Appendix M EIP Noise Technical Report

Draft

Noise Technical Report
Newland Street Residential Project EIR

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December 23, 2005

NEWLAND STREET RESIDENTIAL PROJECT

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CONTENTS

NOISE TECHNICAL REPORT

INTRODUCTION

This technical report evaluates the potential effects of noise and groundborne vibration associated with construction and operational activities that could occur as a result of implementation of the proposed project. This report describes the fundamentals of sound and environmental noise, as well as groundborne vibration, potential noise sources throughout the project site, and existing ambient noise levels at locations surrounding the project site. In addition, potential direct and indirect project impacts resulting from construction and operation of the proposed project are identified, and potential mitigation measures that could avoid or reduce these impacts are recommended, where feasible. Data used to prepare this report were taken from the Traffic Impact Analysis prepared by Urban Crossroads for the proposed project, and information obtained by measuring and modeling existing and future noise levels at the project site and in the surrounding area.

Project Description

The proposed project site is located at 21471 Newland Street in the City of Huntington Beach. The proposed project site is approximately 23.1 gross acres in size and is located south of Lomond Drive, west of Newland Street, and north of the terminus of Hamilton Avenue. The proposed project would involve the conversion of a former industrial site to a residential development with 204 multi-family residential units, as well as a 2-acre public park. Infrastructure improvements (i.e., utilities, sewer, storm drains, onsite roadways, etc.) necessary to serve the proposed development would be constructed on site. In addition, implementation of the proposed project would increase the site elevation by approximately three to five feet above existing grade, via import of fill, to comply with FEMA regulations. The project site was formerly used as an oil pipeline and storage tank terminal, for which decommissioning and remediation has been completed. A portion of the site is currently operating as a recreational vehicle and boat storage facility, which would be removed and replaced with the proposed new uses. Construction and operation of the 204 multi-family residential units could result in potential direct and indirect noise impacts.

EXECUTIVE SUMMARY

- Implementation of the proposed project would not violate the City's noise standards during construction. In order to construct the project, the project applicant shall apply for a building permit from the City prior to the commencement of any construction activities on the project site.
- Construction activities occurring at the project site would not expose nearby sensitive uses to excessive groundborne vibration levels.

- Future exterior noise levels resulting from increased vehicular traffic at the residential units facing Newland Street would exceed the allowable exterior noise thresholds of 58 dBA L_{dn}. [**Potential mitigation measures to be included once verified by City and Applicant**] The increase in traffic is not anticipated to exceed the City's interior noise standards.
- The anticipated increase in traffic is considered an inaudible/imperceptible increase in noise to most people and would not exceed identified thresholds of significance.
- Operation of the proposed residential HVAC systems would not exceed the City's exterior noise level standards for locally regulated noise sources.

BACKGROUND

Fundamentals of Sound and Environmental Noise

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Because the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise, on the other hand, is typically defined as unwanted sound. A typical noise environment consists of a base of steady "background" noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Table 1 (Representative Environmental Noise Levels) lists representative noise levels for the environment.

Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise upon people is largely dependent upon the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- L_{eq}, the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- L_{dn}, the Day-Night Average Level, is a 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24 hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.

- *CNEL*, the Community Noise Equivalent Level, is a 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 P.M. to 10:00 P.M. and a 10 dBA "weighting" added to noise during the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24 hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
- L_{min}, the minimum instantaneous noise level experienced during a given period of time.
- L_{max}, the maximum instantaneous noise level experienced during a given period of time.

Table 1 Representative Environmental Noise Levels

Common Outdoor Activities	*Noise Level (dBA)*	*Common Indoor Activities*
	—110—	Rock Band
Jet Fly-over at 100 feet		
	—100—	
Gas Lawnmower at 3 feet		
	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	
		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

SOURCE: California Department of Transportation 1998

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night, or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings that can provide noise levels as low as 20 dBA and quiet, suburban, residential streets that can provide noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with more noisy urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA).

When evaluating changes in 24-hour community noise levels, a difference of 3 dBA is a barely perceptible increase to most people. A 5 dBA increase is readily noticeable, while a difference of 10 dBA would be perceived as a doubling of loudness.

Noise levels from a particular source decline as distance to the receptor increases. Other factors, such as the weather and reflecting or shielding, also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically "hard" locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically "soft" locations (i.e., the area between the source and receptor is normal earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Fundamentals of Environmental Groundborne Vibration

Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and, in the U.S., is referenced as vibration decibels (VdB).

The background vibration velocity level in residential and educational areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic 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.

The general human response to different levels of groundborne vibration velocity levels is described in Table 2 (Human Response to Different Levels of Groundborne Vibration).

Table 2	Human Response to Different Levels of Groundborne Vibration
Vibration Velocity Level	*Human Reaction*
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

SOURCE: Harris Miller Miller & Hanson Inc. (HMMH) 1995

Project Site Characteristics

As discussed previously, the majority of the project site is currently vacant, graded soil, and is surrounded by chain link and masonry fencing. The northeast corner of the project site (approximately 4.5 acres located at 21401 Newland Street) is currently used as a recreational vehicle and boat storage facility, consisting of a large paved surface parking area and a temporary trailer serving as an administration office. Land uses surrounding the project site include single-family residential housing to the north and east, and open space/wetlands to the west and south. The project site and surrounding uses are shown in Figure 1 (Site and Surrounding Land Uses).

Existing Ambient Daytime Noise Levels

According to the Noise Element of the City of Huntington Beach General Plan, the primary source of noise within the City is noise from motor vehicles on roadways (traffic noise). These motor vehicles include automobiles, buses, trucks, and vehicles associated with construction equipment transport. Secondary noise sources in the City include aircraft operations, railroad operations, construction activities, and petroleum extraction activities.

Existing daytime noise levels were monitored at five locations around the project site, which are depicted in Figure 2 (Noise Monitoring Locations), in order to identify representative noise levels at various areas. The noise levels were measured using a Larson-Davis Model 814 precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. The average noise levels and sources of noise measured at each location are identified in Table 3 (Existing Noise Levels around the Proposed Project Site). These daytime noise levels are characteristic of a typical urban area.

