
5.9 Noise

5.9.1 Methodology

This chapter is based on the information contained in the "Noise Impact Analysis, La Floresta, City of Brea, California, October 17, 2006" prepared by Giroux & Associates. This report is provided in the Technical Appendix. The Public Safety Element of the Brea General Plan also provides an overview of noise conditions and policies in the city.

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound wave. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The unit of sound pressure ratioed to the lowest sound level detectable by a young person with good auditory acuity is called a decibel (dB). Because sound or noise can vary in intensity by over one million times within the range of human hearing, decibels are a logarithmic progression used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, noise levels at maximum human sensitivity are factored more heavily into sound descriptions in a process called "A-weighting" written as dBA. Any further reference to decibels written as "dB" should be understood to be A-weighted.

Time variations in noise exposure are normally expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called Leq), or, alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. Finally, because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL).

5.9.2 Setting

PROJECT SITE CONDITIONS

Both Sites

Noise measurements were made in order to document existing baseline levels in the area. These help to serve as a basis for projecting future noise exposure, both from projects upon the surrounding community and from ambient noise activity upon the proposed project. Short-term on-site noise measurements were conducted at six

locations surrounding the Project sites. The results of the measurements are shown below. The locations of the monitors are shown in Exhibit 5.9-1 and Exhibit 5.9-2.

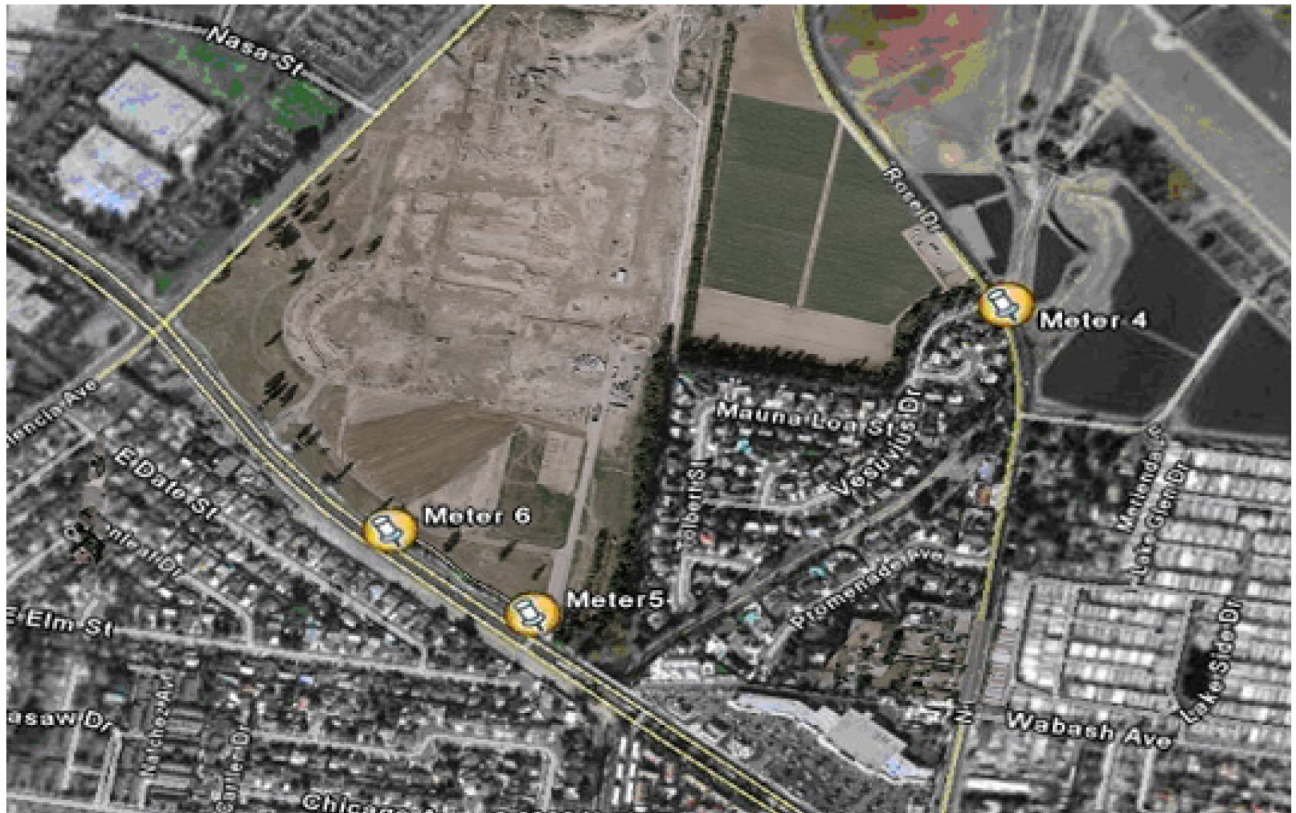
Monitoring experience has shown that 24-hour weighted CNELs are typically 2 to 3 dB higher than the mid-afternoon Leq readings shown below. Except for the Imperial Highway locale, the existing site perimeter noise levels are in the low 50 to mid 60 dB Leq range. This would translate into CNELs of 52 to 67 dBA. The two measurement sites along Birch Street may already experience CNELs above the allowed 65 dBA CNEL exterior residential threshold. The measurements along Imperial Highway show a CNEL of about 71 dB CNEL at 75 feet from the roadway centerline. This would translate into distance adjusted noise level of about 73 dB CNEL at 50 feet from the centerline, which closely correlates to the predicted traffic noise levels found later in this chapter.

**Table 5.9-1
Short-Term Noise Measurements (dB[A])**

Site	Time	Leq	Lmax	Lmin	L ₁	L ₀₈	L ₂₅	L ₅₀
1	1:00-1:15	50.1	58.5	46.0	51.5	50.0	49.0	47.0
2	1:27-1:42	64.0	71.5	47.0	68.0	64.5	61.5	57.5
3	1:50-2:05	64.1	74.0	47.5	67.5	64.0	62.5	52.5
4	2:20-2:35	57.1	68.0	46.0	59.0	56.0	54.5	50.0
5	3:05-3:20	68.6	76.5	50.5	72.0	69.0	67.5	61.5
6	3:24-3:39	69.2	80.5	46.0	72.5	69.5	67.5	59.5

- Site 1: Intersection of Devonshire and Chevy Chase
Meter placed on eastern sidewalk
- Site 2: Rear Patio/Nearest residence/Country Hills Apartments
North Side of Birch/ 25 Yards to Roadway Centerline
- Site 3: Rear Yard/Single Family Homes on Raintree Drive/Yard Faces Birch Street
North Side of Birch/ 24 yards to Roadway Centerline
- Site 4: Agricultural Field/Southwest Corner- Intersection Rose Dr. and Vesuvius Dr.
Near Backyards-Closest Residences
- Site 5: 3575 E. Imperial Hwy (former UNOCAL site)
75 yards from Imperial Hwy centerline.
- Site 6: Imperial Hwy (former UNOCAL site)
East of Site 5, 70 yards from Imperial Hwy centerline.

