_W
33, 36' 40.245600", 117, 52' 32.499300"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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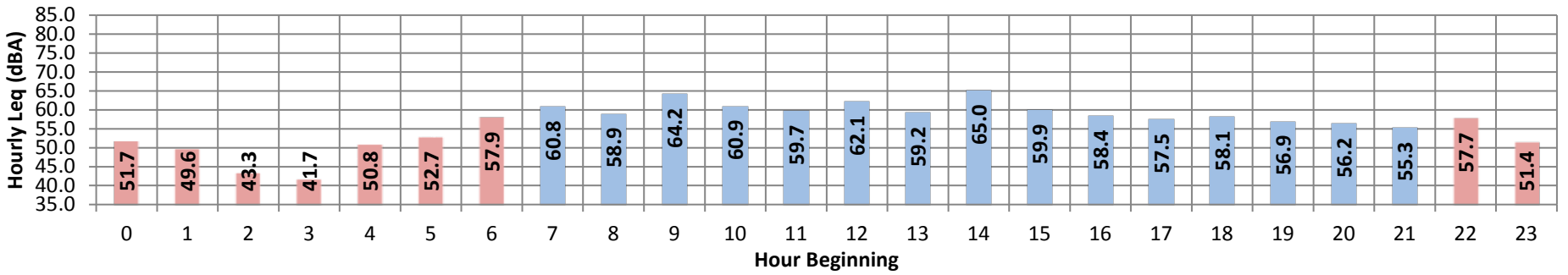
24-Hour Noise Level Measurement Summary

Project Name:	150 Newport Center	*JN:*	10468	*Energy Average Leq*	*24-Hour*
Location:	L1 - Located at the northern property line of the Project site adjacent to Newport Center Drive.	*Analyst:*	A. Wolfe	*Day* / *Night*	*CNEL*
		Date:	8/10/2016	60.4 / 53.3	62.0

Hourly Leq dBA Readings (unadjusted)



Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	55.3	75.5	43.2	65.0	63.0	60.0	59.0	53.0	49.0	44.0	44.0	43.0
	Max	65.0	87.8	49.2	77.0	74.0	67.0	65.0	60.0	56.0	52.0	51.0	50.0
Energy Average:		60.4	Average:		69.5	66.8	63.1	61.7	57.5	53.9	49.3	48.5	47.5
Night	Min	41.7	59.6	39.4	47.0	44.0	42.0	42.0	40.0	40.0	39.0	39.0	39.0
	Max	57.9	84.4	44.9	69.0	65.0	61.0	60.0	54.0	50.0	47.0	47.0	45.0
Energy Average:		53.3	Average:		60.3	57.2	53.2	51.0	45.8	43.2	41.9	41.6	41.1
Hourly Summary													
Night	0	51.7	80.1	41.7	61.0	58.0	51.0	48.0	43.0	42.0	42.0	41.0	41.0
	1	49.6	76.1	39.6	57.0	56.0	54.0	51.1	43.0	41.0	40.0	40.0	39.0
	2	43.3	64.1	39.4	53.0	49.0	45.0	43.0	40.0	40.0	39.0	39.0	39.0
	3	41.7	59.6	39.5	47.0	44.0	42.0	42.0	41.0	40.0	39.0	39.0	39.0
	4	50.8	74.0	40.7	62.0	58.0	55.0	53.0	49.0	42.0	41.0	40.0	40.0
	5	52.7	77.6	41.9	64.0	61.0	57.0	53.0	46.0	44.0	43.0	42.0	42.0
	6	57.9	81.5	44.9	69.0	65.0	61.0	60.0	54.0	50.0	47.0	47.0	45.0
Day	7	60.8	78.1	45.9	69.0	68.0	66.0	65.0	60.0	55.0	49.0	47.0	46.0
	8	58.9	75.5	47.1	68.0	66.0	63.0	62.0	59.0	55.0	50.0	49.0	48.0
	9	64.2	87.8	47.2	76.0	72.0	65.0	63.0	59.0	55.0	51.0	50.0	48.0
	10	60.9	84.9	49.2	72.0	68.0	64.0	62.0	59.0	55.0	51.0	50.0	49.0
	11	59.7	80.8	48.5	68.0	66.0	63.0	62.0	59.0	56.0	51.0	50.0	49.0
	12	62.1	87.2	49.0	72.0	69.0	65.0	63.0	59.0	56.0	52.0	51.0	50.0
	13	59.2	84.8	48.6	68.0	66.0	63.0	62.0	58.0	55.0	51.0	50.0	49.0
	14	65.0	87.8	48.8	77.0	74.0	67.0	65.0	59.0	55.0	51.0	50.0	49.0
	15	59.9	80.9	48.5	70.0	66.0	63.0	61.0	57.0	54.0	50.0	50.0	49.0
	16	58.4	77.0	48.0	68.0	65.0	62.0	61.0	57.0	54.0	50.0	50.0	49.0
	17	57.5	75.8	48.1	67.0	65.0	62.0	61.0	57.0	54.0	50.0	49.0	49.0
	18	58.1	78.1	45.2	69.0	66.0	62.0	61.0	56.0	52.0	47.0	47.0	46.0
	19	56.9	76.5	44.4	67.0	64.0	61.0	60.0	56.0	52.0	46.0	45.0	45.0
	20	56.2	77.6	43.8	66.0	64.0	61.0	59.0	55.0	51.0	46.0	45.0	44.0
	21	55.3	80.1	43.2	65.0	63.0	60.0	59.0	53.0	49.0	44.0	44.0	43.0
Night	22	57.7	84.4	42.5	68.0	64.0	59.0	56.0	49.0	46.0	43.0	43.0	43.0
	23	51.4	71.4	42.5	62.0	60.0	55.0	53.0	47.0	44.0	43.0	43.0	42.0

