4.9 NOISE

This EIR section 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 Ripcurl Project (proposed project).

The Initial Study/Notice of Preparation (IS/NOP [Appendix A]) identified the potential for impacts associated with the following: exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance; exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels; and a substantial temporary and/or permanent increase in ambient noise levels in the project vicinity. Issues scoped out include potential impacts due to proximity to or association with an airport land use plan or airstrip, as the project site is not located within an airport land use plan or affected area near an airstrip. Data used to prepare this report were taken from the Traffic Impact Analysis prepared by Austin-Foust Associates (Appendix H) 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 (Appendix G). Full bibliographic entries for all reference materials are provided in Section 4.9.5 (References) at the end of this section.

All comments received in response to the Initial Study/Notice of Preparation (IS/NOP) circulated for the proposed project were taken in to consideration during preparation of this Environmental Impact Report, and if relevant, have been addressed in this section or others within this document.

4.9.1 Environmental Setting

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 because of its potential to disrupt sleep, to interfere with speech communication, and to damage hearing. 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 4.9-1 (Representative Environmental Noise Levels) lists representative noise levels for the environment.

Table 4.9-1 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

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.

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.

Existing Environmental 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 4.9-1 (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 4.9-2 (Existing Noise Levels around the Proposed Project Site). These daytime noise levels are characteristic of a typical urban area.

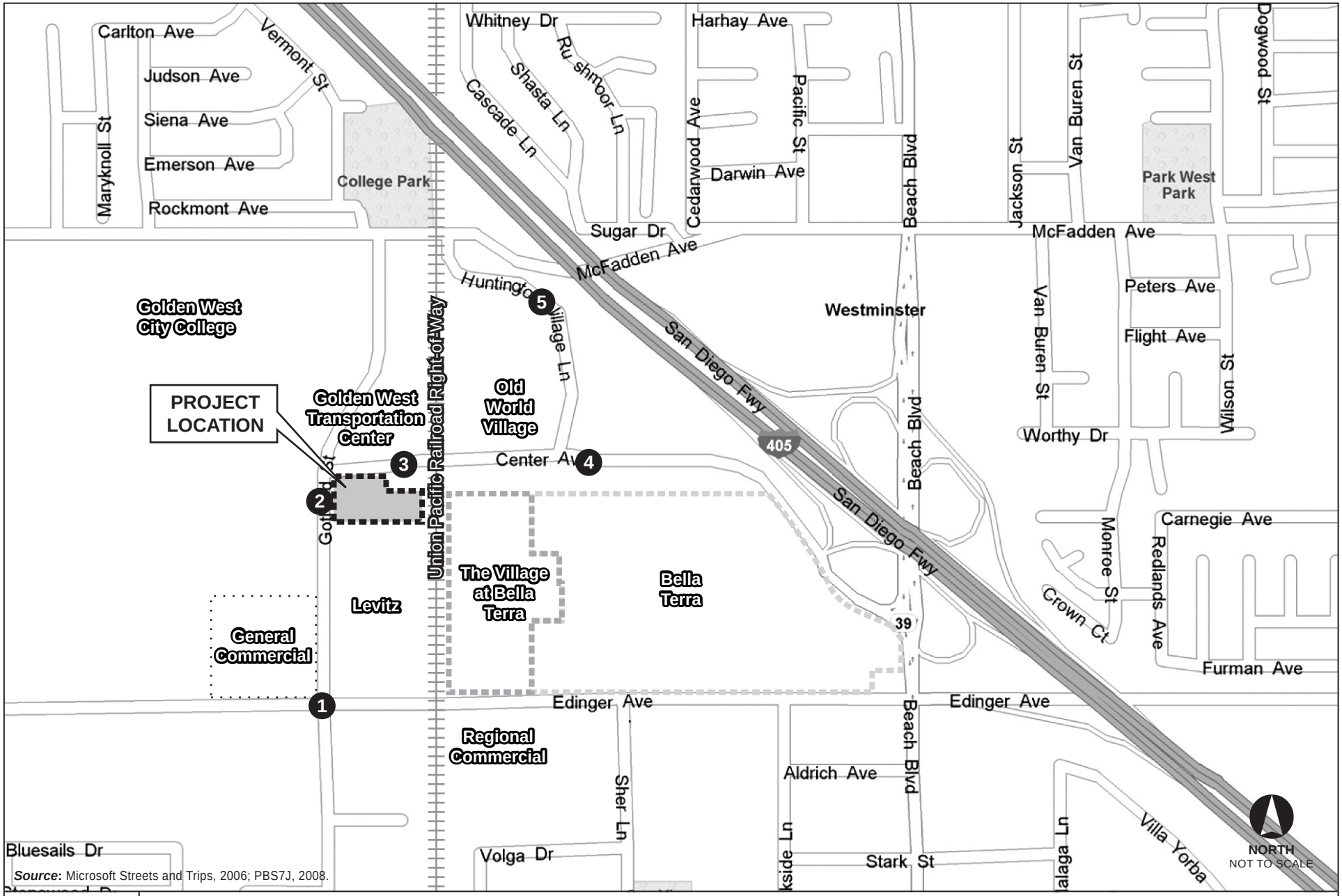
Table 4.9-2 Existing Noise Levels Around the Proposed Project Site

	Location	Run Time	Primary Noise Sources	Noise Level Statistics		
				L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)
1	Northeast corner of Edinger Ave and Gothard St	April 22, 2008 15 Minutes	Traffic, car radio	68.4	53.4	77.9
2	Gothard St. at Center Avenue	April 22, 2008 15 Minutes	Traffic, lawnmower	67.9	47.2	83.4
3	Center Ave, between Gothard and railroad tracks	April 22, 2008 15 Minutes	Traffic, train and warning horn	67.4	46.9	89.8
4	Center Ave, east of Huntington Village Ln	April 22, 2008 15 Minutes	Traffic	66.7	49.5	83.6
5	Huntington Village Ave, midway between McFadden and Center	April 22, 2008 15 Minutes	Traffic, freeway noise	60.8	51.8	81.3

SOURCE: PBS&J 2008

Existing Roadway Noise Levels Off Site

Existing roadway noise levels were calculated for the roadway segments in the project site vicinity including roadways with predominantly commercial uses and those 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 (located in Appendix H). 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 has 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 4.9-3 (Existing Roadway Noise Levels Off Site).