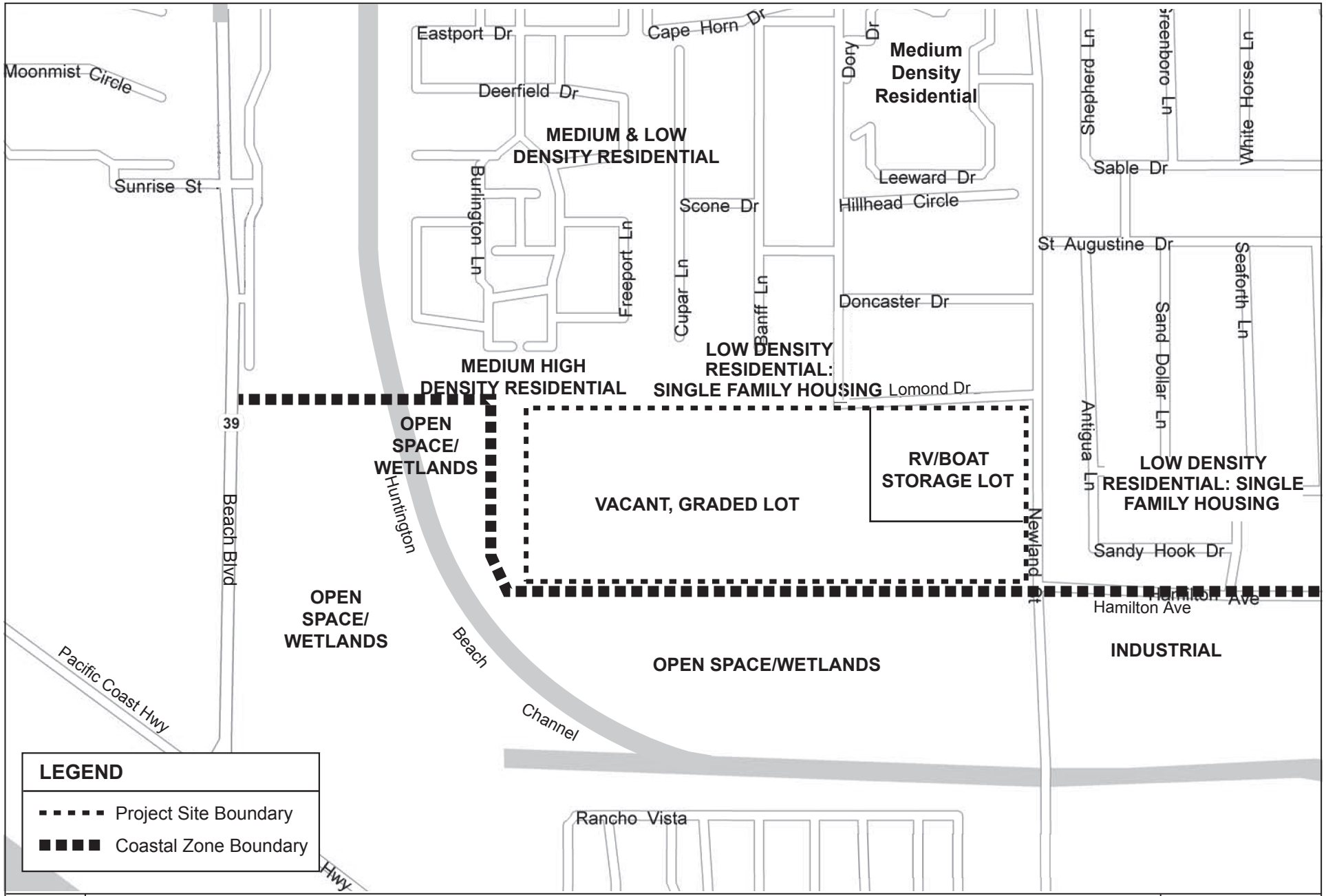

FIGURE **1**

Site and Surrounding Land Uses

Not to Scale

11034-00

Sources: Microsoft Trips & Streets, 2004; EIP Associates, 2005

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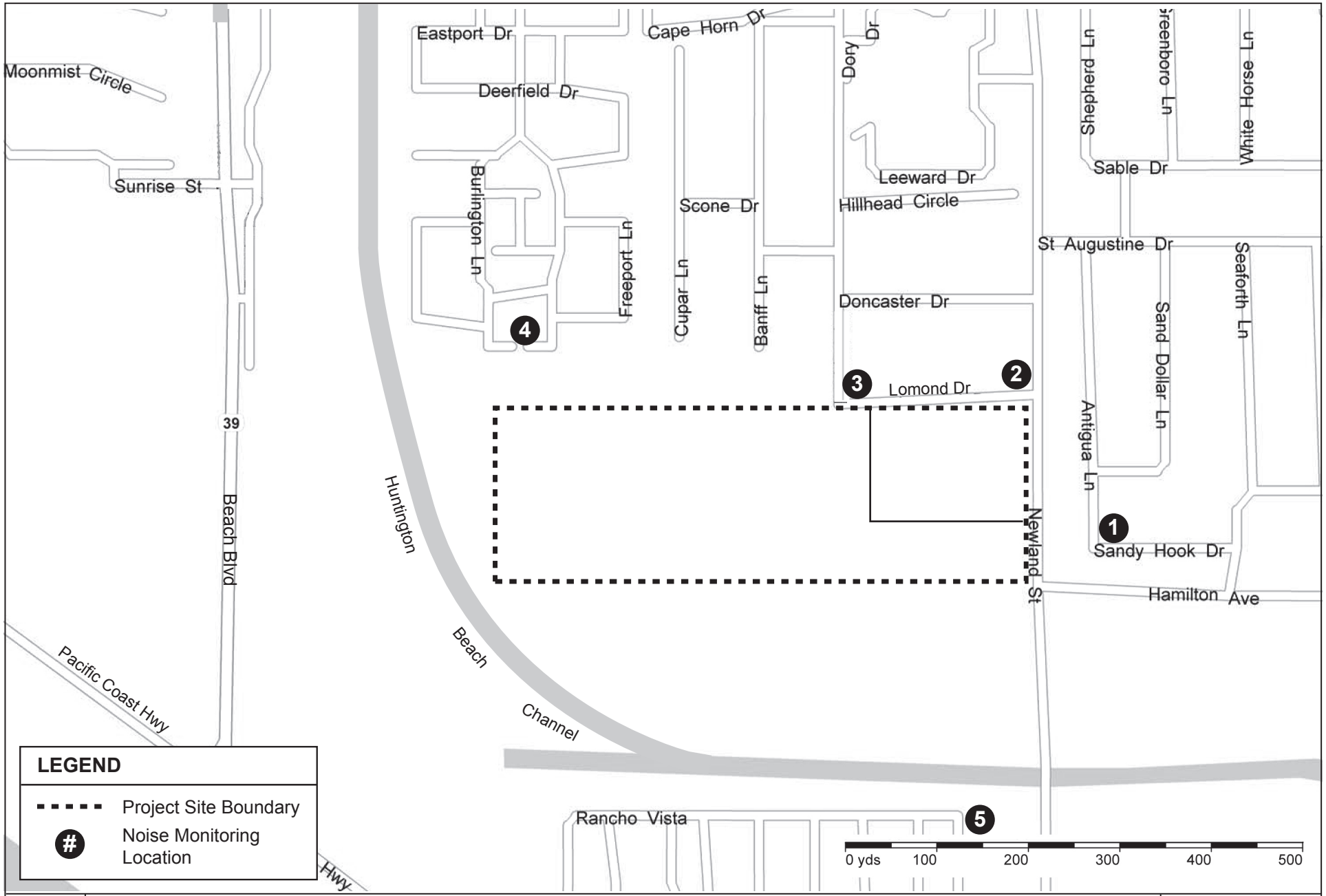

FIGURE **2**

Noise Monitoring Locations

11034-00

Sources: Microsoft Trips & Streets, 2004; EIP Associates, 2005

City of Huntington Beach

Not to Scale

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Table 3 Existing Noise Levels Around the Proposed Project Site					
			Noise Level Statistics		
	Location	Primary Noise Sources	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)
1	Intersection of Sandy Hook Drive and Antigua Drive, east of project site	Traffic on Sandy Hook Drive, Antigua Drive, and Newland Street	53.0	43.5	71.2
2	Intersection of Lomond Drive and Newland Street, north of project site	Traffic on Newland Street	65.6	45.2	77.4
3	Intersection of Lomond Drive and Lochlea Lane, north of project site	Construction loading truck idling; dog barking; traffic	63.4	43.9	74.1
4	Residential community at Attleboro Circle, north of project site	Children playing in park	48.0	42.7	58.2
5	Immediately south of Huntington Beach Channel, south of project site	Traffic on Newland Street	63.4	49.1	70.6

SOURCE: EIP Associates 2005

Existing Roadway Noise Levels Offsite

Existing roadway noise levels were calculated for the roadway segments in the project site vicinity that have noise-sensitive uses facing the roadways. This task was accomplished using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the project traffic analysis. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) utilized in the FHWA Model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data show that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 4 (Existing Roadway Noise Levels Off-Site).

Existing Groundborne Vibration Levels

Aside from seismic events, the greatest regular source of groundborne vibration at the project site and immediate vicinity is roadway truck and bus traffic. Trucks and buses typically generate groundborne vibration velocity levels of around 63 VdB. These levels could reach 72 VdB where trucks and buses pass over bumps in the road.

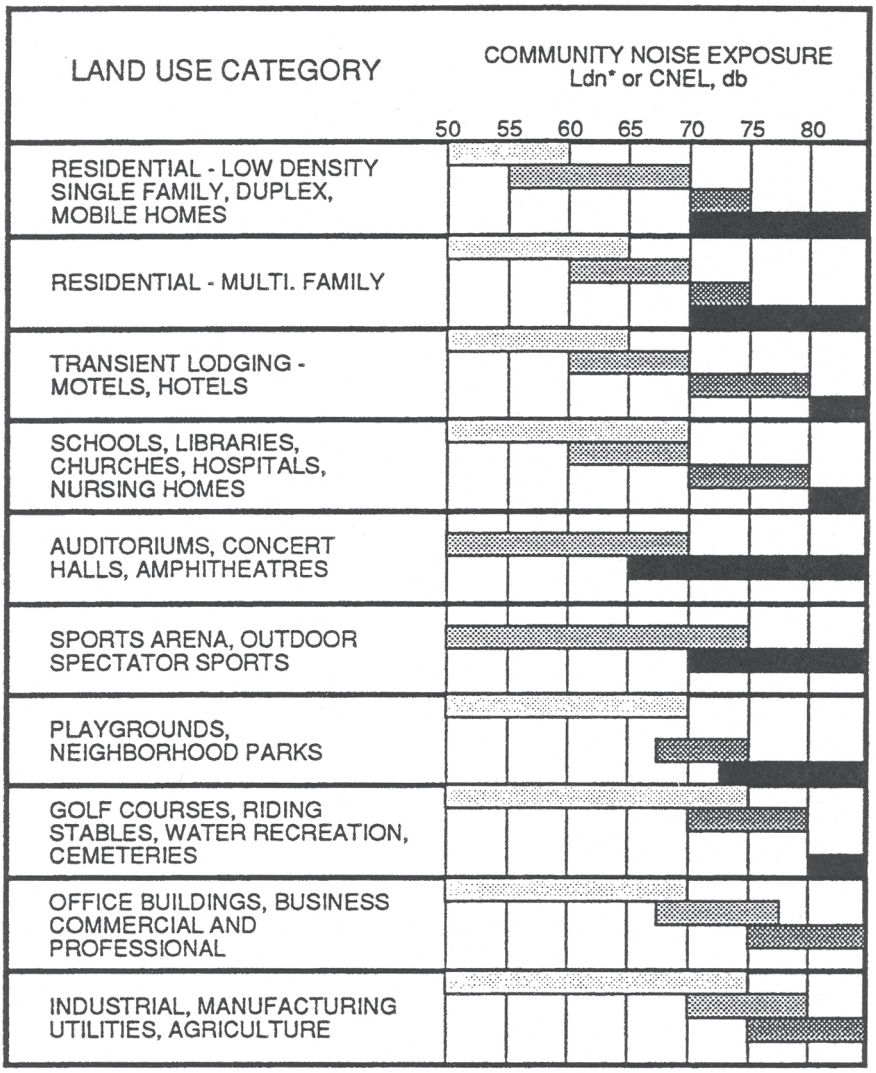
Table 4 Existing Roadway Noise Levels Off-Site			
Roadway	*Roadway Segment*	*Noise Sensitive Uses*	*dBA L_{dn}*
Pacific Coast Highway	West of Beach Boulevard	Residential	70.3
Pacific Coast Highway	West of Newland Street	Residential	71.6
Pacific View Avenue	West of Beach Boulevard	Residential	57.2
Beach Boulevard	North of Atlanta Avenue	Residential	66.2
Beach Boulevard	North of Pacific View Avenue	Residential	67.3
Beach Boulevard	North of Pacific Coast Highway	Residential	66.0
Indianapolis Avenue	West of Newland Street	Residential	65.1
Indianapolis Avenue	East of Newland Street	Residential	65.0
Atlanta Avenue	West of Beach Boulevard	Residential	60.1
Atlanta Avenue	West of Newland Street	Residential	61.8
Atlanta Avenue	West of Magnolia Street	Residential	62.5
Atlanta Avenue	West of Bushard Street	Residential	62.3
Atlanta Avenue	East of Bushard Street	Residential	61.0
Lomond Drive	West of Newland Street	Residential	51.0
Hamilton Avenue	West of Magnolia Street	Residential	59.9
Hamilton Avenue	West of Bushard Street	Residential	62.2
Hamilton Avenue	East of Bushard Street	Residential	62.8
Banning Avenue	East of Magnolia Street	Residential	53.8
Newland Street	North of Indianapolis Avenue	Residential	63.6
Newland Street	North of Atlanta Avenue	Residential	62.9
Newland Street	North of Lomond Drive	Residential	63.3
Newland Street	North of Hamilton Avenue	Residential	63.3
Newland Street	North of Pacific Coast Highway	Residential	52.7
Magnolia Street	North of Atlanta	Residential	64.6
Magnolia Street	North of Hamilton Avenue	Residential	64.6
Magnolia Street	North of Banning Avenue	Residential	61.4
Magnolia Street	North of Pacific Coast Highway	Residential	55.8
Bushard Street	North of Atlanta Avenue	Residential	62.8
Bushard Street	North of Hamilton Avenue	Residential	62.3
Bushard Street	South of Hamilton Avenue	Residential	60.9