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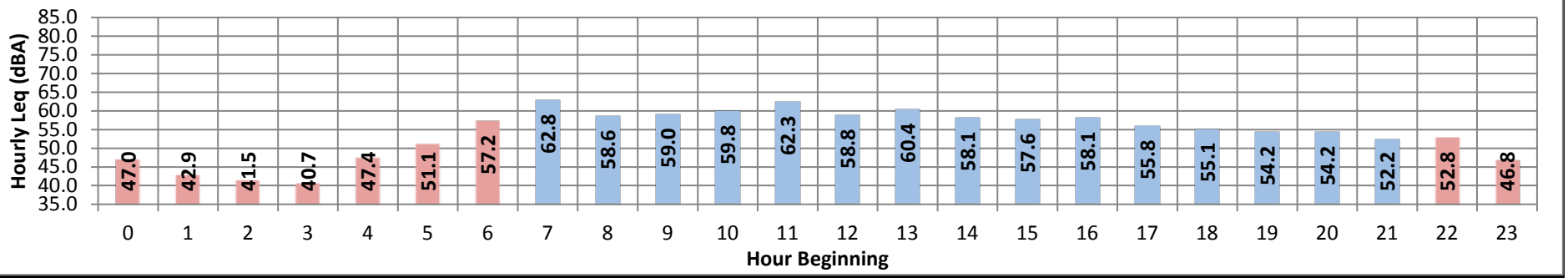
24-Hour Noise Level Measurement Summary

				Energy Average Leq		24-Hour
Project Name:	150 Newport Center	*JN:*	10468	*Day*	*Night*	*CNEL*
Location:	L2 - Located adjacent to the western Project site boundary and an existing parking lot, south of Newport Center Drive.	*Analyst:*	A. Wolfe	58.7	50.6	59.8
		Date:	8/10/2016			

Hourly Leq dBA Readings (unadjusted)



Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	52.2	68.1	41.5	62.0	61.0	58.0	55.0	50.0	46.0	43.0	43.0	42.0
	Max	62.8	82.6	54.3	74.0	71.0	70.0	68.0	61.0	58.0	56.0	55.0	54.0
Energy Average:		58.7	Average:		66.3	64.7	62.5	60.9	56.7	54.2	52.1	51.6	50.9
Night	Min	40.7	51.9	37.7	45.0	44.0	42.0	42.0	41.0	39.0	39.0	37.0	37.0
	Max	57.2	79.1	48.9	66.0	65.0	62.0	61.0	55.0	53.0	50.0	49.0	49.0
Energy Average:		50.6	Average:		55.9	53.3	49.8	48.3	45.6	43.8	41.7	40.7	40.2
Hourly Summary													
Night	0	47.0	66.4	39.5	60.0	56.0	48.0	45.0	42.0	41.0	40.0	39.0	39.0
	1	42.9	65.8	37.8	53.0	46.0	43.0	42.0	41.0	39.0	39.0	37.0	37.0
	2	41.5	54.3	37.8	48.0	47.0	45.0	43.0	41.0	40.0	39.0	38.0	37.0
	3	40.7	51.9	37.7	45.0	44.0	42.0	42.0	41.0	39.0	39.0	38.0	37.0
	4	47.4	62.5	37.8	55.0	53.0	49.0	48.0	47.0	46.0	40.0	39.0	39.0
	5	51.1	68.7	42.0	58.0	56.0	54.0	53.0	51.0	49.0	45.0	45.0	43.0
	6	57.2	78.1	48.9	66.0	65.0	62.0	61.0	55.0	53.0	50.0	49.0	49.0
Day	7	62.8	75.2	52.6	72.0	71.0	70.0	68.0	61.0	57.0	53.0	53.0	53.0
	8	58.6	69.9	52.9	66.0	65.0	63.0	61.0	58.0	56.0	55.0	54.0	53.0
	9	59.0	69.7	52.2	66.0	66.0	64.0	62.0	59.0	56.0	54.0	53.0	53.0
	10	59.8	73.4	53.1	67.0	66.0	64.0	63.0	59.0	57.0	55.0	55.0	54.0
	11	62.3	82.6	54.3	74.0	68.0	65.0	64.0	60.0	58.0	56.0	55.0	54.0
	12	58.8	71.7	53.7	66.0	65.0	63.0	61.0	58.0	57.0	55.0	55.0	54.0
	13	60.4	76.8	53.9	69.0	68.0	65.0	63.0	58.0	57.0	55.0	55.0	54.0
	14	58.1	69.6	53.8	65.0	63.0	62.0	61.0	57.0	56.0	55.0	55.0	54.0
	15	57.6	73.8	51.9	65.0	64.0	62.0	60.0	57.0	55.0	53.0	53.0	52.0
	16	58.1	72.0	52.3	67.0	65.0	63.0	61.0	57.0	55.0	54.0	53.0	53.0
	17	55.8	69.0	51.5	62.0	61.0	59.0	58.0	56.0	54.0	53.0	52.0	52.0
	18	55.1	69.1	47.2	63.0	62.0	60.0	59.0	55.0	52.0	49.0	49.0	48.0
	19	54.2	70.6	43.6	64.0	62.0	60.0	58.0	52.0	49.0	46.0	45.0	44.0
	20	54.2	69.4	43.1	64.0	63.0	60.0	59.0	53.0	48.0	45.0	44.0	43.0
	21	52.2	68.1	41.5	64.0	62.0	58.0	55.0	50.0	46.0	43.0	43.0	42.0
Night	22	52.8	79.1	41.2	62.0	59.0	54.0	51.0	46.0	44.0	42.0	41.0	41.0
	23	46.8	61.6	39.7	56.0	54.0	51.0	50.0	46.0	43.0	41.0	40.0	40.0