***Source*:** Microsoft Streets and Trips, 2006; PBS7J, 2008.

FIGURE **4.9-1**

Noise Monitoring Locations

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The Ripcurl

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Table 4.9-3 Existing Roadway Noise Levels Off Site

Roadway	*Roadway Segment*	*Surrounding Uses*	*dBA L_{dn}*
Goldenwest Avenue	North of Bolsa Avenue	Commercial	71.9
Goldenwest Avenue	South of Bolsa Avenue	Commercial	71.8
Goldenwest Avenue	North of McFadden Avenue	Commercial	71.2
Goldenwest Avenue	South of McFadden Avenue	Residential	71.1
Gothard Street	South of McFadden Avenue	Institutional/Vacant	65.4
Gothard Street	North of Center Avenue	Institutional/Commercial	65.2
Gothard Street	South of Center Avenue	Institutional/Commercial	65.3
Beach Boulevard	North of Center Avenue	Commercial	74.2
Beach Boulevard	South of Center Avenue	Commercial	74.2
Goldenwest Avenue	North of Edinger Avenue	Commercial	70.4
Goldenwest Avenue	South of Edinger Avenue	Commercial	70.2
Gothard Street	North of Edinger Avenue	Commercial	66.0
Gothard Street	South of Edinger Avenue	Commercial	66.4
Beach Boulevard	North of Edinger Avenue	Commercial	74.5
Beach Boulevard	South of Edinger Avenue	Commercial	74.5
Newland Street	North of Edinger Avenue	Residential	67.9
Newland Street	South of Edinger Avenue	Residential	67.9
Gothard Street	North of Heil Avenue	Commercial	66.2
Gothard Street	South of Heil Avenue	Commercial	67.2
Beach Boulevard	North of Heil Avenue	Commercial	74.0
Beach Boulevard	South of Heil Avenue	Commercial	74.0
Gothard Street	North of Warner Avenue	Commercial/Residential	67.2
Gothard Street	South of Warner Avenue	Commercial	66.9
Beach Boulevard	North of Warner Avenue	Commercial	74.1
Beach Boulevard	South of Warner Avenue	Commercial	74.0
Beach Boulevard	North of McFadden Avenue	Commercial	73.9
Beach Boulevard	South of McFadden Avenue	Commercial	73.9
Beach Boulevard	North of Bolsa Avenue	Commercial/Residential	74.0
Beach Boulevard	South of Bolsa Avenue	Commercial	74.0
Bolsa Avenue	West of Goldenwest Avenue	Commercial	69.2
Bolsa Avenue	East of Goldenwest Avenue	Commercial	70.2
McFadden Avenue	West of Goldenwest Avenue	Residential	67.3
McFadden Avenue	East of Goldenwest Avenue	Residential/Commercial	68.2
McFadden Avenue	West of Gothard Street	Residential/Institutional	68.4
McFadden Avenue	East of Gothard Street	Vacant/Commercial	66.9

Table 4.9-3 Existing Roadway Noise Levels Off Site

Roadway	*Roadway Segment*	*Surrounding Uses*	*dBA L_{dn}*
Center Avenue	West of Gothard Street	Institutional	54.6
Center Avenue	East of Gothard Street	Commercial	60.7
Center Avenue	West of Beach Boulevard	Commercial	65.7
Edinger Avenue	West of Goldenwest Avenue	Commercial/Residential	67.4
Edinger Avenue	East of Goldenwest Avenue	Institutional/Commercial	67.7
Edinger Avenue	West of Gothard Street	Commercial	68.7
Edinger Avenue	East of Gothard Street	Commercial	68.8
Edinger Avenue	West of Beach Boulevard	Commercial	69.5
Edinger Avenue	East of Beach Boulevard	Commercial	68.5
Edinger Avenue	West of Newland Street	Residential	66.7
Edinger Avenue	East of Newland Street	Residential	67.0
Heil Avenue	West of Gothard Street	Commercial/Residential	66.5
Heil Avenue	East of Gothard Street	Commercial	66.0
Heil Avenue	West of Beach Boulevard	Residential	65.1
Heil Avenue	East of Beach Boulevard	Commercial/Residential	63.5
Warner Avenue	West of Gothard Street	Commercial/Residential	71.3
Warner Avenue	East of Gothard Street	Commercial	70.7
Warner Avenue	West of Beach Boulevard	Commercial	71.4
Warner Avenue	East of Beach Boulevard	Commercial/Residential	70.8
McFadden Avenue	West of Beach Boulevard	Commercial/Residential	67.2
McFadden Avenue	East of Beach Boulevard	Commercial	67.3
Bolsa Avenue	West of Beach Boulevard	Residential	67.5
Bolsa Avenue	East of Beach Boulevard	Commercial/Residential	66.9

SOURCE: PBS&J 2008. Calculation data and results are provided in Appendix G

Fundamentals of Environmental Ground-borne 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. Groundborne vibration is almost never annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of a building, the motion does not provoke the same adverse human reaction. In addition, the rumble noise that usually accompanies building vibration is perceptible only inside buildings. (HMMH 2006) As such, 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 4.9-4 (Human Response to Different Levels of Groundborne Vibration).

Table 4.9-4 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 (HMMH) 2006

Existing Groundborne Vibration Levels

Aside from seismic events, the greatest 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. The Union Pacific Railroad right-of-way is located to the east and adjacent to the proposed project site; however, based on site visits, the tracks adjacent to the project site are in good condition and of continuous weld, which greatly reduces the potential for vibration from the occasional freight train pass by. (HMMH 2006)

4.9.2 Regulatory Framework

Federal

There are no federal regulations related to noise that apply to the proposed project.

State

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 4.9-2 (Land Use Compatibility with Community Noise Environments). As shown in Figure 4.9-2, a noise level standard of 60 dBA L_{dn} is used for the exterior living areas of new single-family, duplex and mobile home residential land uses, and 65 dBA L_{dn} for the exterior of all new multi-family 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.

