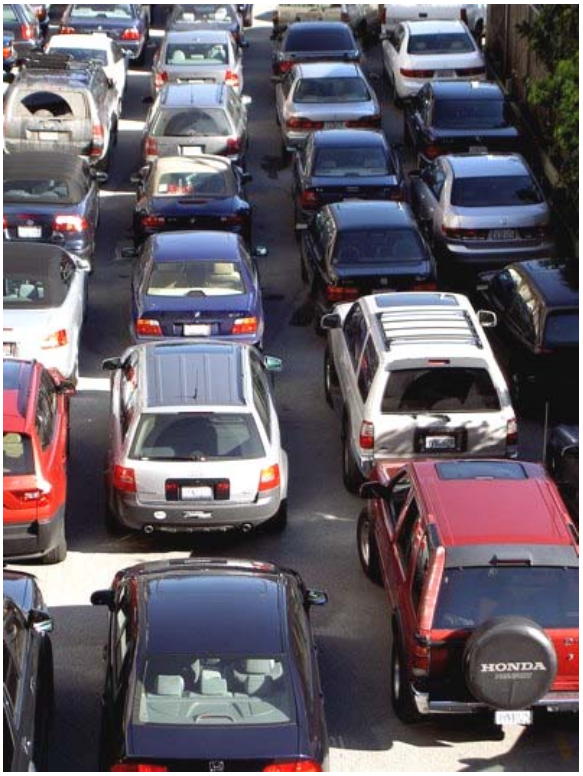
Buena Park general plan

Chapter 8 Noise Element

Chapter 8
Noise Element

8.1 INTRODUCTION



Noise, defined as unwanted sound, is principally caused by the operation of machinery for transportation (automobiles, trucks, trains, and aircraft) and machinery for production (industry and construction). Noise affects the quality of our environment, both at home and work, as well as enjoyment of recreational activity. Excessive amounts of noise may have adverse affects on physical activity and psychological stability. The effect of noise on the individual and the community varies with its duration, its intensity, and the tolerance level of the individual. Part of managing the City's growth and the associated increased level of noise, requires the need for a better understanding of the causes, effects, and mitigation of noise within the manmade environment. The Noise Element of the General Plan identifies noise sources in the City to understand the potential for noise conflicts and problems, and to identify ways to reduce existing and potential noise impacts. The Element identifies projected noise levels, and contains policies and programs to achieve and maintain noise levels that are compatible with various types of land uses, as well as prevent high noise levels in sensitive areas. It is important to note that the Element addresses noise that affects the community at large, rather than noise associated with site-specific conditions.

8.2 AUTHORITY FOR THE ELEMENT

Government Code Section 65302(f) requires that a General Plan include: "... a noise element which shall identify and appraise noise problems in the community. The Noise Element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify…current and projected noise levels for all of the following sources: (1) highways and freeways; (2) primary arterials and major local streets; (3) passenger and freight on-line railroad operations and ground rapid transit systems; (4) commercial, general aviation, heliport, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation; (5) local industrial plants, including but not limited to, railroad

classification yards; (6) other ground stationary noise sources identified by local agencies as contributing to the community noise environment."

8.3 SUMMARY OF EXISTING STANDARDS AND CONDITIONS

NOISE MEASUREMENT

The standard unit of measurement of the loudness of sound is the decibel (dB). This unit expresses an exponential increase, where an increase of 10 decibels represents a tenfold increase in the sound generated. In order to describe "average noise levels," the measurements are then weighted and added over a specified time period to reflect the magnitude of the sound, as well as its duration, frequency, and time of occurrence.

The sound pressure level is measured on a logarithmic scale. The 0 dB level is based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). The decibel scale has a value of 1.0 dB at the threshold of hearing and 140 dB at the threshold of pain. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. A 1.0-decibel increase is just audible, and a 10-decibel increase means the sound is perceived as being twice as loud as before. In most situations a 3 dB change in sound pressure level is considered a "just-detectable" difference and a 5 dB change (either louder or quieter) is readily noticeable.