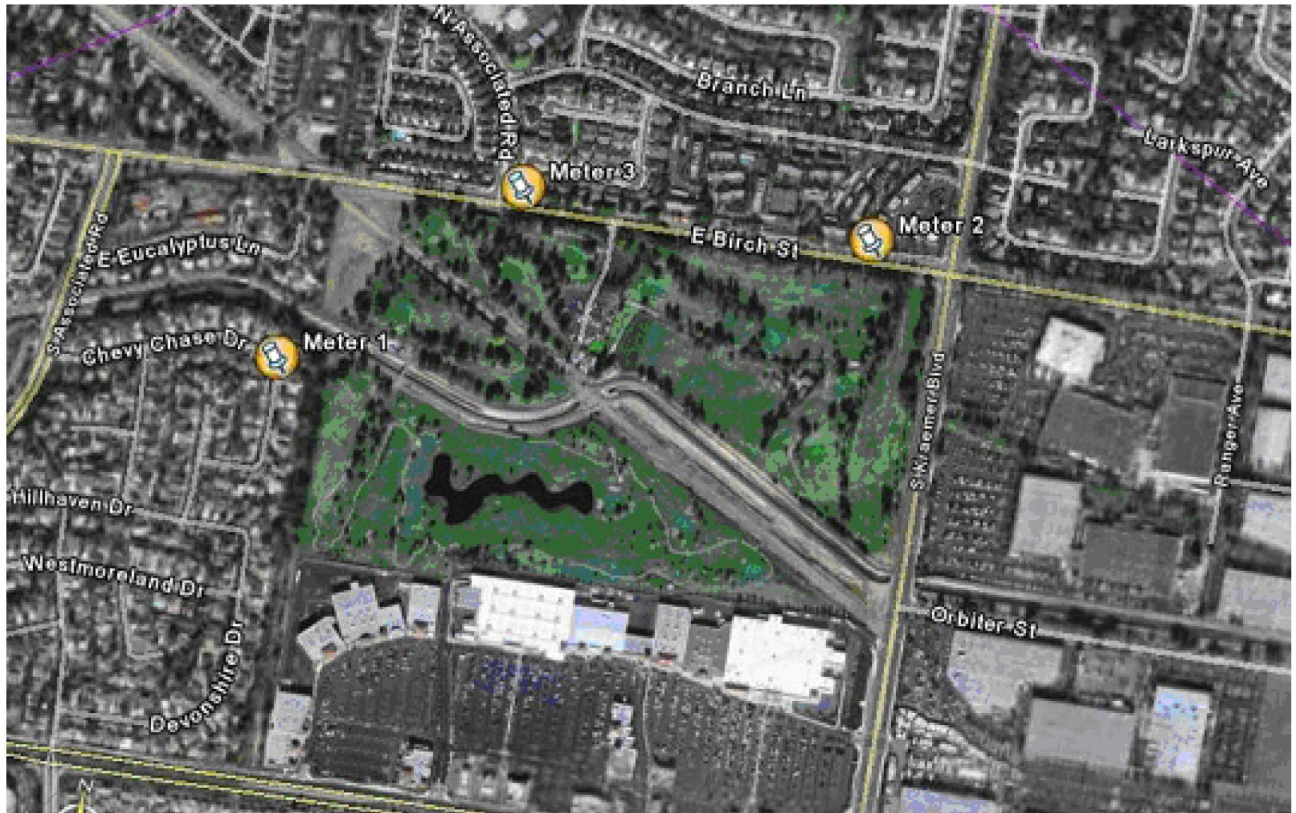
Noise Monitoring Locations - La Floresta Village



Source: Giroux & Associates, October 2006

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Noise Monitoring Locations - Birch Hills



Source: Giroux & Associates, October 2006

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REGULATORY SETTING

City of Brea General Plan: Public Safety Element

Both Sites

The Public Safety Element contains the following policies that are relevant to this Project:

- *Policy PS-9.1: Evaluate the need to require acoustical studies for development proposals that address both direct and indirect, particularly traffic, noise impacts, and require such studies, with appropriate mitigation included, as warranted.*
- *Policy PS-9.3: Ensure that acceptable noise levels are maintained near schools, hospitals, convalescent homes, and other noise sensitive areas in accordance with the City's Municipal Code and noise standards contained in the General Plan.*

The State of California has established guidelines for acceptable community noise levels that are based upon the CNEL rating scale. The guidelines rank noise/land use compatibility in terms of “normally acceptable,” “conditionally acceptable,” “normally unacceptable,” and “clearly unacceptable” noise levels for various land use types. In the Public Safety Element of the General Plan, the City of Brea has adopted slightly more stringent exterior noise/land use compatibility guidelines than those used by the State of California. The City of Brea noise/land use compatibility guidelines have been used in the analysis of the proposed Project.

CNEL-based standards are used to make land use decisions as to the suitability of a given site for its intended use. They apply to those noise sources not amenable to local control such as on-road traffic, aircraft, trains, etc. Because cities cannot regulate the noise created by such sources, they control the types of land use or levels of mitigation required by the receiving property. These noise compatibility standards are shown in Table 5.9-2.

The noise/land use compatibility standards consider exterior exposures up to 60 dBA CNEL “normally acceptable” for multi-family residential use, and exposures of up to 65 dB “conditionally acceptable.” Commercial and office buildings are considered “normally acceptable” with exposures of 65 dBA CNEL as well, though they are allowed a 75 dBA threshold for “conditionally acceptable.” “Conditionally acceptable” requires closed windows and fresh air supply systems or air conditioning.

Exterior standards apply to normally used recreational exterior space (patio, porch, pool/spa, etc.). They are also a guide to likely interior noise exposure based on the structural attenuation normally achievable with various types of construction.

Though the City of Brea's General Plan does not specifically call out interior noise standards, for the purposes of this analysis, a weighted noise exposure of 45 dBA CNEL was selected as the guideline level for single- and multi-family dwelling units. Since normal noise attenuation within residential structures with closed windows is about 20 dB, an exterior noise exposure of 65 dBA CNEL for exterior and 45 dBA CNEL for interior is generally the land use compatibility guideline for new residential dwellings in Brea.