Local

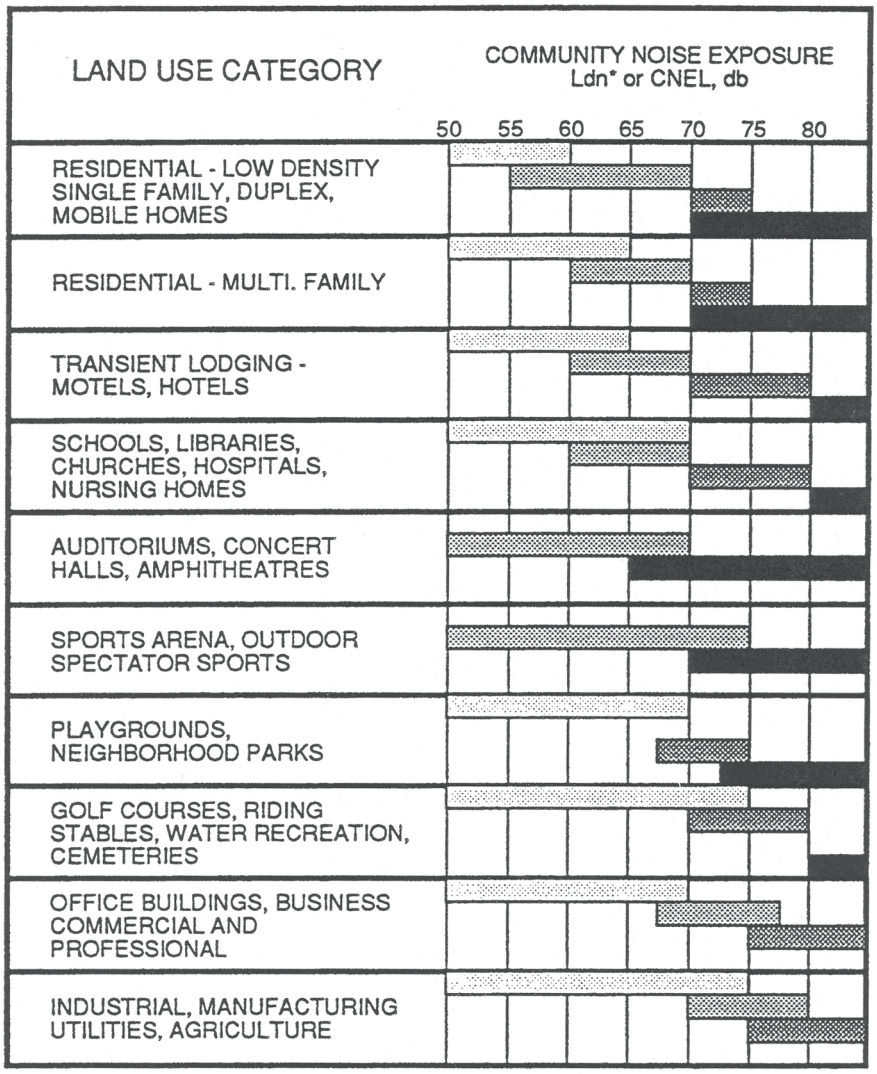
City of Huntington Beach General Plan

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. The goals, objectives and policies of the City's General Plan are to ensure that new development is compatible with existing land uses, and alternately, to ensure that new developments are sited, designed and constructed in such a manner that ambient noise levels would not create an unacceptable noise environment for the occupants and patrons of the new development.

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. The Noise Element goals, objectives, and policies that are relevant to the proposed project are identified below.

Goal N 1 Ensure that all necessary and appropriate actions are taken to protect Huntington Beach residents, employees, visitors, and noise sensitive uses from the adverse impacts created by excessive noise levels from stationary and ambient sources.

Objective N 1.2 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise sensitive uses of Huntington Beach.



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.

***Source*:** Office of Noise Control, California Department of Health.

FIGURE **4.9-2**

Land Use Compatibility with Community Noise Environments

Policy N 1.2.1 Require, in areas where noise levels exceed an exterior L_{dn} of 60 dB(A) and an interior L_{dn} of 45 dB(A), that all new development of "noise sensitive" land uses, such as housing, health care facilities, schools, libraries, and religious facilities, include appropriate buffering and/or construction mitigation measures that will reduce noise exposure to levels within acceptable limits.

Policy N 1.2.3 Require development, in all areas where the ambient noise level exceeds an L_{dn} of 60 dB(A), to conduct an acoustical analysis and incorporate special design measures in their construction, thereby, reducing interior noise levels to the 45 dB(A) L_{dn} level.

Policy N 1.2.5 Require development that generates increased traffic and subsequent increases in the ambient noise levels adjacent to noise sensitive land uses to provide for appropriate mitigation measures in accordance with the acceptable limits of the City noise ordinance.

Objective N 1.3 Minimize the adverse impacts of traffic-generated noise on residential and other "noise sensitive" uses.

Policy N 1.3.7 Provide for the development of alternate transportation modes such as bicycle paths and pedestrian walkways to minimize the number of noise generating automobile trips.

Policy N 1.3.10 Require that mechanical equipment, such as air conditioning units or pool equipment, comply with the City's Noise Ordinance and Zoning and Subdivision Ordinance.

Objective N 1.4 Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or "noise-sensitive" uses

Policy N 1.4.2 Require that the loading and shipping facilities of commercial and industrial land uses abutting residential parcels to be located and designed to minimize the

potential noise impacts upon residential parcels.

Policy N 1.4.3 Require that the parking areas of all commercial and industrial land uses, which abut residential areas, to be buffered and shielded by walls, fences, or adequate landscaping.

Policy N 1.4.4 Require that the parking structures of commercial or industrial land uses be designed to minimize the potential noise impacts of vehicles on the site as well as on adjacent land uses.

Objective N 1.5 Minimize the potentially adverse noise impacts associated with the development of mixed-use structures where residential units are located above or adjacent to commercial uses.

Policy N 1.5.1 Require that commercial and residential mixed-use structures minimize the transfer or transmission of noise and vibration from the commercial land use to the residential land use. The design measures may include: (1) the use of materials which mitigate sound transmission; or (2) the configuration of interior spaces to minimize sound amplification and transmission.

Objective N 1.6 Minimize the impacts of construction noise on adjacent uses

Policy N 1.6.1 Ensure that construction activities be regulated to establish hours of operation, to prevent and/or mitigate the generation of excessive or adverse noise impacts through the implementation of the existing Noise Ordinance and/or any future revisions to the Noise Ordinance.

Objective N 1.7 Ensure that buildings are constructed to prevent adverse noise transmission between differing uses or tenants located in the same commercial structure and individual dwelling units in multi-family residential structures.

Policy N 1.7.1 Rigorously enforce the applicable provisions of the Uniform Building Code and City of Huntington Beach Municipal Code which prevent the transmission of excessive and unacceptable noise levels

between individual tenants and businesses in commercial structures and between individual dwelling units in multi-family residential structures.

Consistency Analysis

The proposed project would be consistent with the identified goals and policies of the City of Huntington Beach's General Plan regarding noise and vibration. The proposed project would be locating the proposed residential and retail mixed-use development in a commercial area, away from existing residential neighborhoods. Further, the proposed project will be constructed during the hours allowed by the City's Municipal Code. Further, design of the proposed project is such that noise generated by the retail uses would be located at ground level and separate from the majority of the residential uses which would reduce commercial and retail generated noise levels from spilling into the residential portion of the site, as is common for mixed-use developments.

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. As such, the Municipal Code provides standards against intrusive noises such as loud gatherings, unauthorized construction generated noise and other intrusive noises.