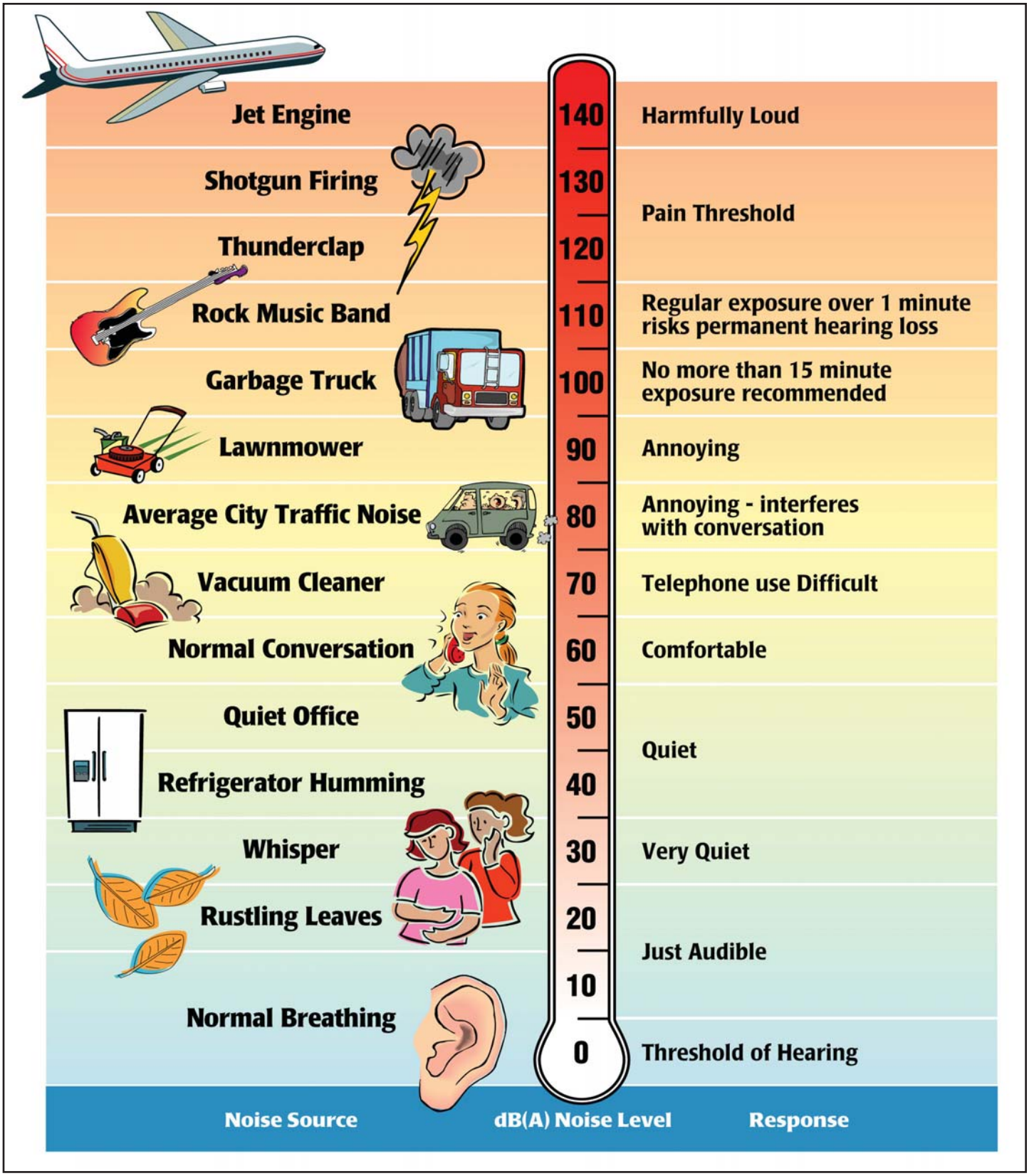
Noise levels are expressed as A-weighted decibels (dBA), which adjusts the actual sound level to reflect only those frequencies audible to the human ear. The human ear is most sensitive to frequencies around 4,000 Hz (about the highest note on a piano) and less sensitive to low frequencies below 100 Hz (such as a low rumble). Other examples of the decibel level of various noise sources include: the quiet rustle of leaves (10 dBA), a soft whisper (20 to 30 dBA), the hum of a small electric clock (40 dBA), ambient noise outdoors or in a kitchen (50 dBA), normal conversation at five feet (55 dBA), and a busy street at 50 feet (75 dBA). Examples of various sound levels are shown in Exhibit N-1, *Sound Levels and Human Response*.

NOISE DESCRIPTORS

Numerous methods have been developed to measure sound over a period of time. These methods include (1) the community noise equivalent level (CNEL); (2) equivalent sound level (Leq); (3) day/night average sound level (Ldn); and (4) single event noise exposure level (SENEL). These methods are described in Table N-1, *Noise Descriptors*.

VIBRATION CHARACTERISTICS

Vibration is a unique form of noise. It is unique because its energy is carried through structures and the earth, whereas, noise is simply carried through the air. Thus, vibration is generally felt rather than heard. Typically, groundborne vibration generated by manmade activities attenuates rapidly as the distance from the source of the vibration increases. Vibration, which spreads through the ground rapidly, diminishes in amplitude with distance from the source.



Source: Melville C. Branch and R. Dale Beland, *Outdoor Noise in the Metropolitan Environment*, 1970.
Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA/ONAC 550/9-74-004), March 1974.

Sound Levels and Human Response

Exhibit N-1

Table N-1
Noise Descriptors

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).
A-Weighted Decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent Sound Level (L_{eq})	The sound level containing the same total energy as a time varying signal over a given time period. The L_{eq} is the value that expresses the time averaged total energy of a fluctuating sound level.
Maximum Sound Level (L_{max})	The highest individual sound level (dBA) occurring over a given time period.
Minimum Sound Level (L_{min})	The lowest individual sound level (dBA) occurring over a given time period.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 PM to 10:00 PM, and +10 dBA for the night, 10:00 PM to 7:00 AM.
Day/Night Average (L_{dn})	The L_{dn} is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the L_{eq}. The L_{dn} is calculated by averaging the Leq's for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 PM to 7:00 AM), by 10 dBA to account for the increased sensitivity of people to noises that occur at night.
Single Event Noise Exposure Level (SENEL)	The Single Event Noise Exposure Level (SENEL) is the most appropriate noise level duration rating scale for a single noise occurrence. The SENEL, given in decibels, is the noise exposure level of a single event measured over the time interval between the initial and final times for which it exceeds the threshold noise level.
Exceedance Level (L_n)	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% (L_{01}, L_{10}, L_{50}, L_{90}, respectively) of the time during the measurement period.

Source: Cyril M. Harris, *Handbook of Noise Control*, 1979.