**Table 5.9-2
Brea Land Use Compatibility Guidelines for Exterior Community Noise**

Land Use	Community Noise Exposure CNEL, dB			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Single Family, Duplex, Mobile Homes	50-60	60-65	65-75	Above 75
Multi-Family Homes	50-60	60-65	65-75	Above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-60	60-70	70-80	Above 80
Transient Lodging: Motels, Hotels	50-60	60-70	70-80	Above 80
Auditoriums, Concert Halls, Amphitheaters	-	50-65	-	Above 65
Sports Arena, Outdoor Spectator Sports	-	50-70	-	Above 70
Playgrounds, Neighborhood Parks	50-70	-	70-75	Above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-70	-	70-80	Above 80
Office Buildings, Business and Professional Commercial	50-65	65-75	Above 75	-
Industrial, Manufacturing, Utilities, Agriculture	50-70	70-80	Above 80	-
<p>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.</p> <p>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.</p> <p>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.</p> <p>Clearly Unacceptable: New construction or development should generally not be undertaken.</p>				
Source: Brea General Plan (Fig PS-6)				

City of Brea Municipal Code

Both Sites

CNEL-based standards are the land use planning standards that are applied to noise sources for which the City of Brea is pre-empted from exercising local control. These sources include on-road traffic and train noise. Those noise sources that are amenable to local control are regulated by the City of Brea Municipal Code (Chapter 8.20.050). The ordinance establishes allowable levels of sound that may cross any adjacent property line, as well as prohibiting general nuisance noise and identifying a number of specific prohibitions. The City of Brea Municipal Code exterior and interior noise standards are summarized in Table 5.9-3 and Table 5.9-4 below:

**Table 5.9-3
City of Brea Noise Ordinance Exterior Standards (dBA)**

Land Use	Time Period	Not to be exceeded for:				
		30 min.	15 min.	5 min.	1 min.	0 min.
Exterior Residential Uses	7:00 a.m. – 10:00 p.m.	55	60	65	70	80
	10:00 p.m. – 7:00 a.m.	50	55	60	65	70

**Table 5.9-4
City of Brea Noise Ordinance Interior Standards (dBA)**

Land Use	Time Period	Not to be exceeded for:		
		5 min.	1 min.	0 min.
Interior Residential Uses	7:00 a.m. – 10:00 p.m.	55	60	65
	10:00 p.m. – 7:00 a.m.	45	50	55

Construction activities are exempt from these standards if they occur between 7:00 a.m. and 7:00 p.m. (Monday through Saturday), excluding federal holidays (8.20.070).

The Ordinance also states that, while schools, hospitals, and churches are in use, it is unlawful to create any noise which causes the noise level to exceed the Brea exterior standards (8.20.090).

5.9.3 Thresholds of Significance

According to the current CEQA Appendix G guidelines, noise impacts are considered potentially significant if they cause:

- a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Noise levels exceeding the City of Brea Noise Standards would be considered significant.

- b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?
- f. 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?

In addition to these criteria, conflict with a General Plan policy would be considered a significant impact.

CEQA Guidelines also identify potential impact significance due to aircraft noise. There are no airports within any reasonable noise impact distance from the proposed project area.

Construction noise is typically governed by ordinance limits on allowable times of equipment operations. The City of Brea Noise Ordinance (Section 8.20.070) limits the hours of construction operation to be between the hours of 7 a.m. and 7 p.m. Monday through Saturday. No construction activity is allowed on Sundays and Federal holidays.

The NOP (Appendix A) determined that the following issues would have no impacts; therefore, they are not addressed in this EIR.

- *Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels*
- *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?*

5.9.4 Project Impacts and Mitigation Measures

CONSISTENCY WITH APPLICABLE REGULATIONS AND PLANS

City of Brea General Plan: Public Safety Element

Both Sites

The Project would conform to applicable General Plan policies. An acoustical study has been prepared; therefore, Policy PS-9.1 has been satisfied. The following sections analyze the project's conformance with Policy PS-9.3 and applicable General Plan and Noise Ordinance standards.

Level of Significance: Potentially significant.

Mitigation Measures: See Mitigation Measures N-1 through N-4 below.

Level of Significance after Mitigation: Less than significant.

CONSTRUCTION NOISE IMPACTS

Both Sites

Temporary construction noise impacts vary markedly because the noise level of construction equipment ranges widely as a function of the equipment used and its activity level. Short-term construction noise impacts tend to occur in discrete phases dominated initially by earth-moving sources, then by foundation and parking area construction, and finally for finish construction.

Exhibit 5.9-3 shows the typical range of construction activity noise generation as a function of equipment used in various building phases. The earth-moving sources are seen to be the noisiest with equipment noise ranging up to about 90 dBA at 50 feet from the source. Several pieces of equipment operating in close proximity may create a combined noise level of around 93 dB. Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance, or about 20 dB in 500 feet of propagation. The loudest earth-moving noise sources will therefore sometimes be detectable above the local background beyond 1,000 feet from the construction area. An impact radius of 1,000 feet or more pre-supposes a clear line-of-sight and no other machinery or equipment noise that would mask project construction noise. With buildings and other barriers to interrupt line-of-sight conditions, the potential "noise envelope" around individual construction sites is reduced. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions.

Because of close proximity, construction noise impacts would most likely affect the exterior nearby residential uses to the south and southeast of the La Floresta Village site, and to the north and west of the Birch Hills site. Construction noise from the La Floresta Village site will be masked to some extent by roadway traffic noise on Imperial Highway. Traffic noise on Birch Street will mask the Birch Hills site construction noise, but perhaps not as substantially as along Imperial Highway.

Level of Significance: Potentially significant.

The City of Brea Noise Code limits construction activity noise generation to the hours of 7 a.m. to 7 p.m. on Monday through Saturday, with no construction on Sundays or Federal Holidays. These hours are included as conditions on any grading permits and these limits will serve to minimize any adverse construction noise impacts. In addition, the following mitigation measure would further reduce impacts from construction noise to a level that is less than significant.

Mitigation Measures:

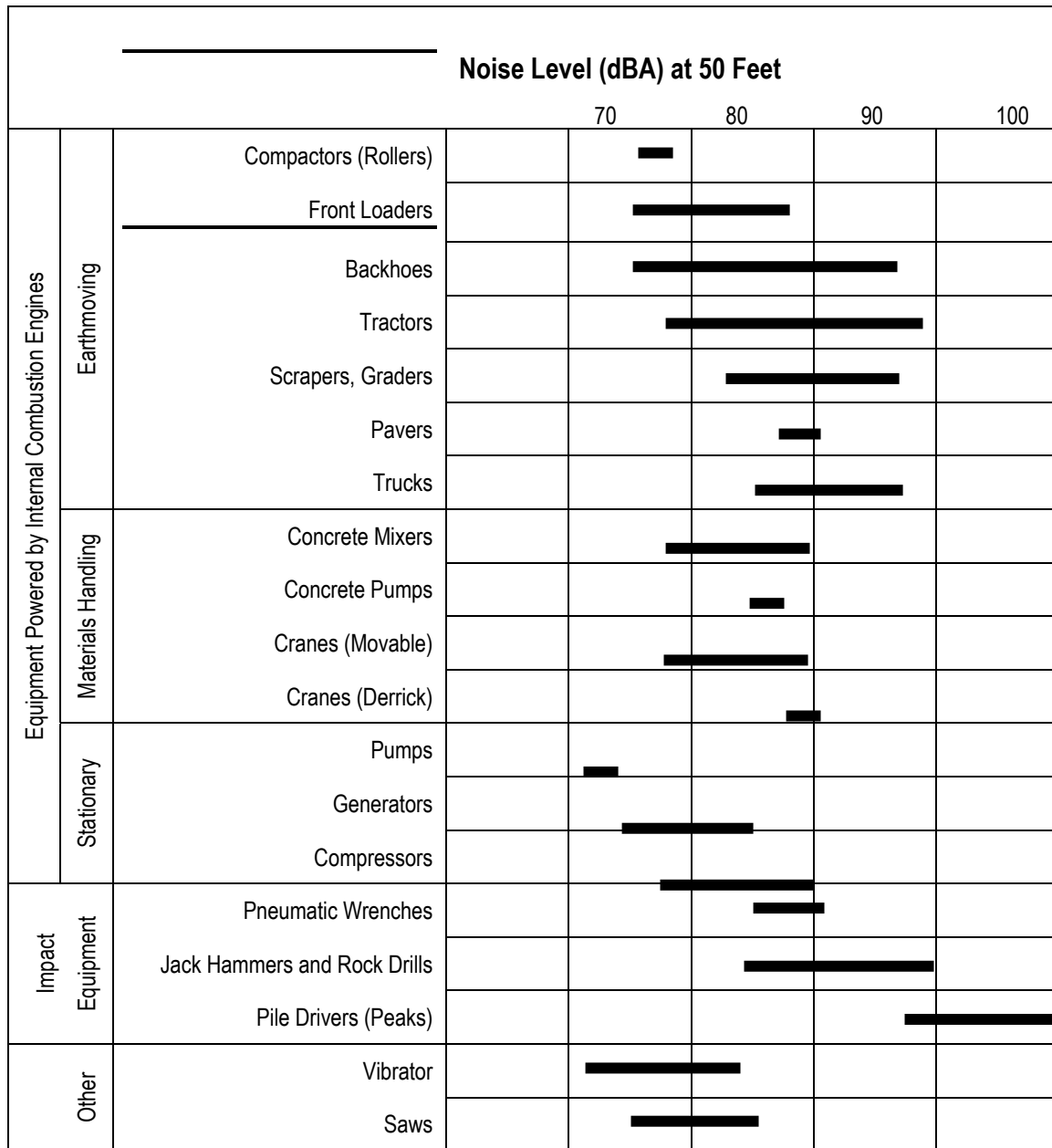
N-1 Construction Noise Mitigation

In addition to compliance with the limits on construction hours set forth in the Municipal Code, the applicant shall adhere to the following requirements, which shall also be placed as conditions on any grading or building permit:

- a. *All construction staging areas shall be located as far as feasible from existing residences or other noise-sensitive uses.*
- b. *All construction equipment shall be fitted with properly operating mufflers.*

Level of Significance after Mitigation: Less than significant.

Exhibit 5.9-3 Typical Construction Equipment - Noise Generation Levels



Source: EPA PB 206717, Environmental Protection Agency, December 31, 1971, "Noise from Construction Equipment and Operations."

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FILL HAULING IMPACTS

Both Sites

Construction at the two project sites will require the import of 125,000 cubic yards of fill material. The fill trucks will travel along the 57 Freeway, and then along Imperial Highway to the sites (turning north on Kraemer to the Birch Hills site). Haul truck capacity is approximately 25 cubic yards for a bottom dump and trailer. The import of fill will require 5,000 truck trips. For purposes of analysis, fill import has been assumed to occur over 50 work-days (two months). Under this assumption, the average daily trucking activity would be 100 trips, or 2,500 cubic yards per day, with assumed average daily trucking activity level along site access roads as follows:

Imperial Highway/	
W of Kraemer	200 trips
Kraemer-Valencia	160 trips
E of Valencia	160 trips
Kraemer Boulevard/	
N of Imperial Highway	40 trips

The geographic context for fill hauling noise impacts is other areas within the haul radius for the Project. The precise source of fill material and haul routes will not be identified until construction begins and available sources of fill material are found. Potential noise impacts due to truck traffic to and from the Project sites could result in some noise impacts. However, the noise analysis indicated that additional noise from fill hauling would be in the range of 0.1 to 0.2 dB adjacent to the Project sites, which is far below perceptible levels. In consideration of the preceding factors, noise from fill hauling activities is considered less than significant.

Level of Significance: Less than significant.

Mitigation Measures: None required.

Level of Significance after Mitigation: Not applicable.

LONG-TERM PROJECT-GENERATED VEHICULAR NOISE IMPACTS ON SURROUNDING AREAS

Both Sites

Long-term noise concerns from the increase of residential, retail, and office uses at the Project sites center primarily on mobile source noise emissions along roadways. These concerns were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). The model calculates the Leq noise level for a particular reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, roadway speeds, or noise barriers.

Table 5.9-5 summarizes the 24-hour CNEL level at 50 feet from the roadway centerline along 46 roadway segments. Seven traffic scenarios were evaluated; existing conditions, 2012 without the Project, 2012 with the Project, 2025 without the Project, 2025 with Birch Hills only, 2025 with La Floresta Village only and 2025 with the entire Project.

As seen in Table 5.9-5, existing traffic noise levels in the Project vicinity are currently elevated, with all roadway segments except along more lightly traveled Golden Avenue currently exceeding 65 dBA CNEL at 50 feet from the centerline. By 2025, well after Project build-out, most segments will see traffic noise increases from area growth. Because the area is mostly built out, traffic volume changes from infill projects like the La Floresta Project will not substantially alter the noise environment. By 2025 all but one of the 46 roadway segments analyzed will exceed 65 dBA CNEL at 50 feet from the centerline, even without Project implementation.

This analysis looks at two types of noise impacts to the community. The cumulative acoustical change is the change between existing noise levels and future noise at the same location. Cumulative impacts derive from area growth and growth from the Project. The Project-only impacts are the incremental change the Project adds for a given year at the same location. Within the Project-only category, alternatives involving implementation of the several different land uses including "Birch Hills only" or "La Floresta Village only" were examined. Here, elimination of only a portion of the Project was contrasted to implementation of the Project in its entirety.