The exterior noise standards established in the City's Noise Ordinance, Section 8.40.050, are identified in Table 4.9-5 (City of Huntington Beach Noise Ordinance Exterior Noise Standards), along with the exterior noise levels that are prohibited as established by Section 8.40.060. Section 8.40.070 establishes the City's interior noise standards and Section 8.40.080 establishes the prohibited interior noise limits as identified in Table 4.9-6 (City of Huntington Beach Noise Ordinance Interior Noise Standards). For both exterior and interior noise levels, if the ambient noise level is greater than the identified noise standards, the noise standard becomes the ambient noise level without the offending noise.

In accordance with Section 8.40.090(d) construction noise activities are exempt from the Noise Ordinance, provided that the project Applicant has been granted a permit from the City and that the construction activities do not occur between the hours of 8:00 P.M. and 7:00 A.M. on weekdays and Saturdays, or at any time on Sundays or federal holidays. Additionally, Section 8.40.100 prohibits noise levels at the exterior of schools, hospitals and churches to exceed the standards set forth in Section 8.40.50, or for noise levels to interfere with the activities at these institutions.

Table 4.9-5 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	7:00 A.M. to 10:00 P.M. 10:00 P.M. to 7:00 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

SOURCE: City of Huntington Beach Noise Ordinance

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.

Table 4.9-6 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	7:00 A.M. to 10:00 P.M. 10:00 P.M. to 7:00 A.M.
2, 3, 4	All Professional Office, Public Institutional, Commercial, and Industrial Properties	55 dBA	Anytime

SOURCE: City of Huntington Beach Noise Ordinance

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.

4.9.3 Project Impacts and Mitigation

Analytic Method

This analysis of the existing and future noise environments is based on noise level monitoring, noise prediction modeling, and empirical observations. As defined in the City's General Plan Noise Element, noise sensitive land uses include public schools, hospitals, and institutional uses such as churches, museums, and private schools. Typically, residential uses are also considered noise sensitive receptors.

Therefore, for the purposes of this analysis, the nearest sensitive receptors to the project site would be Golden West College located approximately 160 feet west of the project site. Residential uses are also located approximately 700 feet northeast of the site at the Old World Village.

As previously stated, existing noise levels were monitored 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 model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. Traffic volumes utilized as data inputs in the noise prediction model were provided by the Traffic Impact Analysis prepared by Austin Foust Associates for the proposed project. The analysis considers future cumulative traffic noise levels, in recognition of expected higher traffic volumes and resultant noise levels in the future, which provide an appropriate benchmark against which project noise can be assessed.

Thresholds of Significance

The following thresholds of significance are based on Appendix G to the 2008 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would do any of the following:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- Located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels
- Located within the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels

Human Exposure to Noise

The CEQA Guidelines do not define the levels at which temporary and permanent increases in ambient noise are considered "substantial." As discussed previously in this section, 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. Based on the noise measurements shown in Table 4.9-2,

the ambient noise in the vicinity of the project area currently ranges from 60.8 dBA to 68.4 dBA L_{eq}. Therefore, for the purposes of this EIR, an increase of 3 dBA in ambient noise levels would be considered a significant impact.

Additionally, noise generated by construction activities is regulated by the City of Huntington Beach Municipal Code. Construction activities that would occur outside the designated hours established by Section 8.40.090(d) would be potentially significant. Similarly, operational noise resulting from heating ventilation and cooling systems (HVAC), deliveries and refuse collection are also regulated by the City's Municipal Code, and noise generated by these activities that exceeds the City's established standards would be potentially significant.

Effects Not Found to Be Significant

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

The project site is not located within two miles of a public airport, public use airport, or private airstrip. Therefore, the project would not expose people to excessive noise from airports. No impact would occur, and no further analysis of this issue is required in the EIR.

Impacts and Mitigation

Threshold	Would the project expose people to or generate noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies? Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact 4.9-1 **Construction activities associated with the proposed project would not exceed the standards established in the Huntington Beach Municipal Code. Operation of the proposed project would not generate noise levels in excess of standards established by the City.**

Construction

Implementation of the proposed project would involve the construction of a mixed-use residential and retail center on approximately 3.8 acres of commercial space in the City of Huntington Beach. The project would include 440 residential units totaling 301,100 sf of space on top of 10,000 sf of retail space at ground level. The project would also involve the construction of three levels of parking, one below grade, for a total of approximately 578 parking spaces. Access to the site would be from Center Avenue

and/or Gothard Street. Construction would occur in five phases, lasting a total of 24 months. Construction would involve the demolition of the existing 60,000 sf commercial use at the site, along with excavation and eventual construction of the project, all of which 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. Haul trucks using the local roadways would generate noise as they move along the road. Each stage of construction would involve a different mix of operating equipment, and noise levels would vary based on the amount and types of equipment in operation and the location of the activity.

The Environmental Protection Agency (EPA) has compiled data regarding the noise generating characteristics of typical construction activities. These data are presented in Table 4.9-7 (Noise Ranges of Typical Construction Equipment) and Table 4.9-8 (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 4.9-7 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
Tractor	77–98
Scraper/Grader	80–93
Paver	85–88

SOURCE: U.S. EPA 1971

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 4.9-8 Typical Outdoor Construction Noise Levels

Construction Phase	Noise Level at 50 Feet with Mufflers (dBA L_{eq})	Noise Level at 100 Feet with Mufflers (dBA L_{eq})	Noise Level at 160 Feet with Mufflers (dBA L_{eq})	Noise Level at 480 Feet with Mufflers (dBA L_{eq})	Noise Level at 700 Feet with Mufflers (dBA L_{eq})
Ground Clearing	82	76	72	62	59
Excavation/Grading	86	80	76	66	63
Foundations	77	71	67	57	54
Structural	83	77	73	63	60
External Finishing	86	80	76	66	63

SOURCE: U.S. EPA 1971

The noise levels at the off-site sensitive uses were determined with the following equation from the 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.

The closest sensitive uses to the proposed project site would be Golden West College, located approximately 160 feet west of the project site, separated by Gothard Street. During a PBS&J site visit to the proposed project site, temporary classroom structures were observed within the parking area of Golden West College, and therefore, the nearest sensitive use to the proposed project site would be approximately 160 feet west of construction activities. The nearest permanent building on the Golden West Campus is located approximately 480 feet to the west of the proposed project site. Additionally, multi-family residential uses are located approximately 700 feet to the northeast of the proposed project site, between the project site and the Old World Village Shopping Center. These educational and residential sensitive uses would potentially be affected by the construction noise occurring as a result of the proposed project. Based on the information presented in Table 4.9-8, 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 4.9-8. The receptors closest to the project site would be the occupants of the temporary classrooms on the Golden West Campus that are located immediately west of the site, approximately 160 feet west. At this distance, typical daily construction activities (excavation and grading) could reach 76 dBA.

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 grading and external building construction are possible.