Sources within buildings such as operation of mechanical equipment, movement of people, or the slamming of doors causes most perceptible indoor vibration. 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 barely perceptible. Typically, ground-borne vibration, generated by manmade activities, attenuates rapidly with distance from the source of vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source.

Both construction and operation of development projects can generate ground-borne vibration. In general, demolition of structures preceding construction generates the highest vibrations. Construction equipment such as vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible vibration during construction activities. Heavy trucks can also generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions.

8.4 NOISE STANDARDS AND LAND USE COMPATIBILITY

The State of California Office of Planning and Research (OPR) Noise Element Guidelines include recommended interior and exterior level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The OPR Guidelines describe the compatibility of various land uses with a range of environmental noise levels in terms of dBA CNEL (Community Noise Equivalent Level).

A noise environment of 50 dBA CNEL to 60 dBA CNEL is considered to be "normally acceptable" for residential uses. The State indicates that locating residential units, parks, and institutions (such as churches, schools, libraries, and hospitals) in areas where exterior ambient noise levels exceed 65 dBA CNEL is undesirable. The OPR recommendations also note that, under certain conditions, more restrictive standards than the maximum levels cited may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by 5 to 10 dB to reflect their lower existing outdoor noise levels in comparison with urban environments.

In addition, Title 25, Section 1092 of the California Code of Regulations, sets forth requirements for the insulation of multiple-family residential dwelling units from excessive and potentially harmful noise. Whenever multiple-family residential dwelling units are proposed in areas with excessive noise exposure, the developer must incorporate construction features into the building's design that reduce interior noise levels to 45 dBA CNEL.

Table N-2, *Noise and Land Use Compatibility Matrix*, illustrates the State guidelines established by the State Department of Health Services for acceptable noise levels for each county and city.

These standards and criteria are incorporated into the land use planning process to reduce future noise and land use incompatibilities. This table is the primary tool that allows the City to ensure integrated planning for compatibility between land uses and outdoor noise.

Table N-2
Noise and Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure (CNEL)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low Density, Single-Family, Duplex, Mobile Homes	50 - 60	55 - 70	70 – 75	75 – 85
Residential – Multiple Family	50 – 65	60 – 70	70 – 75	70 – 85
Transient Lodging – Motel, Hotels	50 – 65	60 – 70	70 – 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 – 77.5	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 70	NA	70 – 80	80 – 85
Office Buildings, Business Commercial and Professional	50 – 70	67.5 – 77.5	75 – 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	75 – 85	NA

CNEL = community noise equivalent level; NA = not applicable.

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 have been 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 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 must be included in the design.
CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.

Source: Office of Planning and Research, California, *General Plan Guidelines,* October 2003.

8.5 CITY OF BUENA PARK NOISE STANDARDS

The City of Buena Park's regulations with respect to noise are included in Chapter 8.28 of the Municipal Code, also known as the Noise Ordinance. Construction-related and operational noise restrictions are discussed below:

- *Construction Noise*. Section 8.28.040 of the City of Buena Park Noise Ordinance regulates construction noise. The Noise Ordinance prohibits noise generated by construction activities between the hours of 8:00 PM and 7:00 AM Monday through Saturday, and at any time on Sundays. The Noise Ordinance does not include specific noise level limits for construction activities.

- *Operational Noise*. Within the City of Buena Park, the Noise Ordinance governs operational noise generated between two properties and does not regulate noise from transportation sources, such as traffic, aircraft, and railways. Section 8.28.010 of the Noise Ordinance establishes the ordinance through the adoption of the Title 4, Division 6 of the Orange County Code. Section 4-6-5 and Section 4-6-6 of the Orange County Code sets exterior and interior level limits for residential properties, respectively. The Orange County Code does not set noise level limits for other land uses, such as commercial or

industrial uses. The City-adopted exterior noise level limits between properties are presented in Table N-3, *City of Buena Park Exterior and Interior Noise Limits*.

Table N-3
City of Buena Park Exterior and Interior Noise Limits

Land Use	Noise Level (dBA) at Property Line	Time Period
Exterior Noise Limits		
Residential	55	7:00 AM – 10:00 PM
	50	10:00 PM – 7:00 AM
Interior Noise Limits		
Residential	50	7:00 AM – 10:00 PM
	45	10:00 PM – 7:00 AM

Source: City of Buena Park, *Municipal Code Section 8.28.010*, January 2009, and County of Orange, *County Code Section 4-6-5 Exterior Noise Standards*, March 24, 2009.

Section 4-6-5 of the Orange County Code further restricts noise levels by 5 dBA when the "offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof". Section 4-6-5 states, in part:

> *It shall be unlawful for any person…to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property…to exceed:*
>
> *1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or*
>
> *2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or*
>
> *3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or*
>
> *4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or*
>
> *5) The noise standard plus twenty (20) dB(A) for any period of time.*

Section 4-6-5(c) further allows correction to the noise level standard depending on the measured ambient noise levels. Section 4-6-6 sets forth interior noise levels limits for residential properties, which are shown in Table N-3. Section 4-6-6 states, in part:

> *It shall be unlawful for any person…to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured within any other dwelling unit on any residential property…to exceed:*

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

2) *The interior noise standard plus five (5) db(A) for a cumulative period of more than one (1) minute in any hour; or*

3) *The interior noise standard plus ten (10) db(A) for any period of time.*

VIBRATION STANDARDS

The existing vibration environment, similar to that of the noise environment, is dominated by transportation-related vibration from roadways and rail lines in the City. Heavy truck traffic on local and regional roadway networks can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. However, groundborne vibration levels generated from vehicular traffic are not typically perceptible outside of the right-of-way for major roadways and smart streets with a large capacity of heavy vehicle traffic. Railroad operation and transit systems, such as freight trains and Metrolink operations, are an additional potentially substantial source of groundborne vibration that occurs within the City.