SOURCE: EIP Associates 2005. Calculation data and results are provided in Appendix A.

APPLICABLE REGULATIONS

State Department of Health Services

The State Office of Noise Control in the State Department of Health Services has established guidelines to provide a community with a noise environment that it deems to be generally acceptable. Specifically, ranges of noise exposure levels have been developed for different land uses to serve as the primary tool a city uses to assess the compatibility between land uses and outdoor noise. These noise standards are shown in Figure 3 (Land Use Compatibility with Community Noise Environments). As shown in Figure 3, a noise



INTERPRETATION

NORMALLY ACCEPTABLE

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

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

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

CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

FIGURE **3**

Land Use Compatibility with Community Noise Environments

11034-00

Sources: Office of Noise Control, California Department of Health City of Huntington Beach

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level standard of 60 dBA L_{dn} is used for the exterior living areas of new residential land uses, and 45 dBA L_{dn} for the interior of all new residential uses. Where a land use is denoted as "normally acceptable" for the given L_{dn} noise environment, the highest noise level in that range should be considered the maximum desirable for conventional construction which does not incorporate any special acoustic treatment. The acceptability of noise environments classified as "conditionally acceptable" or "normally unacceptable" will depend on the anticipated amount of time that will normally be spent outside the structure and the acoustic treatment to be incorporated in the structure's design.

City of Huntington Beach General Plan

The California Government Code requires that a noise element be included in the General Plan of each county and city in the State. Each local government's goals, objectives, and policies for noise control are established by the noise element of the general plan and the passage of specific noise ordinances. The Noise Element of the City of Huntington Beach General Plan addresses the issue of noise by identifying sources of noise in the City and providing objectives and policies that ensure that noise from various sources would not create an unacceptable noise environment.

According to the Noise Element of the City of Huntington Beach General Plan, the noise level standards adopted by the City are more stringent than the State Office of Noise Control guidelines for residential and commercial noise levels. In addition, the City's Noise Ordinance, as discussed below, places limitations on noise produced by equipment operation, human activities, and construction.

City of Huntington Beach Municipal Code

The City of Huntington Beach has also adopted a Noise Ordinance (Chapter 8.40 of the Huntington Beach Municipal Code), which identifies exterior and interior noise standards, specific noise restrictions, exemptions, and variances for sources of noise within the City. The noise level standards that have been adopted by the City are more stringent than State Office of Noise Control guidelines for residential and commercial noise levels. The Noise Ordinance applies to all noise sources with the exception of any vehicle that is operated upon any public highway, street or right-of-way, or to the operation of any off-highway vehicle, to the extent that it is regulated in the State Vehicle Code, and all other sources of noise that are specifically exempted. The exterior noise standards established in the City's Noise Ordinance are identified in Table 5 (City of Huntington Beach Noise Ordinance Exterior Noise Standards), along with the exterior noise levels that are prohibited. Table 6 (City of Huntington Beach Noise Ordinance Interior Noise Standards) identifies the City's interior noise standards and prohibited interior noise levels. In both cases, if the ambient noise level is greater than the identified noise standards, the noise standard becomes the ambient noise level without the offending noise.

Table 5 City of Huntington Beach Noise Ordinance Exterior Noise Standards

Noise Zone	*Noise Zone Land Uses*	*Noise Level*	*Time Period*
1	All Residential Properties	55 dBA 50 dBA	7 A.M. to 10 P.M. 10 P.M. to 7 A.M.
2	All Professional Office and Public Institutional Properties	55 dBA	Anytime
3	All Commercial Properties Except Professional Office	60 dBA	Anytime
4	All Industrial Properties	70 dBA	Anytime

Exterior Noise Levels Prohibited:

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 person, which causes the noise level when measured on any residential, public institutional, professional, commercial or industrial property, either within or without the City, to exceed the applicable noise standards:

(a) For a cumulative period or more than thirty (30) minutes in any hour;

(b) Plus 5 dBA for a cumulative period of more than fifteen (15) minutes in any hour;

(c) Plus 10 dBA for a cumulative period of more than five (5) minutes in any hour;

(d) Plus 15 dBA for a cumulative period of more than one (1) minute in any hour; or

(e) Plus 20 dBA for any period of time.

In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

SOURCE: City of Huntington Beach

Table 6 City of Huntington Beach Noise Ordinance Interior Noise Standards

Noise Zone	*Noise Zone Land Uses*	*Noise Level*	*Time Period*
1	All Residential Properties	55 dBA 45 dBA	7 A.M. to 10 P.M. 10 P.M. to 7 A.M.
2, 3, 4	All Professional Office, Public Institutional, Commercial, and Industrial Properties	55 dBA	Anytime

Interior Noise Levels Prohibited:

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 person, which causes the noise level when measured within any other structure on any residential, public institutional, professional, commercial or industrial property to exceed:

(a) The noise standard for a cumulative period or more than five (5) minutes in any hour;

(b) The noise standard plus 5 dBA for a cumulative period of more than one (1) minutes in any hour; or

(c) The noise standard plus 10 dBA for any period of time.

In the event the ambient noise level exceeds any of the first two noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

SOURCE: City of Huntington Beach

When evaluating changes in 24-hour community noise levels, a difference of 3 dBA is a barely perceptible increase to most people. In residential communities where the existing noise exposure is 55 dBA L_{dn} or lower, the EPA has found that at changes in noise levels are perceived due to an increase of 3 dBA L_{dn}. The City standard for exterior noise levels is 55 dBA in residential areas. However, since a change of 3 dBA is not noted to be a perceptible change, the maximum exterior noise level allowable on the project site is 58 dBA L_{dn}.

The Noise Ordinance exempts noise sources associated with construction activities from the City's exterior and interior noise standards provided that a permit has been obtained from the City and that the

construction activities do not occur between the hours of 8 P.M. and 7 A.M. on weekdays and Saturdays, or at any time on Sundays or federal holidays.

METHODOLOGY

The analysis of the existing and future noise environments presented in this analysis is based on noise level monitoring, noise prediction modeling, and empirical observations. Existing noise levels were monitored by EIP Associates at selected locations within the project site using a Larson-Davis Model 814 precision sound level meter, which is consistent with the standards of the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Noise modeling procedures involved the calculation of existing and future vehicular noise levels along individual roadway segments in the site vicinity. This task was accomplished using the Federal Highway Administration (FHWA) Highway Noise Prediction Model (FHWA-RD-77-108). The FHWA Model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) utilized in the FHWA Model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data show that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. Traffic volumes utilized as data inputs in the noise prediction model were provided by the Traffic Impact Analysis prepared by Urban Crossroads for the proposed project (August 23, 2005).

In addition, the Federal Highway Administration's Traffic Noise Model (TNM) was used to estimate the worst-case noise levels at the closest project residential units to Newland Street (i.e., Units 7 through 9, and Unit 6, all north of the southeast project site corner.) The TNM is a computer model fully capable of incorporating all the traffic, roadway geometry, and project design features to accurately estimate traffic noise levels at the project residential units. Data characteristic of both existing and long-range future (year 2030) traffic conditions on Newland Street and Hamilton Avenue (the latter included in TNM because of its proximity to and potential influence on the project site) were provided by Urban Crossroads, the project traffic consultant. Specifications for the existing and widened configurations of Newland Street, the residential unit setback distances, and the height and locations of the concrete perimeter wall were provided by the Applicant.

THRESHOLDS

As mentioned previously, the City's Municipal Code establishes maximum interior and exterior noise levels within the City limits. For all residential properties, including the proposed project, the exterior noise levels must be less than 55 dBA during the time period from 7:00 A.M. to 10:00 P.M., and 50 dBA during the time period from 10:00 P.M. to 7:00 A.M. The interior noise levels within all residential properties must not exceed 55 dBA from 7:00 A.M. to 10:00 P.M., and 45 dBA from 10:00 P.M. to 7:00 A.M. However, since a change of 3 dBA is not noted to be a perceptible change, the maximum exterior noise level allowable

on the project site is 58 dBA L_{dn}. In terms of construction noise, the City's Municipal Code exempts such noise from the requirements of the Municipal Code.