Table 5.9-5
La Floresta Traffic Noise Impact Analysis
(dBA CNEL at 50 feet from centerline)

Segment	Existing	2012 Base	2012 w/ Project	2025 Base	2025 w/ Birch Hills Only	2025 w/ LF Village Only	2025 w/ Project
East-West Segments							
Lambert Road/ W of SR-57	75.7	76.0	76.0	76.6	76.6	76.6	76.6
SR-57 - Pointe	74.1	74.6	74.6	75.3	75.3	75.3	75.3
Pointe-Associated	73.0	73.5	73.6	74.2	74.2	74.2	74.3
Associated-Kraemer	73.0	73.5	73.6	74.4	74.5	74.5	74.5
Kraemer-Valencia	71.1	72.2	72.2	73.8	73.8	73.8	73.8
Carbon Cyn Rd/Valencia	70.9	71.6	71.8	72.9	73.0	73.0	73.0
Birch St/ SR-57-Associated W	72.2	72.5	72.5	72.9	72.9	72.9	72.9
Associated W-Associated E	71.8	72.2	72.5	72.8	72.9	72.9	73.0
Associated-Kraemer	70.6	71.3	71.3	72.2	72.2	72.2	72.2
Kraemer-Valencia	69.0	69.0	69.0	69.0	69.0	69.0	69.0
Imperial Hwy/ W of SR-57	76.0	76.4	76.4	76.9	76.9	76.9	76.9
SR-57-Associated	75.6	75.8	76.0	76.1	76.2	76.2	76.3
Associated -Placentia	74.7	74.8	75.0	75.1	75.1	75.2	75.2
E of Placentia	74.5	71.1	71.5	75.6	75.6	75.8	75.8
W of Kraemer	74.5	74.7	74.8	74.9	74.9	75.1	75.1
Kraemer-Valencia	74.0	74.2	74.6	74.7	74.7	75.0	75.0
Valencia-Rose	73.4	73.8	74.1	74.4	74.5	74.7	74.7
E of Rose	74.3	74.3	73.9	74.3	74.3	73.9	73.9
Golden Ave/ Kraemer-Valencia	64.8	64.8	64.8	65.6	65.6	65.6	65.6
Valencia-Rose	62.6	62.6	62.6	62.6	62.6	60.9	62.6

**Table 5.9-5 (cont.)
La Floresta Traffic Noise Impact Analysis
(dBA CNEL at 50 feet from centerline)**

Segment	Existing	2012 Base	2012 w/ Project	2025 Base	2025 w/ Birch Hills Only	2025 w/ LF Village Only	2025 w/ Project
Bastanchury Rd/ W of Placentia	70.4	70.9	70.9	71.6	71.6	71.6	71.6
Placentia-Kraemer	71.6	72.3	72.5	73.3	73.4	73.4	73.4
Kraemer-Valencia	69.6	70.1	70.4	70.9	70.9	71.1	71.1
E of Valencia	68.6	69.3	69.3	70.6	70.6	70.6	70.6
W of Rose	69.0	69.9	69.9	71.1	71.1	71.1	71.1
E of Rose	68.6	68.6	67.4	68.6	68.6	67.4	67.4
North-South Segments							
Associated Rd/ Lambert-Birch	66.9	67.4	67.4	67.8	67.8	67.8	67.8
Birch-Imperial	69.9	69.9	69.9	69.9	69.9	69.9	69.9
Imperial-SR-57	67.4	67.4	67.4	67.8	67.8	67.8	67.8
Placentia Ave/ Rolling Hills-Bastanchury	67.8	67.8	67.8	68.3	68.3	68.3	68.3
Kraemer Ave/ Lambert-Birch	69.6	70.9	70.9	72.6	72.6	72.5	72.6
Birch-Imperial	70.9	71.6	71.8	72.9	72.9	73.0	73.0
S of Imperial	71.1	71.6	71.6	72.5	72.5	72.5	72.5
N of Golden	71.1	71.1	71.1	71.8	71.8	71.8	71.8
S of Golden	71.3	71.6	71.8	72.5	72.5	72.5	72.6
N of Bastanchury	70.9	71.3	71.5	72.2	72.3	72.3	72.3
Valencia Ave/ N of Lambert	65.6	67.8	67.8	69.0	69.0	69.0	69.0
Lambert-Birch	70.6	70.9	71.1	71.5	71.5	71.6	71.6
Birch-Imperial	67.8	67.8	67.8	67.8	67.8	68.6	68.6
S of Imperial	66.3	66.3	66.3	66.3	66.3	66.3	66.3
N of Golden	65.6	65.6	65.6	65.6	65.6	65.6	65.6
Golden-Bastanchury	67.4	67.4	67.8	67.4	67.4	67.8	67.8
Rose Dr/ S of Birch	70.1	70.6	70.9	71.5	71.5	71.6	71.6
N of Imperial	69.6	69.9	70.1	70.6	70.6	70.9	70.9
Imperial-Golden	69.6	69.6	68.3	69.6	69.6	68.3	68.3
S of Bastanchury	70.1	70.1	69.3	70.1	70.1	69.3	69.3

PROJECT ONLY COMPARISON IMPACTS

“Project” versus “No Project” in 2012. The project does not significantly affect the noise forecast in year 2012. Because of the logarithmic nature of sound, it would take a large impact in traffic to produce even a small change in the noise environment. Project implementation causes a maximum traffic noise impact of +0.4 dB on the segments studied. This is not significant.

“Project” versus “No Project” in 2025. This comparison shows that the maximum project traffic noise contribution in 2025 in the Brea area is +0.8 dB on any segments analyzed. This segment is on Valencia between Birch and Imperial. Addition of the project at area build-out contributes negligibly to the noise environment.

2025 “Birch Hills Only” versus 2025 “Entire Project.” This alternative, which eliminates the La Floresta Village portion of the project, does little to the overall noise environment. About half of the segments analyzed see no change. Many segments would see a very small reduction in noise of -0.1 dB or -0.2 dB if the La Floresta Village development were eliminated, with one segment experiencing a -0.8 dB reduction. This segment is at Valencia Avenue between Birch and Imperial. Elimination of the La Floresta Village development while retaining the Birch Hills development would have a very minor improvement in area noise and likely would not be noticeable.

2025 “La Floresta Village Only” versus 2025 “Entire Project.” Predictably, because the Birch Hills portion of the project is small in comparison to the entire Project, its elimination would do little to reduce noise impacts. About 40 of the 46 roadway segments analyzed would see no change in noise. Five of the remaining segments would see a very minor improvement of -0.1 dB. The remaining segment, Golden Avenue between Valencia and Rose would see a modest improvement of -1.7 dB noise. Implementation of this scenario would not lead to a significant improvement in area wide noise and would not be noticeable.