Under Section 8.40.090(d) (Special Provisions) of Chapter 8.40 of the City's Municipal Code, noise sources associated with construction are exempt from the requirements of the Municipal Code, provided that the Applicant has acquired the proper permit(s) from the City and 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.

To reduce the noise levels resulting from construction of the proposed project to the extent feasible, the following mitigation measures shall be implemented:

MM4.9-1 *The Applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by contractors to reduce construction noise levels:*

- *Notification shall be mailed to owners and occupants of all developed land uses immediately bordering or directly across the street from the project site area providing a schedule for major construction activities that will occur through the duration of the construction period. In addition, the notification will include the identification and contact number for a community liaison and designated construction manager that would be available on site to monitor construction activities. The construction manager will be located at the on-site construction office during construction hours for the duration of all construction activities. Contract information for the community liaison and construction manager will be located at the construction office, City Hall, and the police department*
- *Ensure that construction equipment is properly muffled according to industry standards*
- *Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible*
- *Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, noise barriers or noise blankets*

MM4.9-2 *The Applicant shall require by contract specifications that construction staging areas, along with the operation of earthmoving equipment within the project site, are located as far away from vibration- and noise-sensitive sites as possible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed and approved by the City.*

Although construction of the proposed project would generate noise levels higher than the 55 dBA exterior limit for public institutional properties (Golden West College) in Huntington Beach, construction related noise is exempt under the City's Municipal Code. Further, construction related noise is intermittent in nature and would not generate continuous noise levels above the Municipal Code standards. Under mitigation measure **MM4.9-1**, the implementation of noise attenuation measures may include the use of noise barriers (e.g., sound walls) or noise blankets. As a general rule, a sound wall is able to reduce noise by 5 dBA. In addition, mitigation measure **MM4.9-2**, which requires that construction staging areas and earthmoving equipment be located as far away from noise and vibration-sensitive land uses as possible, would also reduce construction-related noise levels. Implementation of **MM4.9-1** and **MM4.9-2** would ensure that impacts associated with construction activities resulting from implementation of the proposed project would remain ***less than significant***.

Operation

Large-scale HVAC systems would be installed for the new rental residential, retail and commercial buildings located on the project site. Large HVAC systems associated with the rental residential, retail and commercial buildings can result in noise levels that average between 50 and 65 dBA L_{eq} at 50 feet from the equipment. These HVAC units would be mounted within HVAC wells on the rooftops of the proposed buildings and would be screened from view by the wells and other building features. Additionally, noise from mechanical equipment associated with operation of the project would be required to comply with the State Building Code requirements pertaining to noise attenuation, and with City regulations requiring adequate buffering of such equipment. Further, the project site is currently

developed with commercial uses which already generate noise as a result of operation. Therefore, noise associated with operation of the proposed project would be below the established standards and would be considered ***less than significant***.

The Union Pacific Railroad right-of-way is located adjacent and to the east of the project site. The City of Huntington Beach General Plan Noise Element states that the right-of-way is utilized once daily; however, during site surveys for this EIR, two trains were observed along the right-of-way. As shown in Table 4.9-2, the noise level measurement (Location 3) taken along Center Ave between Gothard Avenue and the right-of-way captured a freight train pass by, which included a horn sounding. The average noise level measured was 67.4 dBA L_{eq}, and the maximum noise level was 89.8 dBA L_{eq}. These noise levels were consistent with the noise levels taken at the other locations without the train pass by. Additionally, the right-of-way would be separated from the proposed project site by a 6-foot high masonry wall along the eastern perimeter of the site, as well as landscaping features and a 28-foot internal road, such that the closest residential unit would be no closer than 35 feet from the rail line right-of-way. The wall and other project features would serve to reduce noise levels from the train wheels by up to 10 dBA; however, because horns are located higher than 6 feet on trains, horn noise would not be reduced. According to the City's Municipal Code, noise levels of up to 15 dBA above the standard are allowable if such noise levels do not occur for over one minute in any hour. Therefore, because the noise generated from a train passing by would not last for longer than one minute, exterior noise thresholds would not be exceeded at the residential and commercial uses associated with the proposed project. Additionally, the residential uses would be required to be designed to meet or exceed a 45 L_{dn} interior noise standard, consistent with the 1996 Noise Element and with the California Building Code. Furthermore, the orientation of the development is such that the lowest number of units and the smallest elevation is the one closest to the rail line right-of-way. Additional design elements that may be incorporated in order to not exceed the interior noise threshold include multiple glazed windows and an exterior wall assembly upgraded with staggered studs and resilient channels. Therefore, impacts on the occupants of the proposed project from the occasional freight train passing by would be considered ***less than significant***.

Operation of the proposed project would involve the delivery of goods and food stuffs to the commercial and retail operations associated with the proposed project, as well as refuse pick up for both the commercial and residential components. Two noise sources would be identified with delivery operations: the noise of the diesel engines of the semi-trailer trucks and the backup beeper alarm that sounds when a truck is put in reverse, as is required and regulated by Cal-OSHA. The noise generated by idling diesel engines typically ranges between 64 and 66 dBA L_{eq} at 75 feet. This noise would be temporary in nature, typically lasting no more than five minutes. Backup beepers are required by Cal-OSHA to be at least 5 dBA above ambient noise levels. These devices are highly directional in nature, and when in reverse the trucks and the beeper alarm would be directed towards the loading area and adjacent commercial structures. Backup beepers are, of course, intended to warn persons who are behind the vehicle when it is backing up. Further, the loading docks associated with the proposed project would be screened from sensitive receptors both on-site and off-site by intervening structures and design of the loading spaces. In addition, noise generated by authorized City refuse collectors operating during regularly scheduled removal hours would be considered exempt from City noise standards. Therefore,

impacts on occupants of the proposed project from loading operations would be considered ***less than significant***.

Threshold	Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Impact 4.9-2 Construction activities associated with the proposed project would not generate or expose persons off site to excessive groundborne vibration.

This analysis uses the Federal Transit Administration (FTA) vibration impact thresholds for sensitive buildings, residences, and institutional land uses. These thresholds are 85 VdB, which is the vibration level that is considered by the FTA to be acceptable only if there are an infrequent number of events per day (as described in Table 4.9-4 [Human Response to Different Levels of Groundborne Vibration]). In terms of groundborne vibration impacts on nearby structures, this analysis will use the FTA's vibration damage threshold of approximately 100 VdB for fragile buildings. (HMMH 2006)

Certain construction activities that would occur under the proposed project would have the potential to generate groundborne vibration. Table 4.9-9 (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. It should be noted that the subterranean parking structure may require the use of soldier piles; however, the vibration levels generated from this construction activity would be similar to those identified below for caisson drilling, and are anticipated to be less than 81 VdB at a distance of 50 feet from the activity.