Transportation and construction activities can generate varying degrees of ground-borne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of a construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The City does not have regulatory standards for construction or operational vibration sources. The Federal Transit Administration (FTA) and Caltrans have published guidelines for the analysis of groundborne noise and vibration relating to transportation and construction-induced vibration. Caltrans guidelines recommend that a standard of 0.2 in/sec PPV not be exceeded for the protection of normal residential buildings, and that 0.08 in/sec PPV not be exceeded for the protection of old or historically significant structures.[1] With respect to human response within residential uses (i.e., annoyance), FTA recommends a maximum acceptable vibration standard of 80 VdB.[2]

[1] California Department of Transportation, *Transportation and Construction-Induced Vibration Guidance Manual*, June 2004.

[2] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Guidelines*, May 2006.

8.6 EXISTING NOISE SOURCES AND IMPACT AREAS

MOBILE NOISE SOURCES

Motor Vehicle Noise

Vehicular noise along major roadways within the City was modeled to estimate existing noise levels from mobile traffic. The existing and future roadway noise levels were projected using the FHWA Traffic Noise Prediction Model (RD-77-108), together with several roadway and site parameters. The FHWA model is based upon reference energy mean emission levels (REMELS) for automobiles, medium trucks (two axles) and heavy trucks (three or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. To predict CNEL values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume. The Calveno traffic noise emission curves are used as recommended by the California Department of Transportation (Caltrans) to more accurately calculate noise levels generated by traffic in California.

Traffic volumes used in the FHWA model were obtained from Kimley-Horn Associates (June 2009). These traffic inputs determine the projected impact of vehicular traffic noise and include the roadway cross-section (e.g., number of lanes), roadway width, average daily traffic (ADT), vehicle travel speed, percentages of automobile and truck traffic, roadway grade, angle of view, and site conditions (hard or soft). The model does not account for ambient noise levels (i.e., noise from adjacent land uses) or topographical differences between the roadway and adjacent land uses. Table N-4, *Existing Roadway Noise Levels*, indicates the location of the 60-, 65-, and 70-CNEL noise contours associated with vehicular traffic along local roadways as modeled with the FHWA computer model. Additionally, roadway noise contours are illustrated in Exhibit N-2, *Existing Roadway Noise Contours*.

As shown in Table N-4, the existing noise levels adjacent to City roadways range from a low of 59.6 CNEL along Commonwealth Avenue from Western Avenue to Beach Boulevard to a high of 71.8 CNEL along Beach Boulevard South of Crescent Avenue and from Crescent Avenue to La Palma Avenue.

Under existing conditions, few areas within the City experience traffic noise levels in excess of 70 CNEL. From the noise levels provided in Table N-4, it can be inferred that the 70 dBA CNEL level is only exceeded at 11 of the 69 roadway links analyzed. The 70-dBA contour along these roadway links, located along Valley View Street and Beach Boulevard, extends to a maximum of 1,895 feet from the roadway centerline. However, many of the City's commercial areas experience noise levels in excess of 65 CNEL adjacent to major arterial roadways and freeway rights-of-way. Residences located within this area may experience unacceptable noise levels. It should be noted that these are modeled traffic noise levels, and are not based upon actual site measurements.

Table N-4
Existing Roadway Noise Levels

Roadway Segment	Existing (2008)				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Valley View Street					
Cerritos Avenue to Ball Road	44,000	70.6	1,368	433	137
Lincoln Avenue to Crescent Avenue	40,000	70.2	1,245	394	125
Crescent Avenue to La Palma Avenue	40,000	70.2	1,245	394	125
La Palma Avenue to Orangethorpe Avenue	45,000	70.7	1,400	443	140
Orangethorpe Avenue to 183rd Street	30,000	70.0	1,211	383	121
183rd Street to Artesia Boulevard	30,000	68.9	934	295	93
Knott Avenue					
Lincoln Avenue to Crescent Avenue	28,000	67.5	656	207	66
Crescent Avenue to La Palma Avenue	29,000	67.8	679	215	68
La Palma Avenue to Orangethorpe Avenue	33,000	69.4	1,025	324	103
Orangethorpe Avenue to Artesia Boulevard	21,000	67.5	653	206	65
Western Avenue					
Lincoln Avenue to Crescent Avenue	18,000	66.9	560	177	56
Crescent Avenue to La Palma Avenue	18,000	66.9	560	177	56
La Palma Avenue to Orangethorpe Avenue	17,000	66.7	528	167	53
Orangethorpe Avenue to Commonwealth Avenue	20,000	66.1	469	148	47
Commonwealth Avenue to Artesia Boulevard	20,000	66.1	469	148	47
Beach Boulevard					
South of Crescent Avenue	61,000	71.8	1895	599	189
Crescent Avenue to La Palma Avenue	61,000	71.8	1895	599	189
La Palma Avenue to SR-91	59,000	70.5	1383	437	138
SR-91 to Orangethorpe Avenue	59,000	70.7	1384	438	138
Orangethorpe Avenue to I-5	52,000	70.1	1219	386	122
I-5 to Commonwealth Avenue	46,000	68.2	793	251	79
Commonwealth Avenue to Artesia Boulevard	50,000	68.6	861	272	86
Artesia Boulevard to Stage Road	58,000	69.2	1000	316	100
Stage Road to La Mirada Boulevard	48,000	68.4	828	262	83
North of La Mirada Boulevard	48,000	70.9	1492	472	149
Stanton Avenue					
Crescent Avenue to La Palma Avenue	15,000	64.9	352	111	35
La Palma Avenue to Orangethorpe Avenue	14,000	64.6	328	104	33
Orangethorpe Avenue to Whitaker Street	17,000	65.4	398	126	40