CUMULATIVE COMPARISON IMPACTS

2012 “No Project” versus Existing. Contrast of these two time frames shows most roadway segments will see modest increases in traffic noise levels. Of the 46 segments; 15 will have no change, 29 will have increases of less than 1.0 dB, and 2 will have increases greater than +1.0 dB. The largest increase +1.3 dB, will occur on Kramer between Lambert and Birch. This is not significant.

2012 “Project” versus Existing. This analysis yields similar results to that above. Of the 46 segments; 10 will experience no change, 35 will see a change less than 1.0 dB, and 1 will see an increase of +1.3 dB, also on Kramer between Lambert and Birch. This is not significant.

2025 “No Project” versus Existing. Of the 46 segments; 11 would see no change, 16 would see a change between 0 to +1.0 dB, 15 between +1.0 to +2.0 dB, and 4

over +2.0 dB. The maximum increase of +3.0 dB occurs on Kramer between Lambert and Birch. This increase is at, but does not exceed, the +3B threshold, and therefore is not significant.

2025 “Project” versus Existing. This is the most extreme comparison possible for this project with the data provided. Existing traffic is contrasted with area build-out traffic volumes in 2025 “with project.” Here 5 segments see no change in traffic noise, 13 see increases between 0 and +1.0 dB, 17 see increases between +1.0 to +2.0 dB and 3 greater than +2.0 dB. As above, the maximum increase of +3.0 dB occurs on Kramer between Lambert and Birch. As before, this increase is not significant.

Level of Significance: Less than significant.

All of the above comparisons demonstrate that the Project would not pose a significant noise impact to the community, either cumulatively or individually. Even the worst possible scenario, contrasting 2025 “Build-out with Project” versus “Existing Conditions” shows a maximum noise increase of +3 dB. As seen in Table 5.9-5, the Project itself will not cause any roadway segment to exceed the 65 dBA CNEL noise threshold at 50 feet from roadway centerline that would not do so without the Project. Individual Project-related noise impacts will be less-than-significant.

Mitigation Measures: None required.

Level of Significance after Mitigation: Not applicable.

LONG-TERM VEHICULAR NOISE IMPACTS ON THE PROJECT SITES

Exterior Noise Levels

Because both project sites are adjacent to highly traveled and therefore noisy roads, particularly Imperial Highway (SR-90) and Kraemer Avenue, care must be taken in siting residential uses. The City of Brea has established 65 dBA CNEL as the allowable “conditionally acceptable” exterior noise level for residential uses. From the 50 ft CNEL data provided in Table 5.9-5, the distance required to attenuate to 65 dBA CNEL is calculated and reported in Table 5.9-6. To ensure that traffic noise will not exceed 65 dBA CNEL at any residential property line, useable outdoor space would need to be set back at the noted distance from the road centerline. If any sensitive receivers (such as residential yards or patios) are sited within these 65 dBA CNEL contours, they would require mitigation of usable outdoor space in order to comply with City standards.

La Floresta Village Site

The La Floresta Village site is bordered by Valencia Avenue, Rose Drive, and Imperial Highway. As shown in Table 5.9-6 (page 5.9-22), the 65 dB CNEL noise contour along Valencia between Birch and Imperial would be estimated to extend 88 feet from the centerline of the street by the year 2025, assuming regional growth and the La Floresta

project. Along Rose Drive south of Birch, this contour lies 139 feet from the centerline, and along Imperial Highway between Valencia and Rose the 65 dB contour is projected to be 220 feet from the centerline. Since residential development is proposed adjacent to each of these streets, significant noise impacts to exterior living areas could occur if these areas are located within the noise contours described above, and therefore mitigation would be necessary. The noise wall analysis summarized in Table 5.9-7 indicates that walls ranging from 5.5 feet to 8 feet in height would reduce noise to acceptable levels in these locations. Mitigation Measure N-2 would satisfy this requirement and reduce potential impacts to a level that is less than significant.

Level of Significance: Potentially significant.

Mitigation Measures:

N-2 Exterior Noise Mitigation

Prior to approval of any final map for property adjacent to a perimeter arterial roadway (except maps for financing purposes only) the applicant shall submit an acoustical analysis demonstrating that noise levels in all outdoor living areas will conform to the City standard of 65 dBA CNEL. If sound attenuation walls are required to satisfy this requirement, the location and design of the walls shall be shown on the map and a note shall be placed on the map stating that an interior acoustical analysis will be required prior to issuance of a building permit for dwellings adjacent to perimeter walls. The analysis shall be prepared by a qualified noise consultant in a manner meeting the approval of the Building Official.

Level of Significance after Mitigation: Less than significant.

Birch Hills Site

The proposed Birch Hills residential development is adjacent to Kraemer Avenue between Birch and Imperial Highway. The existing 65 dBA noise contour along this segment of Kraemer Avenue is approximately 125 feet from the centerline, and by 2025 this contour is estimated to expand to 170 feet as a result of regional traffic increases without the Project. The addition of the proposed Project would be minor in comparison to regional traffic and therefore would not measurably change this noise contour. If outdoor living areas were located further than 170 feet from the centerline, no significant noise impacts would occur. However, if living areas were located within this 170-foot contour, noise mitigation would be required. Table 5.9-7 indicates that a sound wall 6.5 feet high located 60 feet from the centerline of the street would reduce the 65 dBA noise impact zone to within 70 feet of the roadway centerline. Therefore, if a wall were built in this location no significant noise impacts would occur to outdoor living areas. Mitigation Measure N-2 would satisfy this requirement and reduce potential impacts to a level that is less than significant.

5. Environmental Analysis

**Table 5.9-6
La Floresta Traffic Noise Analysis
Distance to 65 dBA CNEL Contour in feet**

Segment	Existing	2012 Base	2012 w/ Project	2025 Base	2025 w/ Birch Hills Only	2025 w/ LF Village Only	2025 w/ Project
East-West Segments							
Lambert Road/ W of SR-57	260	275	275	300	300	300	300
SR-57 - Pointe	200	215	215	245	245	245	245
Pointe-Associated	170	185	190	205	205	205	210
Associated-Kraemer	170	185	190	210	215	215	215
Kraemer-Valencia	125	150	150	190	190	190	190
Carbon Cyn Rd/Valencia	125	140	145	170	170	170	170
Birch St/ SR-57-Associated W	150	160	160	170	170	170	170
Associated W-Associated E	145	150	160	165	170	170	170
Associated-Kraemer	120	130	130	150	150	150	150
Kraemer-Valencia	90	90	90	90	90	90	90
Imperial Hwy/ W of SR-57	275	285	285	310	310	310	310
SR-57-Associated	255	260	270	275	280	280	285
Associated -Placentia	225	225	235	235	235	240	240
E of Placentia	215	125	135	255	255	265	260
W of Kraemer	215	220	225	230	230	235	235
Kraemer-Valencia	200	205	215	220	220	235	235
Valencia-Rose	180	190	200	210	215	220	220
E of Rose	210	210	195	210	210	195	195
Golden Ave/ Kraemer-Valencia	50	50	50	55	55	55	55
Valencia-Rose	<50	<50	<50	<50	<50	<50	<50