As discussed previously, a noise level increase of 3 dBA is barely perceptible to most people, a 5 dBA increase is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. For the purpose of this analysis, a permanent increase of 3 dBA L_{dn} over ambient noise levels without the project is considered to be substantial.

Furthermore, for the purpose of this analysis, groundborne vibration impacts associated with human annoyance would be significant if the proposed project exceeds 85 VdB, which is the vibration level that is considered by the Federal Transit Administration (FTA) to be acceptable only if there are an infrequent number of events per day (as described in Table 2 [Human Response to Different Levels of Groundborne Vibration]). In terms of groundborne vibration impacts on structures, this analysis will use the FTA's vibration damage threshold of approximately 100 VdB for fragile buildings and approximately 95 VdB for extremely fragile historic buildings (Harris Miller Miller & Hanson Inc. [HMMH], 1995).

ANALYSIS

Construction Noise

Construction activities associated with the proposed project occurring on the project site would generally involve three stages: (1) demolition, which would include ground clearing of the existing recreational vehicle and boat storage facility; (2) site excavation, grading, and surcharge phase (soil compaction); and (3) construction of the proposed residential development along with landscaping improvements. The construction activities associated with each stage would involve the use of heavy equipment. Construction activities would also involve the use of smaller power tools, generators, and other equipment that are sources of noise. During each stage of construction there would be a different mix of equipment operating, and noise levels would vary based on the amount of equipment in operation and the location of the activity.

The United States Environmental Protection Agency (EPA) has also compiled data regarding the noise generating characteristics of specific types of construction equipment and typical construction activities. These data are presented in Table 7 (Noise Ranges of Typical Construction Equipment) and Table 8 (Typical Outdoor Construction Noise Levels). These noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 86 dBA measured at 50 feet from the noise source to the receptor would reduce to 80 dBA at 100 feet from the source to the receptor, and reduce by another 6 dBA to 74 dBA at 200 feet from the source to the receptor.

Table 7 Noise Ranges of Typical Construction Equipment	
Construction Equipment	*Noise Levels in dBA L_{eq} at 50 feet*[1]
Front Loader	73–86
Trucks	82–95
Cranes (moveable)	75–88
Cranes (derrick)	86–89
Vibrator	68–82
Saws	72–82
Pneumatic Impact Equipment	83–88
Jackhammers	81–98
Pumps	68–72
Generators	71–83
Compressors	75–87
Concrete Mixers	75–88
Concrete Pumps	81–85
Back Hoe	73–95
Pile Driving (peaks)	95–107
Tractor	77–98
Scraper/Grader	80–93
Paver	85–88

SOURCE: U.S. EPA 1971

1. Machinery equipped with noise control devices or other noise-reducing design features does not generate the same level of noise emissions as that shown in this table.

Table 8 Typical Outdoor Construction Noise Levels				
Construction Phase	*Noise Level at 50 Feet with Mufflers (dBA L_{eq})*	*Noise Level at 60 Feet with Mufflers (dBA L_{eq})*	*Noise Level at 100 Feet with Mufflers (dBA L_{eq})*	*Noise Level at 200 Feet with Mufflers (dBA L_{eq})*
Ground Clearing	82	80	76	70
Excavation/Grading	86	84	80	74
Foundations	77	75	71	65
Structural	83	81	77	71
External Finishing	86	84	80	74

SOURCES: U.S. EPA 1971

As the project site has residential uses located to the north and the east, these sensitive uses would be affected by the construction noise occurring as a result of the proposed project. The uses nearest the project site that are sensitive to construction noise are the single-family residential homes that are located immediately north of the site, along Lomond Drive. As shown in Table 8, construction noise levels could reach as high as 86 dBA L_{eq} at 50 feet from the project site during excavation and grading activities. As pile

driving is expected to occur on the southwest portion of the project site, and would be approximately 400 feet from the residences to the north, construction activities could expose sensitive receptors to noise levels as high as 89 dBA L_{eq}. Based on the information presented in Table 7 and Table 8, and the diminishment of noise levels at a rate of 6 dBA per doubling of distance, the approximate noise levels experienced by these adjacent sensitive uses due to construction activities occurring at the project site have been estimated and are shown in Table 9 (Predicted Construction Noise at Off-Site Sensitive Uses).

Most of the types of exterior construction activities associated with the proposed project would not generate continuously high noise levels, although occasional single-event disturbances from pile driving, grading, and construction are possible.

Under Section 8.40.090 (Special Provisions) of Chapter 8.40 of the City Municipal Code, noise sources associated with construction are exempt from the requirements of the Municipal Code if a permit is obtained from the City, and provided that construction activities do not occur between the hours of 8:00 P.M. and 7:00 A.M. on weekdays, including Saturday, or at any time on Sunday or a federal holiday. Thus, as long as a permit is obtained from the City for construction at the project site, noise associated with construction activity would not exceed locally established thresholds for construction noise.

Table 9 Predicted Construction Noise at Off-Site Sensitive Uses

Noise Sensitive Use	*Location*	*Construction Activity*	*Approximate Distance from Area of Construction Activity (feet)*	*Solid Wall?*[a]	*Approximate Noise Level at Sensitive Uses (dBA L_{eq})*[b]
Single-family Residential Uses	Along Newland Street east of project site	Excavation and grading within project site	95	Yes	75.4
Single-family Residential Uses	Along the eastern portion of Lomond Drive, near Newland Street	Excavation and grading within project site	78	No	82.1
Single-family Residential Uses	Along the western portion of Lomond Drive, near Lochlea Lane	Excavation and grading within project site	60	No	84.4
Single-family Residential Uses	Along Attleboro Circle, northwest of project site	Excavation and grading within project site; pile driving in the southwest corner of the project site	152	Yes	89.0
Single-family Residential Uses	South of Huntington Beach Channel	Excavation and grading within project site	700	Yes	85.0

SOURCE: EIP Associates 2005.

[a] Some of the residential uses adjacent to the project site are located behind a solid wall. As discussed previously, a solid wall or berm typically reduces noise levels by 5 to 10 dBA. To provide a conservative analysis, it is assumed that the presence of a solid wall would reduce noise levels by 5 dBA.

[b] The noise levels at the off-site sensitive uses were determined with the following equation from Harris Miller Miller & Hanson Inc.'s (HMMH) *Transit Noise and Vibration Impact Assessment, Final Report*: $L_{eq} = L_{eq\ at\ 50\ ft.} - 20\ Log(D/50)$, where L_{eq} = noise level of noise source, D = distance from the noise source to the receiver, $L_{eq\ at\ 50\ ft.}$ = noise level of source at 50 feet.

Groundborne Vibration

Certain construction activities that would occur under the proposed project, including excavation, would have the potential to generate low levels of groundborne vibration. Table 10 (Vibration Source Levels for Construction Equipment) identifies various vibration velocity levels for the types of construction equipment

that would operate at the project site during construction. Vibration levels are expected Construction activities would have the potential to impact the surrounding sensitive receptors to the project site, which includes the existing single-family residential homes that are located immediately north of the project site along Lomond Drive. Based on the information presented in Table 10, vibration levels could reach approximately 87 VdB within 25 feet of the project site. As vibration level would attenuate at a rate of approximately 6 VdB per doubling of distance, pile driving activities that would occur on the southwest corner of the project site could expose residences along Attleboro Circle northwest of the project site to vibration levels as high as 80 VdB.

The single-family residential homes nearest to the project site are located in the vicinity of the Lomond Drive and Lochlea Lane intersection, which is approximately 60 feet from the northern project site boundary. Based on this information, the vibration levels experienced by these single-family residential homes would be approximately 79.4 VdB.[1] As such, these residential uses would not experience vibration levels during construction of the proposed project that would exceed the FTA's vibration impact threshold of 85 VdB for human annoyance.[2] Because the remaining sensitive uses surrounding the project site are located further away from the project site than the residential uses near the intersection of Lomond Drive and Lochlea Lane, these sensitive uses would also not be adversely affected by the vibration levels associated with construction activities at the project site.

Table 10 Vibration Source Levels for Construction Equipment

Equipment	*Approximate VdB*			
	25 Feet	*50 Feet*	*75 Feet*	*100 Feet*
Pile Driver (impact)	104	98	94	92
Large Bulldozer	87	81	77	75
Caisson Drilling	87	81	77	75
Loaded Trucks	86	80	76	74
Jackhammer	79	73	69	67
Small Bulldozer	58	52	48	46

SOURCE: Federal Railroad Administration, 1998; and EIP Associates, 2005.

[1] The vibration level is determined with the following equation from Harris Miller Miller & Hanson Inc.'s (HMMH) *Transit Noise and Vibration Impact Assessment, Final Report*: **Lv(D)=Lv(25 ft) – 20log(D/25)**, where Lv = vibration level of equipment, D = distance from the equipment to the receiver, Lv(25 ft) = vibration level of equipment at 25 feet.

[2] Harris Miller Miller & Hanson Inc. *Transit Noise and Vibration Impact Assessment*. April, 1995. Page 12-9.

Operational Noise

Traffic Noise

On Site

Exterior

Future noise levels on-site would continue to be dominated by vehicular traffic on the adjacent roadways. Currently, the project site is zoned industrial, which allows exterior on-site noise levels to reach 70 dBA L_{dn}. Implementation of the proposed project would include a General Plan Amendment and Zone change for the project site to allow the construction of 204 condominium units (i.e., 81 duplex units and 123 triplex units) and a two-acre public park on the project site. With the change in zoning to residential uses from industrial, the exterior allowable noise level for the project site would be reduced to 58 dBA L_{dn}.