Table N-4 [continued]
Existing Roadway Noise Levels

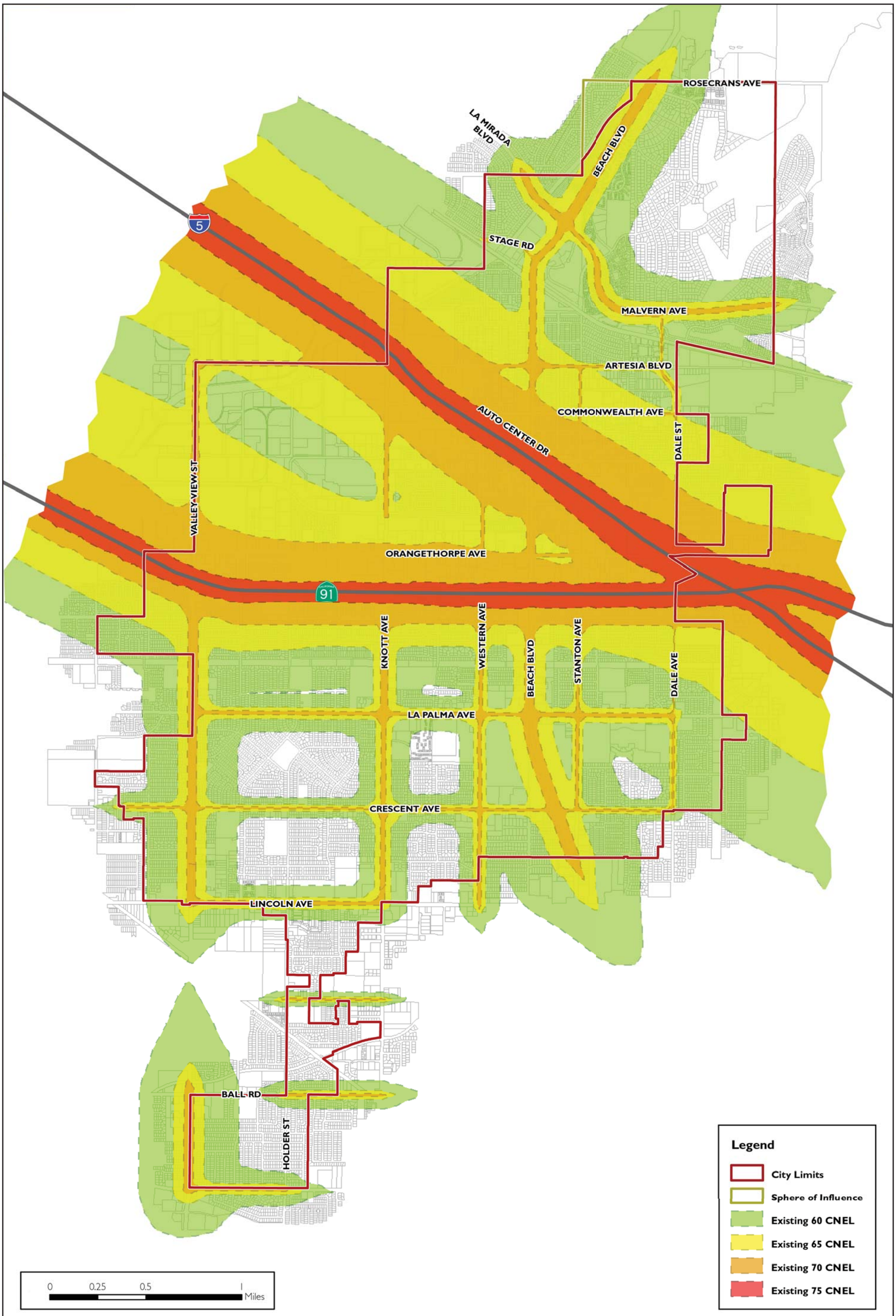
Roadway Segment	Existing (2008)				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Stanton Avenue (continued)					
Whitaker Street to Commonwealth Avenue	16,000	65.2	375	119	38
Commonwealth Avenue to Artesia Boulevard	16,000	65.2	375	119	38
Dale Street					
Crescent Avenue to La Palma Avenue	11,000	63.5	258	81	26
La Palma Avenue to Orangethorpe Avenue	5,000	60.3	117	37	12
Orangethorpe Avenue to Commonwealth Avenue	6,000	61.1	141	44	14
Commonwealth Avenue to Artesia Boulevard	16,000	65.2	375	119	38
North of Artesia Boulevard	9,000	62.7	211	67	21
Cerritos Avenue					
Valley View Street to Holder Street	16,000	66.4	498	157	50
Ball Road					
Holder Street to Knott Avenue	17,000	65.4	398	126	40
Orange Avenue					
Holder Street to Knott Avenue	12,000	62.6	207	65	21
Lincoln Avenue					
Valley View Street to Holder Street	21,000	66.3	492	156	49
Holder Street to Knott Avenue	21,000	66.3	492	156	49
Crescent Avenue					
West of Valley View Street	13,000	65.5	405	128	40
Valley View Street to Holder Street	12,000	63.9	281	89	28
Holder Street to Knott Avenue	12,000	63.9	281	89	28
Knott Avenue to Western Avenue	13,000	65.5	405	128	40
Western Avenue to Beach Boulevard	13,000	65.5	405	128	40
Beach Boulevard to Dale Street	10,000	64.4	311	98	31
La Palma Avenue					
Valley View Street to Knott Avenue	17,000	66.6	528	167	53
Knott Avenue to Western Avenue	21,000	66.2	492	156	49
Western Avenue to Beach Boulevard	21,000	66.2	492	156	49
Beach Boulevard to Stanton Avenue	27,000	67.3	633	200	63
Stanton Avenue to Dale Street	27,000	67.2	633	200	63