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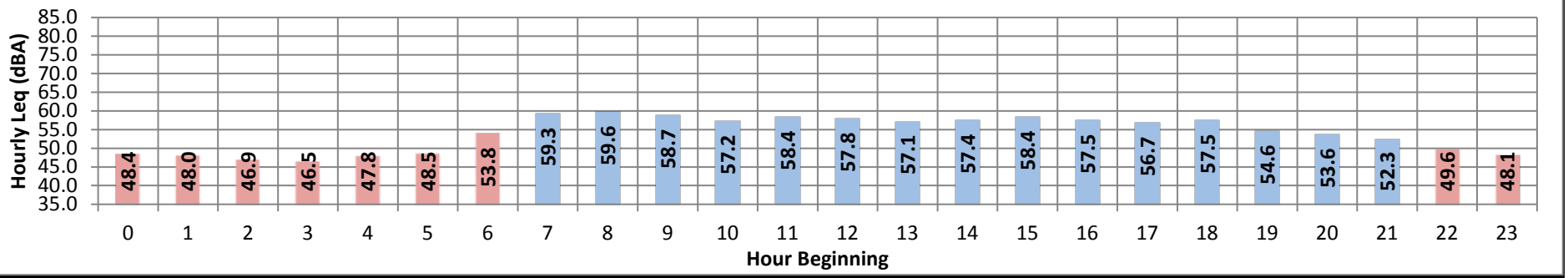
24-Hour Noise Level Measurement Summary

				Energy Average Leq		24-Hour
Project Name:	150 Newport Center	*JN:*	10468	*Day*	*Night*	*CNEL*
Location:	L3 - Located south of the Project site adjacent to Anacapa Drive and an existing parking lot.	*Analyst:*	A. Wolfe	57.5	49.2	58.6
		Date:	8/10/2016			

Hourly Leq dBA Readings (unadjusted)



Time Period	*Hour*	*Leq*	*Lmax*	*Lmin*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	52.3	69.2	46.9	62.0	60.0	57.0	56.0	50.0	48.0	47.0	47.0	47.0
	Max	59.6	82.6	50.3	70.0	67.0	65.0	63.0	60.0	56.0	52.0	51.0	50.0
Energy Average:		57.5	Average:		65.4	63.5	61.3	60.1	56.2	53.2	50.3	49.8	49.1
Night	Min	46.5	60.0	45.1	48.0	47.0	47.0	47.0	46.0	46.0	45.0	45.0	45.0
	Max	53.8	66.5	46.7	62.0	61.0	60.0	58.0	52.0	50.0	47.0	47.0	46.0
Energy Average:		49.2	Average:		55.1	53.2	50.4	49.3	47.6	46.9	45.7	45.7	45.4
Hourly Summary													
Night	0	48.4	64.3	46.1	56.0	52.0	48.0	48.0	47.0	47.0	46.0	46.0	46.0
	1	48.0	62.1	45.4	56.0	54.0	49.0	48.0	47.0	46.0	45.0	45.0	45.0
	2	46.9	62.0	45.1	50.0	49.0	49.0	48.0	46.0	46.0	45.0	45.0	45.0
	3	46.5	60.0	45.3	48.0	47.0	47.0	47.0	46.0	46.0	45.0	45.0	45.0
	4	47.8	63.1	45.5	53.0	52.0	49.0	48.0	48.0	46.0	45.0	45.0	45.0
	5	48.5	66.5	45.8	56.0	54.0	50.0	49.0	47.0	47.0	46.0	46.0	46.0
	6	53.8	66.0	46.2	62.0	61.0	60.0	58.0	52.0	50.0	46.0	46.0	46.0
Day	7	59.3	71.3	47.3	67.0	66.0	64.0	63.0	60.0	56.0	49.0	48.0	48.0
	8	59.6	71.9	49.1	68.0	67.0	65.0	63.0	59.0	56.0	51.0	50.0	49.0
	9	58.7	77.7	49.2	68.0	65.0	63.0	62.0	57.0	54.0	51.0	51.0	49.0
	10	57.2	74.7	49.6	64.0	63.0	62.0	61.0	57.0	54.0	51.0	51.0	50.0
	11	58.4	82.6	49.2	66.0	64.0	61.0	60.0	57.0	54.0	51.0	50.0	49.0
	12	57.8	76.0	49.6	66.0	64.0	62.0	60.0	57.0	55.0	52.0	51.0	50.0
	13	57.1	72.5	49.9	65.0	63.0	61.0	60.0	57.0	54.0	52.0	51.0	50.0
	14	57.4	74.6	49.5	65.0	63.0	61.0	60.0	57.0	54.0	52.0	51.0	50.0
	15	58.4	81.7	49.6	65.0	63.0	61.0	60.0	57.0	55.0	51.0	51.0	50.0
	16	57.5	79.3	50.3	64.0	63.0	61.0	60.0	57.0	54.0	51.0	51.0	50.0
	17	56.7	73.0	49.7	65.0	63.0	61.0	60.0	56.0	53.0	51.0	50.0	50.0
	18	57.5	74.4	48.4	70.0	66.0	62.0	60.0	55.0	52.0	49.0	49.0	49.0
	19	54.6	69.6	48.1	64.0	62.0	60.0	59.0	54.0	50.0	48.0	48.0	48.0
	20	53.6	73.8	47.4	62.0	60.0	58.0	57.0	53.0	49.0	48.0	48.0	47.0
	21	52.3	69.2	46.9	62.0	60.0	57.0	56.0	50.0	48.0	47.0	47.0	47.0
Night	22	49.6	65.2	46.7	59.0	57.0	52.0	50.0	48.0	47.0	47.0	47.0	46.0
	23	48.1	60.9	45.7	56.0	53.0	50.0	48.0	47.0	47.0	46.0	46.0	45.0