Table 4.9-9 Vibration Source Levels for Construction Equipment

	Approximate VdB				
Equipment	*50 Feet*	*100 Feet[a]*	*160 Feet[a]*	*480 Feet[a]*	*700 Feet[a]*
Large Bulldozer	81	75	71	55	52
Caisson Drilling	81	75	71	55	52
Loaded Trucks	80	74	64	54	51
Jackhammer	73	67	57	47	44
Small Bulldozer	52	46	36	26	23

SOURCE: Federal Railroad Administration, 1998; and PBS&J, 2008.

a The vibration levels at the off-site sensitive uses are determined with the following equation from the 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.

Construction activities would have the potential to impact the surrounding sensitive receptors to the project site, which includes Golden West College, located approximately 160 feet west of the project site. Based on the information presented in Table 4.9-9, vibration levels could reach approximately 81 VdB within 50 feet of the project site. As vibration level would attenuate at a rate of approximately 6 VdB per doubling of distance, vibration levels at the closest sensitive receptor are anticipated to be 71 VdB. As such, this and other sensitive receptors 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. Therefore, this impact would be considered ***less than significant***.

Operation

During operation of the proposed project, background operational vibration levels would be expected to average around 50 VdB, as discussed previously in this section. This is substantially less than the FTA's vibration impact threshold of 85 VdB for human annoyance. Groundborne vibration resulting from operation of the proposed project would primarily be generated by trucks making periodic deliveries to the proposed project site (including, but not limited to, garbage trucks, freight trucks and moving trucks). The Union Pacific Railroad right-of-way is located approximately 200 feet to the east of the proposed project building area; however, the tracks are in good condition and of continuous weld throughout the project vicinity. Therefore, the occasional freight train pass by is not anticipated to generate vibration levels that would exceed the 85 VdB threshold for the occupants of the proposed project. No substantial sources of groundborne vibration would be built as part of the proposed project; therefore, operation of the proposed project would not expose sensitive receptors on-site or off-site to excessive groundborne vibration or groundborne noise levels, and this impact would be ***less than significant***.

Threshold	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact 4.9-3 The proposed project would generate increased local traffic volumes, but would not cause a substantial permanent increase in ambient noise levels.

Operation of the proposed project would generate local traffic as a result of residents, employees, and patrons entering and exiting the site. A noise level increase of 3 dBA L_{dn} is barely perceptible to most people. Thus, 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. The increase in traffic resulting from implementation of the proposed project could increase the ambient noise levels at off-site locations (such as residential uses) in the project vicinity. As shown in Table 4.9-10, existing roadway noise levels were compared to future roadway noise projections without the project (2014) and future roadway noise projections with the project (2014).

Table 4.9-10 Current and Future Roadway Noise Levels Off Site

		Noise Levels in dBA L_{dn}					
Roadway Segment	*Existing Land Use*	*Existing*	*Year 2014 Without Project*	*Increase*	*Year 2014 With Project*	*Increase*	*Significance*
Goldenwest Avenue at Bolsa Avenue, NB	Commercial	71.9	72.1	0.2	72.1	0.0	No
Goldenwest Avenue at Bolsa Avenue, SB	Commercial	71.8	72.0	0.2	72.0	0.0	No
Goldenwest Avenue at McFadden Avenue, NB	Commercial	71.2	71.5	0.3	71.5	0.0	No

Table 4.9-10 Current and Future Roadway Noise Levels Off Site

Roadway Segment	Existing Land Use	Noise Levels in dBA L_{dn}					
		Existing	Year 2014 Without Project	Increase	Year 2014 With Project	Increase	Significance
Goldenwest Avenue at McFadden Avenue, SB	Residential	71.1	71.3	0.2	71.3	0.0	No
Gothard Street at McFadden Avenue, SB	Institutional/Vacant	65.4	65.8	0.4	65.9	0.1	No
Gothard Street at Center Avenue, NB	Institutional/Commercial	65.2	65.5	0.3	65.6	0.1	No
Gothard Street at Center Avenue, SB	Institutional/Commercial	65.3	65.3	0.0	65.4	0.1	No
Beach Boulevard at Center Avenue, NB	Commercial	74.2	74.5	0.3	74.5	0.0	No
Beach Boulevard at Center Avenue, SB	Commercial	74.2	74.4	0.2	74.4	0.0	No
Goldenwest Avenue at Edinger Avenue, NB	Commercial	70.4	70.6	0.2	70.6	0.0	No
Goldenwest Avenue at Edinger Avenue, SB	Commercial	70.2	70.3	0.1	70.3	0.0	No
Gothard Street at Edinger Avenue, NB	Commercial	66.0	66.0	0.0	66.2	0.2	No
Gothard Street at Edinger Avenue, SB	Commercial	66.4	66.6	0.2	66.6	0.0	No
Beach Boulevard at Edinger Avenue, NB	Commercial	74.5	74.7	0.2	74.7	0.0	No
Beach Boulevard at Edinger Avenue, SB	Commercial	74.5	74.6	0.1	74.6	0.0	No
Newland Street at Edinger Avenue, NB	Residential	67.9	68.3	0.4	68.3	0.0	No
Newland Street at Edinger Avenue, SB	Residential	67.9	68.2	0.3	68.2	0.0	No
Gothard Street at Heil Avenue, NB	Commercial	66.2	66.5	0.3	66.5	0.0	No
Gothard Street at Heil Avenue, SB	Commercial	67.2	67.4	0.2	67.5	0.1	No
Beach Boulevard at Heil Avenue, NB	Commercial	74.0	74.3	0.3	74.3	0.0	No
Beach Boulevard at Heil Avenue, SB	Commercial	74.0	74.1	0.1	74.1	0.0	No
Gothard Street at Warner Avenue, NB	Commercial/Residential	67.2	67.4	0.2	67.4	0.0	No
Gothard Street at Warner Avenue, SB	Commercial	66.9	67.1	0.2	67.1	0.0	No
Beach Boulevard at Warner Avenue, NB	Commercial	74.1	74.2	0.1	74.2	0.0	No