Table N-4 [continued]
Existing Roadway Noise Levels

Roadway Segment	Existing (2008)				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Orangethorpe Avenue					
Valley View Street to Knott Avenue	19,000	67.0	590	187	59
Knott Avenue to Western Avenue	23,000	67.8	715	226	71
Western Avenue to Beach Boulevard	24,000	66.7	563	178	56
Beach Boulevard to Stanton Avenue	19,000	65.7	445	141	44
Stanton Avenue to Dale Street	19,000	67.1	590	187	59
Commonwealth Avenue					
Western Avenue to Beach Boulevard	6,000	59.6	104	33	10
Beach Boulevard to Stanton Avenue	13,000	64.2	305	96	30
Stanton Avenue to Dale Street	13,000	64.2	305	96	30
Artesia Boulevard					
Valley View Street to Knott Avenue	23,000	67.8	715	226	71
Knott Avenue to Western Avenue	22,000	66.6	515	163	52
Western Avenue to Beach Boulevard	22,000	66.6	515	163	52
Beach Boulevard to Stanton Avenue	14,000	64.6	328	104	33
Stanton Avenue to Dale Street	14,000	64.6	328	104	33
La Mirada Boulevard					
West of Beach Boulevard	33,000	69.4	1,026	324	103
Malvern Avenue					
Beach Boulevard to Stanton Avenue	26,000	67.3	610	193	61
Stanton Avenue to Dale Street	34,000	69.7	1,057	334	106
East of Dale Street	26,000	68.5	809	256	81
Stage Road					
West of Beach Boulevard	8,000	63.4	249	79	25

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Source: Traffic noise modeling is based on traffic data provided by Kimley-Horn and Associates, June 2009.



Buena Park general plan

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Existing Roadway Noise Contours

Exhibit N-2

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Freeways typically result in greater noise levels than other roadways due to higher traffic volumes and vehicle speeds. As shown on Exhibit 5.6-3, Interstate 5 (I-5) and State Route 91 (SR-91) both traverse the City of Buena Park and represent a primary source of traffic noise. The following describes the traffic volumes and general characteristics of the freeways within the City of Buena Park.

- *Interstate 5*. I-5 is a major regional transportation corridor that serves as the backbone of the transportation system connecting the major urban centers of Los Angeles County and Orange County. Based on traffic data from Kimley-Horn and Associates, average daily traffic along the segments of I-5 that pass through the City is approximately 170,000 for both northbound and southbound traffic.

- *State Route 91*. SR-91 is a major east-west freeway that traverses through the City of Buena Park. Based on data from Kimley-Horn and Associates, average daily traffic along the segments of SR-91 that pass through the City range from 259,000 to 262,000 for both eastbound and westbound traffic.

Table N-5, *General Plan Exterior Noise Adjacent to Nearby Roadways*, outlines the City's future roadway noise levels with buildout of the General Plan. Exhibit N-3, *General Plan Buildout Noise Contours*, identifies the noise contours associated with the General Plan.

Table N-5
General Plan Exterior Noise Adjacent to Nearby Roadways

Roadway Segment	Buildout				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Valley View Street					
Cerritos Avenue to Ball Road	38,750	70.1	1,205	381	121
Lincoln Avenue to Crescent Avenue	52,408	71.4	1,630	515	163
Crescent Avenue to La Palma Avenue	52,408	71.4	1,630	515	163
La Palma Avenue to Orangethorpe Avenue	73,248	72.8	2,276	720	228
Orangethorpe Avenue to 183rd Street	48,648	72.1	1,964	621	196
183rd Street to Artesia Boulevard	51,648	71.2	1,608	508	161
Knott Avenue					
Lincoln Avenue to Crescent Avenue	47,586	69.8	1,116	353	112
Crescent Avenue to La Palma Avenue	42,952	69.5	1,007	318	101
La Palma Avenue to Orangethorpe Avenue	53,996	71.6	1,678	531	168
Orangethorpe Avenue to Artesia Boulevard	24,212	68.1	753	238	75
Western Avenue					
Lincoln Avenue to Crescent Avenue	24,966	68.3	776	245	78
Crescent Avenue to La Palma Avenue	40,966	70.5	1,273	403	127