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APPENDIX 7.1:

ON-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: First Floor With Wall
Road Name: Anacapa Dr.
Lot No: Flat 1

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	40 feet

Site Data

Barrier Height:	**3.5 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	77.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	172.8 feet
Road Elevation:	162.0 feet
Barrier Elevation:	172.8 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	162.000		
Medium Trucks:	164.297		
Heavy Trucks:	170.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	75.629
Medium Trucks:	75.167
Heavy Trucks:	74.759

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	2.18	-2.80	-1.20	*0.02*	-5.200	-8.200
Medium Trucks:	76.31	-15.06	-2.76	-1.20	*0.00*	-4.900	-7.900
Heavy Trucks:	81.16	-19.02	-2.72	-1.20	*-0.01*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	57.3	55.8	49.4	47.9	56.3	56.6
Heavy Trucks:	58.2	56.8	47.8	49.0	57.4	57.5
Vehicle Noise:	66.8	65.0	62.3	57.2	65.7	66.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.3	58.4	56.7	50.6	59.2	59.8
Medium Trucks:	52.4	50.9	44.5	43.0	51.4	51.7
Heavy Trucks:	58.2	56.8	47.8	49.0	57.4	57.5
Vehicle Noise:	62.8	61.1	57.4	53.3	61.8	62.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: First Floor With Wall
Road Name: Newport Center Dr.
Lot No: Flat 6

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	93.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	166.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	166.000		
Medium Trucks:	168.297		
Heavy Trucks:	174.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	87.383
Medium Trucks:	87.067
Heavy Trucks:	86.619

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	5.64	-3.74	-1.20	*0.28*	-7.360	-10.360
Medium Trucks:	76.31	-11.60	-3.72	-1.20	*0.20*	-6.800	-9.800
Heavy Trucks:	81.16	-15.56	-3.68	-1.20	*0.05*	-5.500	-8.500

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	66.2	64.4	58.3	67.0	67.6
Medium Trucks:	59.8	58.3	51.9	50.4	58.8	59.1
Heavy Trucks:	60.7	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	69.3	67.5	64.8	59.7	68.3	68.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.7	58.8	57.0	51.0	59.6	60.2
Medium Trucks:	53.0	51.5	45.1	43.6	52.0	52.3
Heavy Trucks:	55.2	53.8	44.8	46.0	54.4	54.5
Vehicle Noise:	62.3	60.6	57.5	52.7	61.3	61.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: First Floor With Wall
Road Name: Newport Center Dr.
Lot No: Flat 8

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	71.0 feet
Centerline Dist. to Observer:	91.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	168.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	168.000		
Medium Trucks:	170.297		
Heavy Trucks:	176.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	84.922
Medium Trucks:	84.664
Heavy Trucks:	84.377

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	5.64	-3.55	-1.20	*0.22*	-6.940	-9.940
Medium Trucks:	76.31	-11.60	-3.53	-1.20	*0.14*	-6.320	-9.320
Heavy Trucks:	81.16	-15.56	-3.51	-1.20	*0.02*	-5.200	-8.200