Since Newland Street runs along the site's eastern boundary, motor vehicle traffic noise is most influential on the eastern portion of the project site. Two aspects of the project design would work to decrease residential noise exposure. First, the proposed public park would occupy about half of the site's Newland Street frontage, which would provide about a 400 foot buffer zone to attenuate traffic noise at the units west of the park. Second, the proposed project would include a six-foot, concrete wall that would be constructed along the site perimeter, extending from the southeast corner, north along Newland Street, then west along the south side of A Street to the project site entry gate, then north to Lomond Drive, then west to the northwest site corner. This barrier would help attenuate traffic noise by blocking the direct noise propagation path from Newland Street to the facing residential units; the attenuative effect would likely be strongest at the residential units closest to Newland Street (i.e., Units 1 through 6, east of the entry gate and south of A street; and Units 7 through 9, north of the southeast project site corner. The barrier effectiveness would be further enhanced by the required project site elevation, which would be raised approximately three to five feet to elevate the site of out the flood hazard zone. The raised site, or earthen platform, would increase the effective height of the walls and provide additional screening from traffic noise.

TNM was used in this analysis to estimate the worst-case noise levels at the closest residential units to Newland Street (i.e., Units 7 through 9, and Unit 6, all north of the southeast project site corner). No other unit locations were modeled because lower noise levels were expected at other residences due to the greater distances from Newland Street, and because the perimeter structures would provide noise attenuation to the interior units.

The results of the TNM model runs are shown in Table 11. Existing noise levels at the locations where residential Units 7, 8, 9 and 6 would be after project buildout all exceed the allowable noise threshold (i.e., 58 dBA L_{dn}). Under Cumulative No Project conditions, noise levels at the same locations would be 2 to 3 dBA higher because of higher future traffic volumes and the widening of Newland Street. Under Cumulative Project conditions, noise levels at the same locations would all be lower than existing noise levels, mainly

due to the project site perimeter wall's blockage of noise propagation from Newland Street and Hamilton Avenue. However, the wall's protective effect is uneven, ranging from about -5 dBA (compared with Cumulative No Project) at Unit 7 (the southernmost) to about -8 dBA at Unit 6 (the northernmost). The primary reason for the uneven protective effect is because the wall ends at the southeast corner of the project site, and does not block noise propagation from the portion of Newland Street south of Hamilton Avenue. In addition, second-story receptors were added at each of the four unit locations to show that the proposed perimeter wall would not block noise propagation to their upper outside deck areas. Noise levels on the exterior of the ground floor and second stories would exceed the allowable noise threshold of 58 dBA L_{dn}.

Table 11 Traffic Noise Model Results

Model Scenario	*Traffic Noise Levels Residential Units Facing Newland Street L_{dn} (dBA)*			
	Unit #7	*Unit #8*	*Unit #9*	*Unit #6*
Existing (2005): Vacant, level site; Newland Street at 2 lanes.	63.2	63.3	63.1	64.3
Cumulative No Project (2030): Vacant, level site; Newland Street widened to 4 lanes.	65.7	65.4	65.3	66.2
Cumulative Project (2030): Site elevated approximately three to five feet; six-foot concrete perimeter wall along Newland Street and south side A Street; Newland Street widened to 4 lanes.				
Ground Floor Receptors	60.9	59.3	58.9	58.5
Second Story Receptors	66.3	66.1	66.2	66.6
Cumulative Project (2030) with Additional Mitigation				
[TBD upon City/Applicant verification of potential mitigation alternatives]				

SOURCE: EIP Associates 2005
Calculated using the FHWA's TNM computer model; Traffic data provided by Urban Crossroads.

Potential mitigation measures could reduce the noise levels below the allowable threshold. [**To be expanded upon after verification of mitigation alternatives**]

Interior

As discussed previously, exterior-to-interior reduction of newer residential units is generally 30 dBA or more. With this assumption, Table 11 indicates that future noise levels associated with the surrounding roadways would not exceed the City's 55 dBA L_{dn} daytime interior noise standard or the 45 dBA L_{dn} nighttime interior noise standard for residential uses.

Off Site

The increase in traffic resulting from implementation of the proposed project would also increase the ambient noise levels at the existing sensitive off-site locations in the project vicinity. Table 12 (Predicted Year 2009 Roadway Noise Levels Offsite) identifies the changes in future noise levels along the study-area roadway segments in the project vicinity that have residential uses.

Table 12 Predicted Year 2009 Roadway Noise Levels Off Site

Roadway Segment	*Existing Land Use*	*Noise Levels in dBA L_{dn}*			
		Year 2009 Without Project	*Year 2009 With Project*	*Increase*	*Significance Threshold*
Pacific Coast Highway, west of Beach Boulevard	Residential	71.4	71.4	0.0	3.0
Pacific Coast Highway, west of Newland Street	Residential	72.6	72.6	0.0	3.0
Pacific View Avenue, west of Beach Boulevard	Residential	62.6	62.6	0.0	3.0
Beach Boulevard, north of Atlanta Avenue	Residential	68.0	68.1	0.1	3.0
Beach Boulevard, north of Pacific View Avenue	Residential	69.1	69.1	0.0	3.0
Beach Boulevard, north of Pacific Coast Highway	Residential	67.5	67.5	0.0	3.0
Indianapolis Avenue, west of Newland Street	Residential	65.5	65.5	0.0	3.0
Indianapolis Avenue, east of Newland Street	Residential	65.4	65.4	0.0	3.0
Atlanta Avenue, west of Beach Boulevard	Residential	61.7	61.8	0.1	3.0
Atlanta Avenue, west of Newland Street	Residential	63.9	64.0	0.1	3.0
Atlanta Avenue, west of Magnolia Street	Residential	63.3	63.3	0.0	3.0
Atlanta Avenue, west of Bushard Street	Residential	63.1	63.1	0.0	3.0
Atlanta Avenue, east of Bushard Street	Residential	62.0	62.0	0.0	3.0
Lomond Drive, west of Newland Street	Residential	51.6	51.6	0.0	3.0
Hamilton Avenue, west of Magnolia Street	Residential	61.6	61.7	0.1	3.0
Hamilton Avenue, west of Bushard Street	Residential	63.2	63.3	0.1	3.0
Hamilton Avenue, east of Bushard Street	Residential	63.7	63.8	0.1	3.0
Banning Avenue, east of Magnolia Street	Residential	54.7	54.7	0.0	3.0
Newland Street, north of Indianapolis Avenue	Residential	64.2	64.2	0.0	3.0
Newland Street, north of Atlanta Avenue	Residential	63.5	63.6	0.1	3.0
Newland Street, north of Lomond Drive	Residential	64.4	64.5	0.1	3.0
Newland Street, north of Hamilton Avenue	Residential	64.4	64.5	0.1	3.0
Newland Street, north of Pacific Coast Highway	Residential	53.7	53.8	0.1	3.0
Magnolia Street, north of Atlanta Avenue	Residential	65.4	65.5	0.1	3.0
Magnolia Street, north of Hamilton Avenue	Residential	65.2	65.2	0.0	3.0
Magnolia Street, north of Banning Avenue	Residential	62.4	62.4	0.0	3.0
Magnolia Street, north of Pacific Coast Highway	Residential	56.9	56.9	0.0	3.0
Bushard Street, north of Atlanta Avenue	Residential	63.2	63.2	0.0	3.0
Bushard Street, north of Hamilton Avenue	Residential	62.6	62.6	0.0	3.0
Bushard Street, south of Hamilton Avenue	Residential	61.2	61.2	0.0	3.0

SOURCE: EIP Associates 2005. Calculation data and results are provided in Appendix A.

As shown in Table 12, implementation of the proposed project would increase local noise levels by a maximum of 0.1 dBA L_{dn} at 11 of the study roadway segments in the project vicinity, which is inaudible/imperceptible to most people and would not exceed the identified threshold of significance.

Stationary Sources

Upon completion of the proposed residential development, heating, ventilation, and air conditioning (HVAC) systems would be installed for the new residential buildings located within the project site. Operation of these HVAC systems would result in noise levels that average between 40 and 50 dBA L_{eq} at 50 feet from the equipment. These noise levels would not exceed the City's exterior noise level standards for locally regulated noise sources as identified previously in Table 3.

City Requirements

It is anticipated that the following standard City requirements (CR) would help minimize noise generated by construction activities associated with the proposed project to the surrounding sensitive receptors.

- Construction shall be limited to Monday–Saturday 7:00 A.M.–8:00 P.M. Construction shall be prohibited Sundays and Federal holidays.
- The Applicant shall notify all property owners and tenants within 300 feet of the perimeter of the property of a tentative grading schedule at least 30 days prior to such grading.
- The developer shall coordinate the development of a truck haul route with the Department of Public Works if the import or export of material is required. This plan shall include the approximate number of truck trips and the proposed truck haul routes. It shall specify the hours in which transport activities can occur and methods to mitigate construction-related impacts to adjacent residents. These plans must be submitted for approval to the Department of Public Works prior to issuance of a precise grading permit.
- All haul trucks shall arrive at the site no earlier than 8:00 A.M. or leave the site no later than 5:00 P.M., and shall be limited to Monday through Friday only.
- Neighbors within 200 feet of major construction areas shall be notified of the construction schedule in writing prior to construction; the project sponsor shall designate a "disturbance coordinator" who shall be responsible for responding to any local complaints regarding construction noise; the coordinator (who may be an employee of the developer or general contractor) shall determine the cause of the complaint and shall require that reasonable measures warranted to correct the problem be implemented; and a telephone number for the noise disturbance coordinator shall be posted conspicuously at the construction site fence and included on the notification sent to neighbors adjacent to the site.