Table N-5 [continued]
General Plan Exterior Noise Adjacent to Nearby Roadways

Roadway Segment	Buildout				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Western Avenue (continued)					
La Palma Avenue to Orangethorpe Avenue	22,966	68.0	715	226	71
Orangethorpe Avenue to Commonwealth Avenue	19,966	66.1	468	148	47
Commonwealth Avenue to Artesia Boulevard	19,966	66.1	468	148	47
Beach Boulevard					
South of Crescent Avenue	65,902	72.2	2,049	648	205
Crescent Avenue to La Palma Avenue	69,458	72.4	2,161	683	216
La Palma Avenue to SR-91	130,508	73.9	3,060	968	306
SR-91 to Orangethorpe Avenue	106,290	73.2	2,490	787	249
Orangethorpe Avenue to I-5	94,149	72.7	2,209	698	221
I-5 to Commonwealth Avenue	106,661	71.9	1,837	581	184
Commonwealth Avenue to Artesia Boulevard	103,544	71.8	1,787	565	179
Artesia Boulevard to Stage Road	127,564	72.7	2,199	695	220
Stage Road to La Mirada Boulevard	112,564	72.1	1,942	614	194
North of La Mirada Boulevard	69,858	72.6	2,171	687	217
Stanton Avenue					
Crescent Avenue to La Palma Avenue	31,640	68.1	742	235	74
La Palma Avenue to Orangethorpe Avenue	33,223	68.3	778	246	78
Orangethorpe Avenue to Whitaker Street	32,824	68.3	769	243	77
Whitaker Street to Commonwealth Avenue	12,224	64.0	286	91	29
Commonwealth Avenue to Artesia Boulevard	12,224	64.0	286	91	29
Dale Street					
Crescent Avenue to La Palma Avenue	15,836	65.1	372	117	37
La Palma Avenue and Orangethorpe Avenue	16,028	65.4	376	119	38
Orangethorpe Avenue and Commonwealth Avenue	16,028	65.4	376	119	38
Commonwealth Avenue to Artesia Boulevard	15,412	65.0	361	114	36
North of Artesia Boulevard	19,200	66.0	450	142	45
Cerritos Avenue					
Valley View Street to Holder Street	17,000	66.7	528	167	53
Ball Road					
Holder Street to Knott Avenue	27,600	67.5	647	205	65

Table N-5 [continued]
General Plan Exterior Noise Adjacent to Nearby Roadways

Roadway Segment	Buildout				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Orange Avenue					
Holder Street to Knott Avenue	19,512	64.7	337	107	34
Lincoln Avenue					
Valley View Street to Holder Street	33,150	68.3	777	246	78
Holder Street to Knott Avenue	36,000	68.7	844	267	84
Crescent Avenue					
West of Valley View Street	24,538	68.3	762	241	76
Valley View Street to Holder Street	18,242	65.7	428	135	43
Holder Street to Knott Avenue	29,078	67.8	681	215	68
Knott Avenue to Western Avenue	40,168	70.4	1,250	395	125
Western Avenue to Beach Boulevard	28,094	68.8	873	276	87
Beach Boulevard to Dale Street	16,192	66.5	504	159	50
La Palma Avenue					
Valley View Street to Knott Avenue	42,156	70.5	1,312	415	131
Knott Avenue to Western Avenue	51,024	70.0	1,197	379	120
Western Avenue to Beach Boulevard	79,216	71.9	1,859	588	186
Beach Boulevard to Stanton Avenue	45,897	69.6	1,077	341	108
Stanton Avenue to Dale Street	45,897	69.6	1,077	341	108
Orangethorpe Avenue					
Valley View Street to Knott Avenue	45,068	70.7	1,400	443	140
Knott Avenue to Western Avenue	43,300	70.5	1,346	426	135
Western Avenue to Beach Boulevard	45,052	69.5	1,055	334	105
Beach Boulevard to Stanton Avenue	30,667	67.8	718	227	72
Stanton Avenue to Dale Street	34,554	69.7	1,074	340	107
Commonwealth Avenue					
Western Avenue to Beach Boulevard	12,110	62.6	209	66	21
Beach Boulevard to Stanton Avenue	17,772	65.5	417	132	42
Stanton Avenue to Dale Street	17,772	65.5	417	132	42
Artesia Boulevard					
Valley View Street to Knott Avenue	30,258	69.0	940	297	94
Knott Avenue to Western Avenue	47,072	69.9	1,104	349	110
Western Avenue to Beach Boulevard	32,222	68.2	755	239	75
Beach Boulevard to Stanton Avenue	17,954	65.7	421	133	42
Stanton Avenue to Dale Street	17,954	65.7	421	133	42

Table N-5 [continued]
General Plan Exterior Noise Adjacent to Nearby Roadways

Roadway Segment	Buildout				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
La Mirada Boulevard					
West of Beach Boulevard	74,622	72.9	2,318	733	232
Malvern Avenue					
Beach Boulevard to Stanton Avenue	22,224	67.8	690	218	69
Stanton Avenue to Dale Street	30,224	69.2	940	297	94
East of Dale Street	23,000	68.0	715	226	71
Stage Road					
West of Beach Boulevard	17,000	66.7	528	167	53

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level.

Source: Traffic noise modeling is based on traffic data provided by Kimley-Horn and Associates, August 2010.

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General Plan Buildout Noise Contours

Exhibit N-3

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As indicated in Table N-5, twenty-five of the roadway segments modeled (along Valley View Street, Knott Avenue, Western Avenue, Beach Boulevard, Crescent Avenue, La Palma Avenue, Orangethorpe Avenue, and La Mirada Boulevard) would generate noise levels above 70 dBA CNEL at 100 feet from centerline.

Forty of the roadway segments modeled (along Knott Avenue, Western Avenue, Stanton Avenue, Dale Street, Cerritos Avenue, Lincoln Avenue, Crescent Avenue, La Palma Avenue, Orangethorpe Avenue, Commonwealth Avenue, Artesia Boulevard, Malvern Avenue, and Stage Road) would generate noise levels between 65 dBA CNEL and 70 dBA CNEL at 100 feet from the centerline.