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	66.3	64.6	58.5	67.1	67.7
Medium Trucks:	60.0	58.5	52.1	50.6	59.0	59.3
Heavy Trucks:	60.9	59.5	50.4	51.7	60.0	60.2
Vehicle Noise:	69.5	67.7	65.0	59.9	68.4	68.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.3	59.4	57.6	51.6	60.2	60.8
Medium Trucks:	53.7	52.1	45.8	44.2	52.7	52.9
Heavy Trucks:	55.7	54.3	45.2	46.5	54.8	55.0
Vehicle Noise:	62.9	61.1	58.1	53.3	61.9	62.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: First Floor With Wall
Road Name: Anacapa Dr.
Lot No: Flat 8

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	40 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	168.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	168.000		
Medium Trucks:	170.297		
Heavy Trucks:	176.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	68.754
Medium Trucks:	68.411
Heavy Trucks:	68.027

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	2.18	-2.18	-1.20	*0.31*	-7.550	-10.550
Medium Trucks:	76.31	-15.06	-2.15	-1.20	*0.20*	-6.800	-9.800
Heavy Trucks:	81.16	-19.02	-2.11	-1.20	*0.02*	-5.200	-8.200

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.2	64.3	62.5	56.4	65.1	65.7
Medium Trucks:	57.9	56.4	50.0	48.5	57.0	57.2
Heavy Trucks:	58.8	57.4	48.4	49.6	58.0	58.1
Vehicle Noise:	67.4	65.6	62.9	57.8	66.4	66.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.6	56.7	54.9	48.9	57.5	58.1
Medium Trucks:	51.1	49.6	43.2	41.7	50.2	50.4
Heavy Trucks:	53.6	52.2	43.2	44.4	52.8	52.9
Vehicle Noise:	60.4	58.6	55.5	50.8	59.3	59.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Second Floor With Wall
Road Name: Anacapa Dr.
Lot No: Flat 1

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	40 feet

Site Data

Barrier Height:	**3.5 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	77.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	172.8 feet
Road Elevation:	162.0 feet
Barrier Elevation:	172.8 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	162.000		
Medium Trucks:	164.297		
Heavy Trucks:	170.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	78.368
Medium Trucks:	77.673
Heavy Trucks:	76.219

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	2.18	-3.03	-1.20	*-2.05*	0.000	0.000
Medium Trucks:	76.31	-15.06	-2.97	-1.20	*-2.27*	0.000	0.000
Heavy Trucks:	81.16	-19.02	-2.85	-1.20	*-2.90*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	63.4	61.6	55.6	64.2	64.8
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.4
Heavy Trucks:	58.1	56.7	47.6	48.9	57.2	57.4
Vehicle Noise:	66.6	64.8	62.0	57.0	65.5	66.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	63.4	61.6	55.6	64.2	64.8
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.4
Heavy Trucks:	58.1	56.7	47.6	48.9	57.2	57.4
Vehicle Noise:	66.6	64.8	62.0	57.0	65.5	66.0

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Second Floor With Wall
Road Name: Newport Center Dr.
Lot No: Flat 6

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	93.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	166.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	166.000		
Medium Trucks:	168.297		
Heavy Trucks:	174.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	89.931
Medium Trucks:	89.489
Heavy Trucks:	88.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	5.64	-3.93	-1.20	*-0.46*	0.000	0.000
Medium Trucks:	76.31	-11.60	-3.90	-1.20	*-0.59*	0.000	0.000
Heavy Trucks:	81.16	-15.56	-3.83	-1.20	*-0.98*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.0	64.2	58.1	66.8	67.4
Medium Trucks:	59.6	58.1	51.7	50.2	58.7	58.9
Heavy Trucks:	60.6	59.1	50.1	51.4	59.7	59.8
Vehicle Noise:	69.1	67.3	64.6	59.5	68.1	68.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.0	64.2	58.1	66.8	67.4
Medium Trucks:	59.6	58.1	51.7	50.2	58.7	58.9
Heavy Trucks:	60.6	59.1	50.1	51.4	59.7	59.8
Vehicle Noise:	69.1	67.3	64.6	59.5	68.1	68.6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Second Floor With Wall
Road Name: Newport Center Dr.
Lot No: Flat 8

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	71.0 feet
Centerline Dist. to Observer:	91.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	168.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	168.000		
Medium Trucks:	170.297		
Heavy Trucks:	176.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	87.464
Medium Trucks:	87.063
Heavy Trucks:	86.322

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	5.64	-3.75	-1.20	*-0.56*	0.000	0.000
Medium Trucks:	76.31	-11.60	-3.72	-1.20	*-0.70*	0.000	0.000
Heavy Trucks:	81.16	-15.56	-3.66	-1.20	*-1.13*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.2	64.4	58.3	67.0	67.6
Medium Trucks:	59.8	58.3	51.9	50.4	58.8	59.1
Heavy Trucks:	60.7	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	69.3	67.5	64.8	59.7	68.3	68.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.2	64.4	58.3	67.0	67.6
Medium Trucks:	59.8	58.3	51.9	50.4	58.8	59.1
Heavy Trucks:	60.7	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	69.3	67.5	64.8	59.7	68.3	68.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Second Floor With Wall
Road Name: Anacapa Dr.
Lot No: Flat 8

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	40 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	168.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	168.000		
Medium Trucks:	170.297		
Heavy Trucks:	176.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	71.084
Medium Trucks:	70.590
Heavy Trucks:	69.674