Table 4.9-10 Current and Future Roadway Noise Levels Off Site

Roadway Segment	Existing Land Use	Noise Levels in dBA L_{dn}					
		Existing	Year 2014 Without Project	Increase	Year 2014 With Project	Increase	Significance
Beach Boulevard at Warner Avenue, SB	Commercial	74.0	74.0	0.0	74.0	0.0	No
Beach Boulevard at McFadden Avenue, NB	Commercial	73.9	74.1	0.2	74.2	0.1	No
Beach Boulevard at McFadden Avenue, SB	Commercial	73.9	74.2	0.3	74.2	0.0	No
Beach Boulevard at Bolsa Avenue, NB	Commercial/Residential	74.0	74.3	0.3	74.3	0.0	No
Beach Boulevard at Bolsa Avenue, SB	Commercial	74.0	74.2	0.2	74.2	0.0	No
Bolsa Avenue at Goldenwest Street, WB	Commercial	69.2	69.6	0.4	69.6	0.0	No
Bolsa Avenue at Goldenwest Street, EB	Commercial	70.2	70.6	0.4	70.6	0.0	No
McFadden Avenue at Goldenwest Street, WB	Residential	67.3	67.3	0.0	67.4	0.1	No
McFadden Avenue at Goldenwest Street, EB	Residential/Commercial	68.2	68.2	0.0	68.3	0.1	No
McFadden Avenue at Gothard Street	Residential/Institutional	68.4	68.4	0.0	68.5	0.1	No
McFadden Avenue at Gothard Street, EB	Vacant/Commercial	66.9	67.1	0.2	67.1	0.0	No
Center Avenue at Gothard Street, WB	Institutional	54.6	55.1	0.5	55.1	0.0	No
Center Avenue at Gothard Street, EB	Commercial	60.7	61.2	0.5	61.5	0.3	No
Center Avenue at Beach Boulevard, WB	Commercial	65.7	65.9	0.2	66.0	0.1	No
Edinger Avenue at Goldenwest Street, WB	Commercial/Residential	67.4	67.7	0.3	67.7	0.0	No
Edinger Avenue at Goldenwest Street, EB	Institutional/Commercial	67.7	68.0	0.3	68.0	0.0	No
Edinger Avenue at Gothard Street, WB	Commercial	68.7	69.0	0.3	69.0	0.0	No
Edinger Avenue at Gothard Street, EB	Commercial	68.8	69.0	0.2	69.0	0.0	No
Edinger Avenue at Beach Boulevard, WB	Commercial	69.5	69.8	0.3	69.8	0.0	No
Edinger Avenue at Beach Boulevard, EB	Commercial	68.5	68.7	0.2	68.7	0.0	No
Edinger Avenue at Newland Street, WB	Residential	66.7	66.9	0.2	66.9	0.0	No

Table 4.9-10 Current and Future Roadway Noise Levels Off Site

Roadway Segment	Existing Land Use	Noise Levels in dBA L_{dn}					
		Existing	Year 2014 Without Project	Increase	Year 2014 With Project	Increase	Significance
Edinger Avenue at Newland Street, EB	Residential	67.0	67.3	0.3	67.3	0.0	No
Heil Avenue at Gothard Street, WB	Commercial/Residential	66.5	66.9	0.4	66.9	0.0	No
Heil Avenue at Gothard Street, EB	Commercial	66.0	66.5	0.5	66.6	0.1	No
Heil Avenue at Beach Boulevard, WB	Residential	65.1	65.7	0.6	65.7	0.0	No
Heil Avenue at Beach Boulevard, EB	Commercial/Residential	63.5	64.0	0.5	64.0	0.0	No
Warner Avenue at Gothard Street, WB	Commercial/Residential	71.3	71.4	0.1	71.4	0.0	No
Warner Avenue at Gothard Street, EB	Commercial	70.7	70.8	0.1	70.8	0.0	No
Warner Avenue at Beach Boulevard, WB	Commercial	71.4	71.5	0.1	71.5	0.0	No
Warner Avenue at Beach Boulevard, EB	Commercial/Residential	70.8	70.9	0.1	71.0	0.1	No
McFadden Avenue at Beach Boulevard, WB	Commercial/Residential	67.2	67.3	0.1	67.4	0.1	No
McFadden Avenue at Beach Boulevard, EB	Commercial	67.3	67.5	0.2	67.6	0.1	No
Bolsa Avenue at Beach Boulevard, WB	Residential	67.5	68.0	0.5	68.0	0.0	No
Bolsa Avenue at Beach Boulevard, EB	Commercial/Residential	66.9	67.2	0.3	67.2	0.0	No

SOURCE: PBS&J 2008. Calculation data and results are provided in Appendix G

Note: NB – Northbound, SB – Southbound, WB – Westbound, EB – Eastbound

As identified above, the greatest increase between existing roadway-generated noise levels and future roadway noise levels would occur eastbound on Center Avenue at the intersection of Gothard Street. Noise in this area is projected to increase by 0.3 dBA as a result of the proposed project. This increase would be inaudible/imperceptible to most people and would not exceed the identified threshold of significance. Therefore, this impact would be considered ***less than significant***.

Impact 4.9-4 Increased human activity associated with the operation of the proposed project would not cause a substantial permanent increase in ambient noise levels.

As described in Chapter 3 (Project Description), the proposed project would serve as a mixed-use residential and retail center. The proposed project would involve the use of HVAC systems; however,

noise levels from HVAC are regulated by the City of Huntington Beach, and would not result in a substantial increase in ambient noise levels. According to data referenced by the EPA, normal human conversation produces noise levels of 65 dBA at a distance of approximately 3 feet. The closest offsite sensitive receptors are located approximately 160 feet west of the proposed project site. As such, the noise associated with typical retail activities would attenuate at a rate of 6 dBA per doubling of distance to levels below 50 dBA at only 50 feet away, which would be below the City of Huntington Beach Noise Ordinance Exterior Noise Standards. Additionally, the residential units of the proposed project would be required to comply with Policy N 1.5.1 of the City's General Plan Noise Element which requires that commercial and residential mixed-use structures minimize noise transmission through the use of materials that would mitigate sound transmission, or through the configuration of interior spaces to minimize sound amplification. Therefore, noise levels resulting from increases in human activity at the proposed project site would not substantially increase the ambient noise levels and this impact would be considered ***less than significant***.

Parking structures can be a source of annoyance due to automobile engine start-ups and acceleration, and the activation of car alarms. Parking structures can generate L_{eq} noise levels between 49 dBA L_{eq} (tire squeals) and 74 dBA L_{eq} (car alarms) at 50 feet. Due to the high level of traffic noise along streets surrounding the project site, normal daytime parking structure L_{eq} noise would not likely be audible due to the masking of noise by traffic on nearby roadways. Additionally, noise from the below grade parking structures would not be audible to the residential uses associated with the proposed project. Therefore, noise impacts relating to on-site parking would be considered ***less than significant,*** and no substantial increase in ambient noise levels would occur.