In addition to the standard City requirements listed above, the following mitigation measure (MM) would address impacts. Due to the potential noise level generated by pile driving activities and the proximity of residential receptors to the project site, the following mitigation measure is recommended to further reduce construction noise impacts.

MM 1 *Pile driving activities shall be limited to the hours of 8:00 A.M to 6:00 P.M Monday through Friday.*

CONCLUSIONS

Implementation of the proposed project would not violate the City's noise standards during construction, as noise sources associated with construction are exempt from the requirements of the Municipal Code if a permit is obtained from the City, and provided that construction activities do not occur between the hours of 8 P.M. and 7 A.M. on weekdays, including Saturday, or at any time on Sunday or a federal holiday. It is anticipated that as a condition of approval, the developer for the proposed project would apply for a construction permit from the City prior to the commencement of any construction activities on the project site.

Additionally, construction activities occurring at the project site would not expose nearby sensitive uses to excessive groundborne vibration levels. The nearest sensitive uses to the project site are approximately 60 feet from the northern project site boundary. Based on this distance and the vibration levels typically generated by construction activity, it has been determined that these sensitive uses would experience vibration levels of approximately 80 VdB, which would not exceed the FTA's vibration impact threshold of 85 VdB for human annoyance.

As shown in Table 11, future ambient traffic noise along Newland Street will exceed the exterior allowable noise threshold of 58 dBA L_{dn} for residential uses facing Newland Street. [**Potential mitigation to be included when verified by City and Applicant**] However, daytime interior noise standards would not be exceeded at the new residences.

As shown in Table 12, traffic would increase by a maximum of 0.1 dBA L_{dn} in the project vicinity as a result of implementation of the proposed project. This is considered an inaudible/imperceptible increase in noise to most people and would not exceed the identified thresholds of significance of 3.0 dBA L_{dn}.

Furthermore, operation of the new residential HVAC systems within the project site would not exceed the City's exterior noise level standards for locally regulated noise sources, which is 55 dBA for all residential properties.

APPENDIX NOISE DATA

File Translated:	P:\Projects - All Users\11000-00+\11034-00 HB Newland St. Residential Project\EIR\Noise Data\Noise Measure
Model/Serial Number:	814 / A0174
Firmware/Software Revs:	1.026 / 1.07
Name:	EIP Associates
Descr1:	12301 Wilshire Blvd. Suite 430
Descr2:	Los Angeles, CA 90025
Setup/Setup Descr:	15minute.slm / 15 Minute
Location:	Huntington Beach
Note1:	Location 1
Note2:	Primary noise: Traffic on Sandy Hook Dr. & Antigua Dr., and Newland St
Octave Filters:	None

Overall Measurement

Start Time:	26-May-2005 14:29:42
Elapsed Time:	00:15:00.0
Leq:	53.0 dBA
SEL:	82.6 dBA
Dose:	0.00 %
Proj. Dose:	0.00 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Current Measurement

Start Time:	26-May-2005 14:29:42
Elapsed Time:	00:15:00.0
Leq:	53.0 dBA
SEL:	82.6 dBA
Dose:	0.00 %
Proj. Dose:	0.00 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Min:	43.5 dBA	26-May-2005 14:44:35
Max:	71.2 dBA	26-May-2005 14:40:55
Peak-1:	98.6 dBF	26-May-2005 14:40:22
Peak-2:	90.4 dBA	26-May-2005 14:40:38

Min:	43.5 dBA	26-May-2005 14:44:35	
Max:	71.2 dBA	26-May-2005 14:40:55	
Peak-1:	98.6 dBF	26-May-2005 14:40:22	
Peak-2:	90.4 dBA	26-May-2005 14:40:38	

L 1.67	60.7 dBA	L 50.00	49.3 dBA
L 8.33	56.6 dBA	L 66.67	47.8 dBA
L 33.33	51.4 dBA	L 90.00	46.0 dBA

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	115.00	Exceeded:	0 times
SPL Exceedance level 2:	120	Exceeded:	0 times
Peak-1 Exceedance Level:	140	Exceeded:	0 times
Peak-2 Exceedance Level:	140	Exceeded:	0 times
Hysteresis:	2		
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		

Calibrated:	11-Aug-2004 12:42:52	Offset:	9.0 dB
Checked:	26-May-2005 15:39:51	Level:	114.20 dB
Calibrator	LD 0504	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Enabled	Number Interval Records:	1
History Records:	Disabled	Number History Records:	18

814 Memory:	524288 bytes
Free Memory:	425049 bytes 81.07% free

Battery Level: 84% Source: INT

File Translated:	P:\Projects - All Users\11000-00+\11034-00 HB Newland St. Residential Project\EIR\Noise Data\Noise Measure
Model/Serial Number:	814 / A0174
Firmware/Software Revs:	1.026 / 1.07
Name:	EIP Associates
Descr1:	12301 Wilshire Blvd. Suite 430
Descr2:	Los Angeles, CA 90025
Setup/Setup Descr:	15minute.slm / 15 Minute
Location:	Huntington Beach
Note1:	Location 2
Note2:	Primary noise: Traffic on Newland St.
Octave Filters:	None

Overall Measurement

Start Time:	26-May-2005 14:52:33
Elapsed Time:	00:15:00.0
Leq:	65.6 dBA
SEL:	95.2 dBA
Dose:	0.00 %
Proj. Dose:	0.36 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Min:	45.2 dBA	26-May-2005 14:56:59
Max:	77.4 dBA	26-May-2005 15:03:20
Peak-1:	100.2 dBF	26-May-2005 14:53:07
Peak-2:	91.2 dBA	26-May-2005 15:03:19

Current Measurement

Start Time:	26-May-2005 14:52:33
Elapsed Time:	00:15:00.0
Leq:	65.6 dBA
SEL:	95.2 dBA
Dose:	0.00 %
Proj. Dose:	0.36 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Min:	45.2 dBA	26-May-2005 14:56:59
Max:	77.4 dBA	26-May-2005 15:03:20
Peak-1:	100.2 dBF	26-May-2005 14:53:07
Peak-2:	91.2 dBA	26-May-2005 15:03:19

L 1.67	73.3 dBA	L 50.00	63.4 dBA
L 8.33	69.8 dBA	L 66.67	60.2 dBA
L 33.33	65.4 dBA	L 90.00	50.0 dBA

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	115.00	Exceeded:	0 times
SPL Exceedance level 2:	120	Exceeded:	0 times
Peak-1 Exceedance Level:	140	Exceeded:	0 times
Peak-2 Exceedance Level:	140	Exceeded:	0 times
Hysteresis:	2		
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		

Calibrated:	11-Aug-2004 12:42:52	Offset:	9.0 dB
Checked:	26-May-2005 15:39:51	Level:	114.20 dB
Calibrator	LD 0504	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Enabled	Number Interval Records:	1
History Records:	Disabled	Number History Records:	18

814 Memory:	524288 bytes
Free Memory:	425049 bytes 81.07% free

Battery Level: 85% Source: INT

File Translated:	P:\Projects - All Users\11000-00+\11034-00 HB Newland St. Residential Project\EIR\Noise Data\Noise Measure
Model/Serial Number:	814 / A0174
Firmware/Software Revs:	1.026 / 1.07
Name:	EIP Associates
Descr1:	12301 Wilshire Blvd. Suite 430
Descr2:	Los Angeles, CA 90025
Setup/Setup Descr:	15minute.slm / 15 Minute
Location:	Huntington Beach
Note1:	Location 4
Note2:	Primary noise: Children playing in park
Octave Filters:	None

Overall Measurement

Start Time:	26-May-2005 15:44:31
Elapsed Time:	00:15:00.0
Leq:	48.0 dBA
SEL:	77.6 dBA
Dose:	0.00 %
Proj. Dose:	0.00 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Min:	42.7 dBA	26-May-2005 15:47:24
Max:	58.2 dBA	26-May-2005 15:44:54
Peak-1:	80.3 dBF	26-May-2005 15:44:42
Peak-2:	77.6 dBA	26-May-2005 15:58:25

Current Measurement

Start Time:	26-May-2005 15:44:31
Elapsed Time:	00:15:00.0
Leq:	48.0 dBA
SEL:	77.6 dBA
Dose:	0.00 %
Proj. Dose:	0.00 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Min:	42.7 dBA	26-May-2005 15:47:24
Max:	58.2 dBA	26-May-2005 15:44:54
Peak-1:	80.3 dBF	26-May-2005 15:44:42
Peak-2:	77.6 dBA	26-May-2005 15:58:25

L 1.67	54.8 dBA	L 50.00	46.3 dBA
L 8.33	51.1 dBA	L 66.67	45.6 dBA
L 33.33	47.2 dBA	L 90.00	44.3 dBA

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	115.00	Exceeded:	0 times
SPL Exceedance level 2:	120	Exceeded:	0 times
Peak-1 Exceedance Level:	140	Exceeded:	0 times
Peak-2 Exceedance Level:	140	Exceeded:	0 times
Hysteresis:	2		
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		

Calibrated:	11-Aug-2004 12:42:52	Offset:	9.0 dB
Checked:	26-May-2005 15:39:51	Level:	114.20 dB
Calibrator	LD 0504	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Enabled	Number Interval Records:	1
History Records:	Disabled	Number History Records:	18