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	2.18	-2.40	-1.20	*-0.36*	0.000	0.000
Medium Trucks:	76.31	-15.06	-2.35	-1.20	*-0.52*	0.000	0.000
Heavy Trucks:	81.16	-19.02	-2.26	-1.20	*-1.03*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.9	64.0	62.3	56.2	64.8	65.5
Medium Trucks:	57.7	56.2	49.8	48.3	56.7	57.0
Heavy Trucks:	58.7	57.3	48.2	49.5	57.8	58.0
Vehicle Noise:	67.2	65.4	62.7	57.6	66.2	66.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.9	64.0	62.3	56.2	64.8	65.5
Medium Trucks:	57.7	56.2	49.8	48.3	56.7	57.0
Heavy Trucks:	58.7	57.3	48.2	49.5	57.8	58.0
Vehicle Noise:	67.2	65.4	62.7	57.6	66.2	66.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Third Floor With Wall
Road Name: Anacapa Dr.
Lot No: Flat 1

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	40 feet

Site Data

Barrier Height:	**3.5 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	77.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	172.8 feet
Road Elevation:	162.0 feet
Barrier Elevation:	172.8 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	162.000		
Medium Trucks:	164.297		
Heavy Trucks:	170.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	81.658
Medium Trucks:	80.736
Heavy Trucks:	78.688

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	2.18	-3.30	-1.20	*-6.17*	0.000	0.000
Medium Trucks:	76.31	-15.06	-3.22	-1.20	*-6.61*	0.000	0.000
Heavy Trucks:	81.16	-19.02	-3.06	-1.20	*-7.80*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.1	61.4	55.3	63.9	64.5
Medium Trucks:	56.8	55.3	49.0	47.4	55.9	56.1
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.2
Vehicle Noise:	66.3	64.5	61.8	56.7	65.3	65.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.1	61.4	55.3	63.9	64.5
Medium Trucks:	56.8	55.3	49.0	47.4	55.9	56.1
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.2
Vehicle Noise:	66.3	64.5	61.8	56.7	65.3	65.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Third Floor With Wall
Road Name: Newport Center Dr.
Lot No: Flat 6

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	93.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	166.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	166.000		
Medium Trucks:	168.297		
Heavy Trucks:	174.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	92.194
Medium Trucks:	91.538
Heavy Trucks:	90.139

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	5.64	-4.09	-1.20	*-2.97*	0.000	0.000
Medium Trucks:	76.31	-11.60	-4.04	-1.20	*-3.30*	0.000	0.000
Heavy Trucks:	81.16	-15.56	-3.94	-1.20	*-4.19*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	59.5	58.0	51.6	50.1	58.5	58.7
Heavy Trucks:	60.5	59.0	50.0	51.3	59.6	59.7
Vehicle Noise:	69.0	67.2	64.4	59.4	67.9	68.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	59.5	58.0	51.6	50.1	58.5	58.7
Heavy Trucks:	60.5	59.0	50.0	51.3	59.6	59.7
Vehicle Noise:	69.0	67.2	64.4	59.4	67.9	68.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Third Floor With Wall
Road Name: Newport Center Dr.
Lot No: Flat 8

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	71.0 feet
Centerline Dist. to Observer:	91.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	168.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	168.000		
Medium Trucks:	170.297		
Heavy Trucks:	176.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	89.589
Medium Trucks:	88.965
Heavy Trucks:	87.656

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	5.64	-3.90	-1.20	*-3.20*	0.000	0.000
Medium Trucks:	76.31	-11.60	-3.86	-1.20	*-3.55*	0.000	0.000
Heavy Trucks:	81.16	-15.56	-3.76	-1.20	*-4.50*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.0	64.2	58.2	66.8	67.4
Medium Trucks:	59.7	58.1	51.8	50.2	58.7	58.9
Heavy Trucks:	60.6	59.2	50.2	51.4	59.8	59.9
Vehicle Noise:	69.2	67.4	64.6	59.5	68.1	68.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.0	64.2	58.2	66.8	67.4
Medium Trucks:	59.7	58.1	51.8	50.2	58.7	58.9
Heavy Trucks:	60.6	59.2	50.2	51.4	59.8	59.9
Vehicle Noise:	69.2	67.4	64.6	59.5	68.1	68.6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Third Floor With Wall
Road Name: Anacapa Dr.
Lot No: Flat 8

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	40 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	168.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	168.000		
Medium Trucks:	170.297		
Heavy Trucks:	176.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	73.683
Medium Trucks:	72.923
Heavy Trucks:	71.320

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	2.18	-2.63	-1.20	*-2.52*	0.000	0.000
Medium Trucks:	76.31	-15.06	-2.56	-1.20	*-2.93*	0.000	0.000
Heavy Trucks:	81.16	-19.02	-2.42	-1.20	*-4.09*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	63.8	62.0	56.0	64.6	65.2
Medium Trucks:	57.5	56.0	49.6	48.1	56.5	56.8
Heavy Trucks:	58.5	57.1	48.1	49.3	57.7	57.8
Vehicle Noise:	67.0	65.2	62.4	57.4	65.9	66.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	63.8	62.0	56.0	64.6	65.2
Medium Trucks:	57.5	56.0	49.6	48.1	56.5	56.8
Heavy Trucks:	58.5	57.1	48.1	49.3	57.7	57.8
Vehicle Noise:	67.0	65.2	62.4	57.4	65.9	66.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Third Floor With Wall
Road Name: Anacapa Dr.
Lot No: Flat 1