**Table 5.9-6 (cont.)
La Floresta Traffic Noise Analysis
Distance to 65 dBA CNEL Contour in feet**

Segment	Existing	2012	2012 w/ Project	2025	2025 w/ Birch Hills Only	2025 w/ LF Village Only	2025 w/ Project
Bastanchury Rd/ W of Placentia	115	125	125	140	140	140	140
Placentia-Kraemer	140	155	160	180	180	180	180
Kraemer-Valencia	100	110	115	125	125	125	125
E of Valencia	90	95	95	120	120	120	120
W of Rose	90	105	105	125	125	125	125
E of Rose	90	90	70	90	90	70	70
North-South Segments							
Associated Rd/ Lambert-Birch	65	70	70	80	80	80	80
Birch-Imperial	105	105	105	105	105	100	105
Imperial-SR-57	70	70	70	80	80	80	80
Placentia Ave/ Rolling Hills-Bastanchury	80	80	80	85	85	85	85
Kraemer Ave/ Lambert-Birch	100	125	125	160	160	160	160
Birch-Imperial	125	140	145	170	170	170	170
S of Imperial	125	140	140	160	160	160	160
N of Golden	130	125	125	145	145	145	145
S of Golden	130	140	145	160	160	160	160
N of Bastanchury	125	130	135	150	155	155	155
Valencia Ave/ N of Lambert	55	55	78	78	92	92	92
Lambert-Birch	119	119	127	127	135	135	139
Birch-Imperial	78	78	78	78	78	78	88
S of Imperial	61	61	61	61	61	61	61
N of Golden	55	55	55	55	55	55	55
Golden-Bastanchury	72	72	78	78	72	72	78
Rose Dr/ S of Birch	110	110	123	123	135	135	139
N of Imperial	102	102	110	110	119	119	123
Imperial-Golden	102	102	83	83	102	102	83
S of Bastanchury	110	110	97	97	110	110	97

**Table 5.9-7
La Floresta Noise Wall Analysis**

Roadway	Distance to Wall* (feet)	Distance to Receiver* (feet)	Wall Height Required (feet)
La Floresta Village site			
Imperial Highway	110	120	8
Valencia Ave.	70	80	8
Rose Drive	60	70	5.5
Birch Hills site			
Kraemer Blvd.	60	70	6.5
*from centerline			

Level of Significance: Potentially significant.

Mitigation Measures: See Mitigation Measure N-2, above.

Level of Significance after Mitigation: Less than significant.

Interior Noise Levels

Both Sites

Traffic noise from adjacent streets also has the potential to cause interior noise levels to exceed standards. The Project must comply with the City of Brea's 45 dBA CNEL interior residential requirement. Since normal noise attenuation within residential structures with closed windows is about 20 dB, an exterior noise exposure of 65 dBA CNEL will typically provide a 45 dBA CNEL interior noise level. If setback distances in Table 5.9-6 are not met and noise walls are required, sufficient attenuation would be provided for the first floor residential living space. However, second floor exterior building façades may be exposed to a maximum noise level of greater than 65 dB CNEL and would require more than 20 dB exterior to interior noise reduction.

For the setbacks in the perimeter wall analysis, building façade noise levels at proposed homes along Imperial Highway could be as high as 71 dB CNEL. Façade noise levels along less heavily traveled perimeter roadways would be slightly lower. Structural noise reductions of up to 26 dB could therefore be needed to meet interior noise standards. Reductions of up to 26 dB are readily attainable in standard residential construction while still allowing for discretionary window opening.

Table 5.9-8 describes a range of structural noise mitigation options that would allow the project to meet City requirements.

**Table 5.9-8
Interior Noise Attenuation Options**

Exterior to Interior Reduction Desired	Measure(s) Needed
0-10 dB	None
10-20 dB	Close windows facing roadway. Provide supplemental ventilation.
20-25 dB	Close standard dual-paned windows. Provide supplemental ventilation.
25-30 dB	Close upgraded dual-paned windows. Provide supplemental ventilation. Baffle vents and line ducts with absorbers.
>30 dB	Custom upgrades (dual layer drywall, triple-paned windows, steel doors, etc.)

Due to these potential interior noise impacts, a supplemental acoustical analysis will be necessary after final site designs are completed. This analysis must be submitted in conjunction with the building plan check process to verify that adequate structural noise protection exists in perimeter residences to meet the 45 dB CNEL interior standard. Supplemental ventilation (most likely air conditioning) is required in any livable space where window closure is needed to meet interior standards.

If window closure is a necessary condition to meet the interior standard, the building code requires provision of supplemental ventilation. The requirement can be met with a fresh air inlet duct on the return air plenum on the furnace fan. The recommended ventilation rate is 15 cubic feet per minute (CFM) per person of fresh make-up air as per Title 24 of the California Code of Regulations. Code compliance for ventilation must similarly be documented on building plans for any project with residential occupancies abutting arterial roadways. Mitigation Measure N-3 would reduce this impact to a level that is less than significant.

Level of Significance: Potentially significant.

Mitigation Measures:

N-3 Interior Noise Mitigation

- a. *Prior to issuance of a building permit for any residential structure adjacent to a perimeter roadway, the applicant shall submit an acoustical analysis demonstrating that interior noise levels will conform to the standard of 45 dBA CNEL. The analysis shall describe the structural measures necessary to meet the standard and shall be prepared by a qualified noise consultant in a manner meeting the approval of the Building Official. All required structural noise reduction measures shall be incorporated into building plans and permits in a manner meeting the approval of the Building Official.*
- b. *If determined necessary by the Building Official, prior to issuance of a certificate of occupancy for any structure for which an acoustical analysis was required, field testing shall be conducted by a qualified acoustical consultant to confirm that the required level of noise attenuation has been achieved. If the testing finds that noise levels*

exceed allowable standards, additional mitigation shall be required prior to issuance of the occupancy certificate, in a manner meeting the approval of the Building Official.

Level of Significance after Mitigation: Less than Significant.

ON-SITE NOISE GENERATION IMPACTS

La Floresta Village Site

The La Floresta Village development contains residential, commercial, and mixed-use areas. In areas where commercial and residential uses share a common property line, or where both commercial and residential uses occupy the same parcel, it is often not the overall magnitude of the noise that leads to conflict. It is more typically some unique aspect of the noise (music, amplified voice, whine or hum, etc.), or, most commonly, the time of day of the noise event that causes conflicts. Early morning deliveries, back-up alarms, rumbling and idling diesel trucks, late night fast-food outlet loudspeakers, young persons assembling in shopping center parking lots with loud car music late in the evening, or very early trash pick-up or parking lot sweeping, are sources that can cause noise conflicts in a mixed-use environment. Since planned commercial activities may be located near residences, nocturnal activities could be audible late at night when background noise levels are lowest.