814 Memory:	524288 bytes
Free Memory:	425049 bytes 81.07% free

Battery Level: 84% Source: INT

File Translated:	P:\Projects - All Users\11000-00+\11034-00 HB Newland St. Residential Project\EIR\Noise Data\Noise Measure
Model/Serial Number:	814 / A0174
Firmware/Software Revs:	1.026 / 1.07
Name:	EIP Associates
Descr1:	12301 Wilshire Blvd. Suite 430
Descr2:	Los Angeles, CA 90025
Setup/Setup Descr:	15minute.slm / 15 Minute
Location:	Huntington Beach
Note1:	Location 3
Note2:	Primary noise: Construction loading truck idling; dog barking; traffic
Octave Filters:	None

Overall Measurement

Start Time:	26-May-2005 15:10:46
Elapsed Time:	00:15:00.0
Leq:	63.4 dBA
SEL:	92.9 dBA
Dose:	0.00 %
Proj. Dose:	0.21 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Min:	43.9 dBA	26-May-2005 15:20:18
Max:	74.1 dBA	26-May-2005 15:14:38
Peak-1:	100.5 dBF	26-May-2005 15:19:04
Peak-2:	94.9 dBA	26-May-2005 15:14:34

Current Measurement

Start Time:	26-May-2005 15:10:46
Elapsed Time:	00:15:00.0
Leq:	63.4 dBA
SEL:	92.9 dBA
Dose:	0.00 %
Proj. Dose:	0.21 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Min:	43.9 dBA	26-May-2005 15:20:18
Max:	74.1 dBA	26-May-2005 15:14:38
Peak-1:	100.5 dBF	26-May-2005 15:19:04
Peak-2:	94.9 dBA	26-May-2005 15:14:34

L 1.67	69.5 dBA	L 50.00	62.1 dBA
L 8.33	66.6 dBA	L 66.67	61.2 dBA
L 33.33	63.0 dBA	L 90.00	54.0 dBA

Detector:	Slow			
Weighting:	A			
SPL Exceedance Level 1:	115.00	Exceeded:	0	times
SPL Exceedance level 2:	120	Exceeded:	0	times
Peak-1 Exceedance Level:	140	Exceeded:	0	times
Peak-2 Exceedance Level:	140	Exceeded:	0	times
Hysteresis:	2			
Overloaded:	0 time(s)			
Paused:	0 times for 00:00:00.0			

Calibrated:	11-Aug-2004 12:42:52	Offset:	9.0 dB
Checked:	26-May-2005 15:39:51	Level:	114.20 dB
Calibrator	LD 0504	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Enabled	Number Interval Records:	1
History Records:	Disabled	Number History Records:	18

814 Memory:	524288 bytes
Free Memory:	425049 bytes 81.07% free

Battery Level: 84% Source: INT

File Translated:	P:\Projects - All Users\11000-00+\11034-00 HB Newland St. Residential Project\EIR\Noise Data\Noise Measure
Model/Serial Number:	814 / A0174
Firmware/Software Revs:	1.026 / 1.07
Name:	EIP Associates
Descr1:	12301 Wilshire Blvd. Suite 430
Descr2:	Los Angeles, CA 90025
Setup/Setup Descr:	15minute.slm / 15 Minute
Location:	Huntington Beach
Note1:	Location 5
Note2:	Primary noise: Traffic on Newland St.
Octave Filters:	None

Overall Measurement

Start Time:	26-May-2005 16:06:28
Elapsed Time:	00:15:00.0
Leq:	63.4 dBA
SEL:	93.0 dBA
Dose:	0.00 %
Proj. Dose:	0.21 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Current Measurement

Start Time:	26-May-2005 16:06:28
Elapsed Time:	00:15:00.0
Leq:	63.4 dBA
SEL:	93.0 dBA
Dose:	0.00 %
Proj. Dose:	0.21 %
Threshold:	0 dB
Criterion:	90 dB
Exchange Rate:	3 dB

Min:	49.1 dBA	26-May-2005 16:20:46
Max:	70.6 dBA	26-May-2005 16:06:51
Peak-1:	92.8 dBF	26-May-2005 16:13:36
Peak-2:	88.3 dBA	26-May-2005 16:15:18

L 1.67	68.9 dBA	L 50.00	61.8 dBA
L 8.33	67.3 dBA	L 66.67	58.8 dBA
L 33.33	64.3 dBA	L 90.00	52.0 dBA

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	115.00	Exceeded:	0 times
SPL Exceedance level 2:	120	Exceeded:	0 times
Peak-1 Exceedance Level:	140	Exceeded:	0 times
Peak-2 Exceedance Level:	140	Exceeded:	0 times
Hysteresis:	2		
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		

Calibrated:	11-Aug-2004 12:42:52	Offset:	9.0 dB
Checked:	26-May-2005 15:39:51	Level:	114.20 dB
Calibrator	LD 0504	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Enabled	Number Interval Records:	1
History Records:	Disabled	Number History Records:	18

814 Memory:	524288 bytes
Free Memory:	425049 bytes 81.07% free

Battery Level: 84% Source: INT

TRAFFIC NOISE LEVELS

Project Number: 11034-00
Project Name: Newland Street Residential Project

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	Existing Traffic Noise Levels
Source of Traffic Volumes:	Urban Crossroads, August 23, 2005
Community Noise Descriptor:	L_{dn}: X CNEL:

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition / Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor[1]	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Peak Hou dB(A) L_{eq}	24-Hour dB(A) Ldn
Existing Traffic Noise Levels													
PCH, west of Beach Boulevard	Residential	6	0	0	37,200	50	120	0	0	1.8%	0.7%	0.0	70.3
PCH, west of Newland Street	Residential	6	0	0	41,200	50	100	0	0	1.8%	0.7%	0.0	71.6
Pacific View Avenue, west of Beach Blvd.	Residential	4	0	0	2,000	40	75	0	0	1.8%	0.7%	0.0	57.2
Beach Blvd., north of Atlanta Ave.	Residential	6	0	0	23,300	50	66	0	-5	1.8%	0.7%	0.0	66.2
Beach Blvd., north of Pacific View Ave.	Residential	6	0	0	17,800	50	115	0	0	1.8%	0.7%	0.0	67.3
Beach Blvd., north of PCH	Residential	6	0	0	16,300	50	140	0	0	1.8%	0.7%	0.0	66.0
Indianapolis Avenue, west of Newland St.	Residential	3	0	0	8,300	40	50	0	0	1.8%	0.7%	0.0	65.1
Indianapolis Avenue, east of Newland St.	Residential	4	0	0	7,800	40	50	0	0	1.8%	0.7%	0.0	65.0
Atlanta Avenue, west of Beach Blvd.	Residential	4	0	0	12,400	40	75	0	-5	1.8%	0.7%	0.0	60.1
Atlanta Avenue, west of Newland St.	Residential	4	0	0	18,300	40	75	0	-5	1.8%	0.7%	0.0	61.8
Atlanta Avenue, west of Magnolia St.	Residential	4	0	0	15,900	45	75	0	-5	1.8%	0.7%	0.0	62.5
Atlanta Avenue, west of Bushard St.	Residential	4	0	0	15,500	45	75	0	-5	1.8%	0.7%	0.0	62.3
Atlanta Avenue, east of Bushard St.	Residential	4	0	0	11,500	45	75	0	-5	1.8%	0.7%	0.0	61.0
Lomond Drive, west of Newland St.	Residential	1	0	0	700	25	38	0	0	1.8%	0.7%	0.0	51.0
Hamilton Avenue, west of Magnolia St.	Residential	2	0	0	9,100	45	75	0	-5	1.8%	0.7%	0.0	59.9
Hamilton Avenue, west of Bushard St.	Residential	4	0	0	14,900	45	75	0	-5	1.8%	0.7%	0.0	62.2
Hamilton Avenue, east of Bushard St.	Residential	4	0	0	17,300	45	75	0	-5	1.8%	0.7%	0.0	62.8
Banning Avenue, east of Magnolia St.	Residential	2	0	0	3,300	35	60	0	-5	1.8%	0.7%	0.0	53.8
Newland Street, north of Indianapolis Ave.	Residential	4	0	0	13,300	45	50	0	-5	1.8%	0.7%	0.0	63.6
Newland Street, north of Atlanta Ave.	Residential	4	0	0	11,400	45	50	0	-5	1.8%	0.7%	0.0	62.9
Newland Street, north of Lomond Dr.	Residential	2	0	0	13,300	45	50	0	-5	1.8%	0.7%	0.0	63.3
Newland Street, north of Hamilton Ave.	Residential	2	0	0	13,300	45	50	0	-5	1.8%	0.7%	0.0	63.3
Newland Street, north of PCH	Residential	2	0	0	7,700	35	180	0	-5	1.8%	0.7%	0.0	52.7
Magnolia Street, north of Atlanta Ave.	Residential	4	0	0	16,800	45	50	0	-5	1.8%	0.7%	0.0	64.6
Magnolia Street, north of Hamilton Ave.	Residential	4	0	0	16,600	45	50	0	-5	1.8%	0.7%	0.0	64.6
Magnolia Street, north of Banning Ave.	Residential	4	0	0	8,000	45	50	0	-5	1.8%	0.7%	0.0	61.4
Magnolia Street, north of PCH	Residential	4	0	0	6,200	40	100	0	-5	1.8%	0.7%	0.0	55.8
Bushard Street, north of Atlanta Ave.	Residential	4	0	0	11,100	45	50	0	-5	1.8%	0.7%	0.0	62.8
Bushard Street, north of Hamilton Ave.	Residential	4	0	0	9,800	45	50	0	-5	1.8%	0.7%	0.0	62.3
Bushard Street, south of Hamilton Ave.	Residential	4	0	0	7,200	45	50	0	-5	1.8%	0.7%	0.0	60.9

[1] Distance is from the centerline of the roadway segment to the receptor location.