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	40 feet

Site Data

Barrier Height:	**3.5 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	77.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	172.8 feet
Road Elevation:	162.0 feet
Barrier Elevation:	172.8 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	162.000		
Medium Trucks:	164.297		
Heavy Trucks:	170.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	85.770
Medium Trucks:	84.649
Heavy Trucks:	82.074

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	2.18	-3.62	-1.20	*-10.37*	0.000	0.000
Medium Trucks:	76.31	-15.06	-3.53	-1.20	*-11.00*	0.000	0.000
Heavy Trucks:	81.16	-19.02	-3.33	-1.20	*-12.70*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	62.8	61.1	55.0	63.6	64.2
Medium Trucks:	56.5	55.0	48.6	47.1	55.6	55.8
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	66.0	64.2	61.5	56.4	65.0	65.5

Mitigated Noise Levels (with Topo 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	64.2
Medium Trucks:	56.5	55.0	48.6	47.1	55.6	55.8
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	66.0	64.2	61.5	56.4	65.0	65.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Third Floor With Wall
Road Name: Newport Center Dr.
Lot No: Flat 6

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	73.0 feet
Centerline Dist. to Observer:	93.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	166.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	166.000		
Medium Trucks:	168.297		
Heavy Trucks:	174.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	95.257
Medium Trucks:	94.403
Heavy Trucks:	92.494

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	5.64	-4.30	-1.20	*-6.53*	0.000	0.000
Medium Trucks:	76.31	-11.60	-4.24	-1.20	*-7.04*	0.000	0.000
Heavy Trucks:	81.16	-15.56	-4.11	-1.20	*-8.42*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	59.3	57.8	51.4	49.9	58.3	58.5
Heavy Trucks:	60.3	58.9	49.8	51.1	59.4	59.6
Vehicle Noise:	68.8	67.0	64.2	59.2	67.7	68.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	59.3	57.8	51.4	49.9	58.3	58.5
Heavy Trucks:	60.3	58.9	49.8	51.1	59.4	59.6
Vehicle Noise:	68.8	67.0	64.2	59.2	67.7	68.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Third Floor With Wall
Road Name: Newport Center Dr.
Lot No: Flat 8

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,100 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	60 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	71.0 feet
Centerline Dist. to Observer:	91.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	168.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	168.000		
Medium Trucks:	170.297		
Heavy Trucks:	176.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	92.544
Medium Trucks:	91.715
Heavy Trucks:	89.876

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	5.64	-4.11	-1.20	*-6.86*	0.000	0.000
Medium Trucks:	76.31	-11.60	-4.06	-1.20	*-7.40*	0.000	0.000
Heavy Trucks:	81.16	-15.56	-3.92	-1.20	*-8.86*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	59.5	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	60.5	59.1	50.0	51.3	59.6	59.8
Vehicle Noise:	69.0	67.2	64.4	59.3	67.9	68.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	59.5	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	60.5	59.1	50.0	51.3	59.6	59.8
Vehicle Noise:	69.0	67.2	64.4	59.3	67.9	68.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 10/1/2012

Scenario: Third Floor With Wall
Road Name: Anacapa Dr.
Lot No: Flat 8

Project Name: Residences at Newport
Job Number: 13442
Analyst: P. Mara

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	40 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	170.4 feet
Road Elevation:	168.0 feet
Barrier Elevation:	170.4 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	168.000		
Medium Trucks:	170.297		
Heavy Trucks:	176.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	77.249
Medium Trucks:	76.254
Heavy Trucks:	74.031

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	2.18	-2.94	-1.20	*-5.56*	0.000	0.000
Medium Trucks:	76.31	-15.06	-2.85	-1.20	*-6.19*	0.000	0.000
Heavy Trucks:	81.16	-19.02	-2.66	-1.20	*-7.94*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.4	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	57.2	55.7	49.3	47.8	56.2	56.5
Heavy Trucks:	58.3	56.9	47.8	49.1	57.4	57.6
Vehicle Noise:	66.7	64.9	62.1	57.1	65.6	66.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.4	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	57.2	55.7	49.3	47.8	56.2	56.5
Heavy Trucks:	58.3	56.9	47.8	49.1	57.4	57.6
Vehicle Noise:	66.7	64.9	62.1	57.1	65.6	66.1

APPENDIX 9.1:

OPERATIONAL NOISE LEVEL CALCULATIONS

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13442 - Residences at Newport

CadnaA Noise Prediction Model: 13442_Operational.cna
Date: 24.09.20
Analyst: P. Mara