Since the La Floresta Village development would include both commercial and residential uses, care must be taken to ensure that the residential areas are adequately shielded from the on-site commercial noise. Additionally, precautions must be taken to ensure that adjacent off-site residential areas are protected from noise generated by the proposed commercial development.

Residential uses require sufficient physical separation from commercial buildings to prevent heating, ventilation and air conditioning (HVAC) equipment from being a nuisance. If this is not possible, the equipment will need to be shielded. Loading docks for commercial/retail uses should be situated away from residences and may require time restrictions on deliveries. If fast food restaurants or drive-thru facilities are planned adjacent to residential uses, the sound boards where ordering takes place can be a nuisance, especially at night. Many fast food restaurants keep late hours or are open 24 hours. If the sound boards cannot be oriented away from potential nearby residences then sound walls may be needed around the order boards. Additionally, time restrictions may be necessary. These details must be dealt with during the design stage.

On all commercial sites, maintenance activities such as refuse collection or parking lot sweeping, or stacking or retrieval of temporary outdoor storage could be a noise nuisance for adjacent residences. Possible mitigation would include time restrictions on these activities or sound walls. These details also must be dealt with during the design stage.

Level of Significance: Potentially significant.

Mitigation Measures:

N-4 On-Site Noise Mitigation

- a. *Prior to approval of any final tract map, conditional use permit or site plan in La Floresta Village that includes non-residential use, the City shall retain an acoustical consultant at the applicant's expense to review the proposed final map or site plan and identify any potential noise conflicts, and provide recommendations for mitigating those conflicts. The analysis and recommendations shall be reviewed and approved by the Building Official and the City Planner, and shall be adopted as conditions of approval. A note shall be placed on the final map or site plan listing all noise mitigation conditions that will be required, as determined by the Building Official and City Planner.*
- b. *Prior to issuance of any building permit for a non-residential structure in La Floresta Village that is adjacent to an existing or planned residential use, the Building Official and the City Planner shall ensure that all feasible noise mitigation measures that were adopted as conditions of approval on the tentative map or site plan have been incorporated into the building plans.*

Level of Significance after Mitigation: Less than significant.

5.9.5 Cumulative Impacts

CONSISTENCY WITH APPLICABLE REGULATIONS AND PLANS

Both Sites

General Plan policies and applicable noise regulations guide the planning of proposed developments and the operational requirements for existing uses. Like all proposed developments in the city, the Project has complied with relevant policies through the preparation of this noise analysis, and will be required to comply with other applicable policies and ordinances during the development process and after Project completion. In consideration of these factors, the project's contribution to cumulative impacts would be rendered less than considerable and, therefore, less than cumulatively significant.

Level of Significance: Less than significant.

Mitigation Measures: None required.

Level of Significance after Mitigation: Not applicable.

CONSTRUCTION NOISE IMPACTS

Both Sites

The impact area for construction noise is very localized, and cumulative impacts would only occur when other construction sites are in close proximity to the Project sites. As a result, the potential for cumulative construction noise impacts are very limited. All projects are required to adhere to the City's limitations on construction hours. In addition, recommended mitigation measures would further reduce the Project's construction noise impacts, and no significant project-specific impacts would occur. In consideration of these factors, the project's contribution to cumulative impacts would be rendered less than considerable and, therefore, less than cumulatively significant.

Level of Significance: Less than significant.

Mitigation Measures: None required.

Level of Significance after Mitigation: Not applicable.

FILL HAULING IMPACTS

Both Sites

The geographic context for fill hauling noise impacts is other areas within the haul radius for the Project. The precise source of fill material and haul routes will not be identified until construction begins and available sources of fill material are found. Potential noise impacts due to truck traffic to and from the Project sites combined with other truck traffic from other construction sites could result in cumulative impacts. However, the noise analysis indicated that additional noise from fill hauling would be in the range of 0.1 to 0.2 dB adjacent to the Project sites, which is far below perceptible levels. Because Project impacts would be so small, it is highly unlikely that cumulative impacts from fill hauling would be significant. In consideration of the preceding factors, the project's contribution to cumulative impacts related to noise would be rendered less than considerable and, therefore, less than cumulatively significant.

Level of Significance: Less than significant.

Mitigation Measures: None required.

Level of Significance after Mitigation: Not applicable.

LONG-TERM PROJECT-GENERATED VEHICULAR NOISE IMPACTS ON SURROUNDING AREAS

Both Sites

The context for cumulative long-term traffic noise impacts on surrounding areas includes the road network and adjacent properties affected by traffic noise generated by the Project and other existing and new development in the region. Since the focus of this

analysis is on cumulative impacts to which the Project could have a significant contribution, the geographic area of concern is the relatively limited area where Project-generated traffic would be substantial and noise levels exceed applicable standards. The noise analysis prepared for this EIR has analyzed both the project-specific impacts and the cumulative noise impacts of the proposed project in conjunction with projected regional growth in traffic noise and concluded that no significant impacts would occur, either individually or cumulatively. In consideration of the preceding factors, the project's contribution to cumulative impacts related to noise would be rendered less than considerable and, therefore, less than cumulatively significant.

Level of Significance: Less than significant.

Mitigation Measures: None required.

Level of Significance after Mitigation: Not applicable.

LONG-TERM VEHICULAR NOISE IMPACTS ON THE PROJECT SITES

Both Sites

The noise analysis described in this chapter addresses long-term cumulative traffic noise impacts on the Project sites through the use of traffic projections that include regional growth. The analysis concluded that in some cases, sound walls may be necessary to shield sensitive uses from unacceptable traffic noise levels. With this mitigation, no cumulative significant impacts would occur.

Level of Significance: Potentially significant.

Mitigation Measures: See Mitigation Measures N-2 and N-3.

Level of Significance after Mitigation: Less than significant.

ON-SITE NOISE GENERATION IMPACTS

La Floresta Village Site

The geographic context for on-site noise generation is limited to the Project sites themselves. The analysis presented in this chapter found that the recommended mitigation measures would reduce potential impacts to a level that is less than significant. In consideration of the limited area of these potential impacts and the recommended mitigation, no cumulative significant impacts would occur.

Level of Significance: Potentially significant.

Mitigation Measures: See Mitigation Measure N-4.

Level of Significance after Mitigation: Less than significant.

5.9.6 Significant Unavoidable Impacts

Both Sites

With the implementation of existing code requirements and the recommended mitigation measure, all potential impacts would be reduced to a level that is less than significant.