4.9.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the analysis of cumulative noise impacts depends on the impact being analyzed. For construction impacts, only the immediate area around the proposed project site would be included in the cumulative context. For operational/roadway related impacts, the context is build-out of the City of Huntington Beach General Plan, including existing and future development of cumulative projects within the City of Huntington Beach, as well as adjacent communities that would be potentially impacted. This cumulative impact analysis considers development of the proposed project, in conjunction with ambient growth as discussed in Section 4.13 (Transportation/Traffic), and other development within the vicinity of the proposed project in the City of Huntington Beach and surrounding jurisdictions. Noise is by definition a localized phenomenon, and significantly reduces in magnitude as distance from the source increases. Consequently, only projects and growth due to occur in the Huntington Beach area would be likely to contribute to cumulative noise impacts.

Increases in noise at sensitive uses would occur as a result of construction of the proposed project, along with other construction in the vicinity, including The Village at Bella Terra project proposed adjacent to

the project site. As discussed under Impact 4.9-1, construction of the proposed project would expose many nearby sensitive receptors to exterior noise levels above the 55 dBA noise standard identified in the Huntington Beach Municipal Code. This construction noise would be temporary, and mitigation measures are being implemented to reduce the impact of the noise; however, exterior noise levels would still be above 55 dBA.

Other construction that may occur in the vicinity of the proposed project site would contribute noise levels similar to those generated for the proposed project. Where this development adjoins the proposed project construction, the combined construction noise levels would have a cumulative effect on nearby sensitive uses. Noise is not strictly additive, and a doubling of noise sources would not cause a doubling of noise levels; however, cumulative construction noise levels would be in excess of the City's Municipal Code exterior standard at nearby sensitive receptors.

Under Section 8.40.090(d) (Special Provisions) of Chapter 8.40 of the City's Municipal Code, noise sources associated with construction are exempt from the requirements of the Municipal Code, 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. Because compliance with this construction time limit is required by the Huntington Beach Municipal Code, the proposed project and all other cumulative development would be exempt, and the cumulative impact associated with construction noise in the Huntington Beach area would be considered less than significant. Similarly, because construction-related noise generated under the proposed project would be exempt from established noise standards, the cumulative impact of the project would also be ***less than significant***.

With regards to stationary sources, noise would be generated by sources at the proposed project site and from other projects in the vicinity, including the construction of The Village at Bella Terra project. The major stationary source of noise that will be introduced into the Huntington Beach area would likely be HVAC equipment located on the rooftops of new developments and residential uses. As discussed this HVAC equipment generally produces noise levels of around 50 and 65 dBA L_{eq} at 50 feet from the equipment. Shielding, which is required, could reduce these noise levels by up to 15 dBA, to about 35 to 50 dBA L_{eq} at 50 feet, depending on whether the equipment serves residential or commercial uses. Because shielding would be required for all development associated with the proposed project, noise levels from individual stationary sources would not exceed the applicable City noise standard, and because this shielding would be expected to be installed on all new development in the Huntington Beach area, it is expected that all rooftop stationary sources in the proposed project area would similarly generate ***less-than-significant*** noise levels.

Parking structures can generate L_{eq} noise levels of between 49 dBA L_{eq} (tire squeals) to 74 dBA L_{eq} (car alarms) at 50 feet. Due to the high level of traffic noise along streets surrounding the project site, normal daytime parking structure L_{eq} noise would not likely be audible due to the masking of noise by traffic on nearby roadways. Due to distance from sensitive receptors, it is unlikely that noise from multiple related projects would interact to create a significant combined noise impact from parking structures. Additionally, The Village at Bella Terra project may include a rooftop helipad on one of the taller structures to be used only during emergencies such as a fire in the building. However, potential noise generated by a helicopter during emergencies would not occur very often, if at all. Therefore, potential

noise impacts from helicopters at the adjacent The Village at Bella Terra site would be ***less than significant***.

As discussed above, noise is not strictly additive; a doubling of noise sources does not create a doubling of noise levels. Because all rooftop equipment would be shielded, no source would generate maximum noise levels of greater than 57 dBA L_{eq} at 50 feet. Consequently, multiple units would have to be located within 50 feet of a receptor to achieve noise levels that would exceed the City standards. The development associated with the proposed project and other nearby projects are not so dense that multiple stationary units would be so closely spaced, either on site or off site. Consequently, the cumulative effect of multiple HVAC units, mechanical equipment, and parking structures would be ***less than significant***.

Construction of the proposed project would produce temporary vibration impacts that would be less than significant. Cumulative development in the Huntington Beach area, including The Village at Bella Terra project is not considered likely to result in the exposure of on-site or off-site receptors to excessive ground-borne vibration, due to the localized nature of vibration impacts, the fact that all construction would not occur at the same time and at the same location, and the largely built-out nature of the City, which would usually preclude the use of heavy equipment such as bulldozers. Aside from The Village at Bella Terra project, no other projects are proposed in close enough proximity to affect the same receptors as the proposed project. Only receptors located in close proximity to each construction site would be potentially affected by both activities. Construction activities associated with The Village at Bella Terra, which is adjacent to the proposed project, are anticipated to overlap with construction activities for the proposed project for some amount of time, and sensitive uses on or in the immediate vicinity of the proposed project site may be exposed to two sources of ground-borne vibration simultaneously. However, for the combined vibration impact from the two projects to reach cumulatively significant levels, heavy construction activity from both projects would have to occur simultaneously within 50 feet of any receptor. Because buildings associated with the proposed project would not be within 50 feet of buildings associated with The Village at Bella Terra project, it is not likely that heavy construction activity from both projects would simultaneously occur at distances of 50 feet or less from the same receptor. Therefore, vibration from future development could not combine with construction vibration of the proposed project to result in a significant cumulative impact. The contribution of the proposed project to such an impact would not be cumulatively considerable because the proposed project would include mitigation to reduce the project's impact, and the cumulative impact of the project would be ***less than significant***.

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to the proposed project and other projects within the project site. Therefore, cumulative traffic-generated noise impacts have been assessed based on the contribution of the proposed project to the future cumulative base traffic volumes in the project vicinity. The noise levels associated with cumulative base traffic volumes without the project, and cumulative base traffic volumes with the project are identified in Table 4.9-10. Noise level increases would reach a maximum of 0.3 dBA L_{dn} at one of the study roadway segments in the project vicinity, which is inaudible/imperceptible to most people. The contribution of the proposed project would range from 0 dBA to 0.3 dBA across all intersections studied. No study

roadway segments would increase by 3.0 dBA L_{dn}. The 0 dBA to 0.3 dBA contribution of the proposed project to future roadway noise levels would not exceed the identified thresholds of significance and, therefore, would not be cumulatively considerable. Further, noise levels generated from operation of the proposed project are not anticipated to be above the established 3.0 dBA thresholds, as the site is planned for mixed-use residential and retail uses, which do not generate as much noise as industrial developments. The cumulative impact of the project would be ***less than significant***.

4.9.5 References

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