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	41.8	31.7	41.2	55.0	50.0	0.0				5.00	r	6065997.93	2170503.37	5.00
RECEIVERS		R2	33.6	32.9	39.7	55.0	50.0	0.0				5.00	r	6067063.92	2170247.16	5.00
RECEIVERS		R3	29.5	28.6	35.0	55.0	50.0	0.0				5.00	r	6067778.58	2169477.19	5.00
RECEIVERS		R4	48.8	46.9	53.5	55.0	50.0	0.0				5.00	r	6066774.33	2169888.73	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			K0	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night				X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(dB)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	79.0	79.0	79.0	Lw	79					0.0	5.00	g	6066823.35	2170251.81	54.00
POINTSOURCE		AC02	79.0	79.0	79.0	Lw	79					0.0	5.00	g	6066824.21	2170235.21	54.00
POINTSOURCE		AC03	79.0	79.0	79.0	Lw	79					0.0	5.00	g	6066842.49	2170097.76	54.00
POINTSOURCE		AC04	79.0	79.0	79.0	Lw	79					0.0	5.00	g	6066844.91	2170077.14	54.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Operating Time		
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)
AREASOURCE		DOG PARK	86.5	86.5	86.5	68.0	68.0	68.0	Lw	86.5		900.00	0.00	540.00
AREASOURCE		POOL	95.1	95.1	95.1	69.8	69.8	69.8	Lw	95.1		900.00	0.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	5.00	r			6066781.95	2170034.46	5.00	0.00
					6066787.16	2169995.18	5.00	0.00
					6066768.06	2169993.01	5.00	0.00
					6066763.07	2170032.07	5.00	0.00
AREASOURCE	4.00	r			6066754.21	2170181.77	4.00	0.00
					6066811.50	2170188.94	4.00	0.00
					6066819.53	2170125.79	4.00	0.00
					6066762.67	2170118.41	4.00	0.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		49.00	a	6066749.07	2170298.34	49.00	0.00
								6066860.10	2170312.92	49.00	0.00
								6066872.44	2170226.19	49.00	0.00
								6066861.97	2170224.70	49.00	0.00
								6066866.46	2170196.29	49.00	0.00
								6066847.39	2170193.30	49.00	0.00
								6066856.74	2170129.00	49.00	0.00
								6066875.05	2170131.99	49.00	0.00
								6066877.30	2170103.95	49.00	0.00
								6066887.02	2170105.07	49.00	0.00
								6066898.60	2170027.69	49.00	0.00
								6066785.71	2170013.11	49.00	0.00
								6066774.87	2170095.73	49.00	0.00
								6066786.08	2170096.85	49.00	0.00
								6066783.46	2170120.40	49.00	0.00
								6066819.53	2170125.79	49.00	0.00
								6066811.50	2170188.94	49.00	0.00
								6066773.74	2170185.07	49.00	0.00
								6066771.88	2170208.25	49.00	0.00
								6066760.66	2170207.50	49.00	0.00

APPENDIX 10.1:

CONSTRUCTION NOISE LEVEL CALCULATIONS

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13442 - Residences at Newport

CadnaA Noise Prediction Model: 13442_Construction.cna
Date: 24.09.20
Analyst: P. Mara

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	56.8	56.8	63.5	55.0	50.0	0.0				5.00	r	6065997.93	2170503.37	5.00
RECEIVERS		R2	66.4	66.4	73.0	55.0	50.0	0.0				5.00	r	6067063.92	2170247.16	5.00
RECEIVERS		R3	54.6	54.6	61.3	55.0	50.0	0.0				5.00	r	6067778.58	2169477.19	5.00
RECEIVERS		R4	67.1	67.1	73.8	55.0	50.0	0.0				5.00	r	6066774.33	2169888.73	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Operating Time		
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)
SITEBOUNDARY		SITEBOUNDARY00001	112.4	112.4	112.4	75.3	75.3	75.3	Lw"	75.3				

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a			6066723.39	2170334.12	8.00	0.00
					6066723.72	2170334.08	8.00	0.00
					6066770.25	2170330.44	8.00	0.00
					6066816.91	2170329.30	8.00	0.00
					6066863.56	2170330.66	8.00	0.00
					6066866.56	2170330.65	8.00	0.00
					6066869.53	2170330.28	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6066872.44	2170329.56	8.00	0.00
			6066876.45	2170327.90	8.00	0.00
			6066880.11	2170325.58	8.00	0.00
			6066883.06	2170322.94	8.00	0.00
			6066885.56	2170319.87	8.00	0.00
			6066887.53	2170316.44	8.00	0.00
			6066888.95	2170312.74	8.00	0.00
			6066889.76	2170308.87	8.00	0.00
			6066928.35	2170006.68	8.00	0.00
			6066925.63	2170004.87	8.00	0.00
			6066922.69	2170003.44	8.00	0.00
			6066919.59	2170002.40	8.00	0.00
			6066916.38	2170001.77	8.00	0.00
			6066793.37	2169986.06	8.00	0.00
			6066789.46	2169985.87	8.00	0.00
			6066785.56	2169986.30	8.00	0.00
			6066781.77	2169987.33	8.00	0.00
			6066778.19	2169988.94	8.00	0.00
			6066774.91	2169991.09	8.00	0.00
			6066772.01	2169993.72	8.00	0.00
			6066769.55	2169996.78	8.00	0.00
			6066767.60	2170000.19	8.00	0.00
			6066766.21	2170003.85	8.00	0.00
			6066765.41	2170007.70	8.00	0.00
			6066765.15	2170009.73	8.00	0.00