TRAFFIC NOISE LEVELS

Project Number: 11034-00
Project Name: Newland Street Residential Project

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	Existing Traffic Noise Levels
Source of Traffic Volumes:	Urban Crossroads, August 23, 2005
Community Noise Descriptor:	L_{dn}: X CNEL:

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition / Roadway Segment	Land Use	Lanes	Median Width	Peak Hour Volume	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor[1]	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Peak Hou dB(A) L_{eq}	24-Hour dB(A) Ldn
Year 2009 Without Project Traffic Noise Levels													
PCH, west of Beach Boulevard	Residential	6	0	0	48,100	50	120	0	0	1.8%	0.7%	0.0	71.4
PCH, west of Newland Street	Residential	6	0	0	52,500	50	100	0	0	1.8%	0.7%	0.0	72.6
Pacific View Avenue, west of Beach Blvd.	Residential	4	0	0	7,000	40	75	0	0	1.8%	0.7%	0.0	62.6
Beach Blvd., north of Atlanta Ave.	Residential	6	0	0	35,400	50	66	0	-5	1.8%	0.7%	0.0	68.0
Beach Blvd., north of Pacific View Ave.	Residential	6	0	0	27,300	50	115	0	0	1.8%	0.7%	0.0	69.1
Beach Blvd., north of PCH	Residential	6	0	0	23,000	50	140	0	0	1.8%	0.7%	0.0	67.5
Indianapolis Avenue, west of Newland St.	Residential	3	0	0	9,100	40	50	0	0	1.8%	0.7%	0.0	65.5
Indianapolis Avenue, east of Newland St.	Residential	4	0	0	8,600	40	50	0	0	1.8%	0.7%	0.0	65.4
Atlanta Avenue, west of Beach Blvd.	Residential	4	0	0	18,200	40	75	0	-5	1.8%	0.7%	0.0	61.7
Atlanta Avenue, west of Newland St.	Residential	4	0	0	30,200	40	75	0	-5	1.8%	0.7%	0.0	63.9
Atlanta Avenue, west of Magnolia St.	Residential	4	0	0	19,400	45	75	0	-5	1.8%	0.7%	0.0	63.3
Atlanta Avenue, west of Bushard St.	Residential	4	0	0	18,400	45	75	0	-5	1.8%	0.7%	0.0	63.1
Atlanta Avenue, east of Bushard St.	Residential	4	0	0	14,200	45	75	0	-5	1.8%	0.7%	0.0	62.0
Lomond Drive, west of Newland St.	Residential	1	0	0	800	25	38	0	0	1.8%	0.7%	0.0	51.6
Hamilton Avenue, west of Magnolia St.	Residential	2	0	0	13,400	45	75	0	-5	1.8%	0.7%	0.0	61.6
Hamilton Avenue, west of Bushard St.	Residential	4	0	0	19,000	45	75	0	-5	1.8%	0.7%	0.0	63.2
Hamilton Avenue, east of Bushard St.	Residential	4	0	0	21,400	45	75	0	-5	1.8%	0.7%	0.0	63.7
Banning Avenue, east of Magnolia St.	Residential	2	0	0	4,100	35	60	0	-5	1.8%	0.7%	0.0	54.7
Newland Street, north of Indianapolis Ave.	Residential	4	0	0	15,300	45	50	0	-5	1.8%	0.7%	0.0	64.2
Newland Street, north of Atlanta Ave.	Residential	4	0	0	13,100	45	50	0	-5	1.8%	0.7%	0.0	63.5
Newland Street, north of Lomond Dr.	Residential	2	0	0	16,900	45	50	0	-5	1.8%	0.7%	0.0	64.4
Newland Street, north of Hamilton Ave.	Residential	2	0	0	16,800	45	50	0	-5	1.8%	0.7%	0.0	64.4
Newland Street, north of PCH	Residential	2	0	0	9,800	35	180	0	-5	1.8%	0.7%	0.0	53.7
Magnolia Street, north of Atlanta Ave.	Residential	4	0	0	20,300	45	50	0	-5	1.8%	0.7%	0.0	65.4
Magnolia Street, north of Hamilton Ave.	Residential	4	0	0	19,200	45	50	0	-5	1.8%	0.7%	0.0	65.2
Magnolia Street, north of Banning Ave.	Residential	4	0	0	10,000	45	50	0	-5	1.8%	0.7%	0.0	62.4
Magnolia Street, north of PCH	Residential	4	0	0	8,000	40	100	0	-5	1.8%	0.7%	0.0	56.9
Bushard Street, north of Atlanta Ave.	Residential	4	0	0	12,000	45	50	0	-5	1.8%	0.7%	0.0	63.2
Bushard Street, north of Hamilton Ave.	Residential	4	0	0	10,600	45	50	0	-5	1.8%	0.7%	0.0	62.6
Bushard Street, south of Hamilton Ave.	Residential	4	0	0	7,700	45	50	0	-5	1.8%	0.7%	0.0	61.2
Year 2009 With Project Traffic Noise Levels													
PCH, west of Beach Boulevard	Residential	6	0	0	48,100	50	120	0	0	1.8%	0.7%	0.0	71.4
PCH, west of Newland Street	Residential	6	0	0	52,500	50	100	0	0	1.8%	0.7%	0.0	72.6
Pacific View Avenue, west of Beach Blvd.	Residential	4	0	0	7,000	40	75	0	0	1.8%	0.7%	0.0	62.6
Beach Blvd., north of Atlanta Ave.	Residential	6	0	0	35,600	50	66	0	-5	1.8%	0.7%	0.0	68.1
Beach Blvd., north of Pacific View Ave.	Residential	6	0	0	27,300	50	115	0	0	1.8%	0.7%	0.0	69.1
Beach Blvd., north of PCH	Residential	6	0	0	23,000	50	140	0	0	1.8%	0.7%	0.0	67.5
Indianapolis Avenue, west of Newland St.	Residential	3	0	0	9,100	40	50	0	0	1.8%	0.7%	0.0	65.5
Indianapolis Avenue, east of Newland St.	Residential	4	0	0	8,600	40	50	0	0	1.8%	0.7%	0.0	65.4
Atlanta Avenue, west of Beach Blvd.	Residential	4	0	0	18,300	40	75	0	-5	1.8%	0.7%	0.0	61.8
Atlanta Avenue, west of Newland St.	Residential	4	0	0	30,600	40	75	0	-5	1.8%	0.7%	0.0	64.0
Atlanta Avenue, west of Magnolia St.	Residential	4	0	0	19,400	45	75	0	-5	1.8%	0.7%	0.0	63.3
Atlanta Avenue, west of Bushard St.	Residential	4	0	0	18,400	45	75	0	-5	1.8%	0.7%	0.0	63.1
Atlanta Avenue, east of Bushard St.	Residential	4	0	0	14,200	45	75	0	-5	1.8%	0.7%	0.0	62.0
Lomond Drive, west of Newland St.	Residential	1	0	0	800	25	38	0	0	1.8%	0.7%	0.0	51.6
Hamilton Avenue, west of Magnolia St.	Residential	2	0	0	13,800	45	75	0	-5	1.8%	0.7%	0.0	61.7
Hamilton Avenue, west of Bushard St.	Residential	4	0	0	19,300	45	75	0	-5	1.8%	0.7%	0.0	63.3
Hamilton Avenue, east of Bushard St.	Residential	4	0	0	21,600	45	75	0	-5	1.8%	0.7%	0.0	63.8
Banning Avenue, east of Magnolia St.	Residential	2	0	0	4,100	35	60	0	-5	1.8%	0.7%	0.0	54.7
Newland Street, north of Indianapolis Ave.	Residential	4	0	0	15,400	45	50	0	-5	1.8%	0.7%	0.0	64.2
Newland Street, north of Atlanta Ave.	Residential	4	0	0	13,300	45	50	0	-5	1.8%	0.7%	0.0	63.6
Newland Street, north of Lomond Dr.	Residential	2	0	0	17,400	45	50	0	-5	1.8%	0.7%	0.0	64.5
Newland Street, north of Hamilton Ave.	Residential	2	0	0	17,400	45	50	0	-5	1.8%	0.7%	0.0	64.5
Newland Street, north of PCH	Residential	2	0	0	10,100	35	180	0	-5	1.8%	0.7%	0.0	53.8
Magnolia Street, north of Atlanta Ave.	Residential	4	0	0	20,400	45	50	0	-5	1.8%	0.7%	0.0	65.5
Magnolia Street, north of Hamilton Ave.	Residential	4	0	0	19,300	45	50	0	-5	1.8%	0.7%	0.0	65.2
Magnolia Street, north of Banning Ave.	Residential	4	0	0	10,000	45	50	0	-5	1.8%	0.7%	0.0	62.4
Magnolia Street, north of PCH	Residential	4	0	0	8,000	40	100	0	-5	1.8%	0.7%	0.0	56.9
Bushard Street, north of Atlanta Ave.	Residential	4	0	0	12,000	45	50	0	-5	1.8%	0.7%	0.0	63.2
Bushard Street, north of Hamilton Ave.	Residential	4	0	0	10,600	45	50	0	-5	1.8%	0.7%	0.0	62.6
Bushard Street, south of Hamilton Ave.	Residential	4	0	0	7,700	45	50	0	-5	1.8%	0.7%	0.0	61.2

[1] Distance is from the centerline of the roadway segment to the receptor location.