Four modeled roadway segments (along Stanton Avenue, Orange Avenue, and Commonwealth Avenue) would generate noise levels between 60 dBA CNEL and 65 dBA CNEL at 100 feet from the centerline.

No modeled roadway segments would generate noise levels below 60 dBA CNEL at 100 feet from the centerline.

RAIL NOISE

Both Union Pacific Railroad (UPRR) and Burlington Northern and Santa Fe (BNSF) railroad tracks cross the City. Amtrak's Pacific Surfliner and Southwest Chief trains, as well as the Metrolink 91 Line and Orange County Line trains use the tracks on a shared right-of-way agreement. Additionally, BNSF has freight trains traversing the City during the daytime, evening, and nighttime periods along two branches. The Santa Ana Branch traverses the northern part of the City and the West Santa Ana branch traverses the southern part of the City.

The Buena Park Metrolink Station is located at 8400 Lakeknoll Drive, near the corner of Dale Street and Malvern Avenue, at the center of a transit-oriented development which includes townhomes and a housing development owned by the California State University, Fullerton Housing Authority.

Noise levels at residential locations adjacent to the main rail lines through northern portions of the City are considered excessive.[3] The primary annoyance to residents involves the late night and early morning train passbys. Movements on the West Santa Ana Branch of the Southern Pacific railway are more infrequent than those of the other railroads. However, single event noise levels may be annoying when experienced in the late evening and early morning hours. Noise levels along the BNSF alignment can exceed 75 dB CNEL up to 20 feet from the tracks.[4]

[3] City of Buena Park, *City of Buena Park General Plan Noise Element*, October 1997.

[4] Ibid.

California High-Speed Train Program[5,6]

The California High-Speed Rail Authority is currently in the process of analyzing the potential for a High-Speed train connecting northern and southern California. The California High-Speed Train Program consists of a more than 700-mile-long high-speed train system capable of high-speed train (HST) speeds in excess of 200 miles per hour on a dedicated, fully grade-separated track with state-of-the art safety, automated train control systems, and signaling. The system described is designed to connect and serve the major metropolitan centers of California, extending from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego. The HST system is projected to carry approximately 88-117 million passengers annually by the year 2030.

The proposed alignment for the Los Angeles-Orange County segment will travel along the existing Los Angeles – San Diego Rail Corridor (LOSSAN) between Los Angeles Union Station and the Anaheim Regional Transportation Intermodal Center (ARTIC) in Anaheim.[7] Two Alternatives are being considered to determine if HST can operate on a shared track with other passenger trains, or if tracks dedicated only to high speed trains need to be built. For several areas a single design option has not yet been determined, as technical studies are ongoing in order to determine which options are feasible.

The need for additional right-of-way to accommodate six tracks within Buena Park is currently being evaluated. The Union Station and Anaheim alignment/segment is located along 8th Street near Western Avenue in the City of Buena Park approximately 210 feet from residential uses. According to the *California High-Speed Train, Project-Level Environmental Impact Report/Environmental Impact Statement, Noise & Vibration Technical Evaluation*, the speed for this segment is approximately 180 mph with a resultant noise level of $69L_{dn}$ of 69, and a vibration level of 72 VdB. The potential of moving the existing Buena Park Metrolink Station to provide adequate space for the HST has been identified as an option.

The HST has similar noise and vibration characteristics to conventional trains with unique features resulting from the higher speed of travel. The HST is expected to be a steel-wheel, steel-rail electrically-powered train operating on its own tracks in an exclusive right-of-way. Due to no highway grade crossings, the train horn and warning bells would be eliminated except in the case of emergencies. The use of electrical power cars eliminates the rumble associated with diesel-powered locomotives. All of these factors allow HST to generate lower noise levels than conventional trains at speeds with which most people are familiar. However, at higher speeds, HST shows a noise increase over conventional trains due to aerodynamic effects. A mitigating

[5] U.S. Department of Transportation Federal Railroad Administration, *California High-Speed Train, Project-Level Environmental Impact Report/Environmental Impact Statement, Project-Level Environmental Analysis Methodologies, Version 2*, February 2009.

[6] U.S. Department of Transportation Federal Railroad Administration, *California High-Speed Train, Project-Level Environmental Impact Report/Environmental Impact Statement*, *Los-Angeles – Orange County – San Diego, Noise & Vibration Technical Evaluation*, January 2004.

[7] U.S. Department of Transportation Federal Railroad Administration, *California High-Speed Train, Project-Level Environmental Impact Report/Environmental Impact Statement*, *Los-Angeles – Orange County – San Diego, Noise & Vibration Technical Evaluation*, January 2004.

factor is that the high speeds enable HST noise to occur for a relatively short duration (a few seconds at the highest speeds).

Vibration of the ground caused by the pass-by of the HST is similar to that caused by conventional steel wheel/steel rail trains. The same speed-dependent vibration generation mechanisms are present in each type of train. Holding down vibration levels associated with the HST are the new track construction and smooth track and wheel surfaces resulting from high maintenance standards required for high speed operation. Along with other cities, Buena Park has entered into a memorandum of understanding with the authority to ensure the City will have an opportunity to evaluate options and their potential impacts before proceeding with the environmental review process.

AIRCRAFT AND AIRPORT NOISE

Noise exposure contours around airports are determined from the number and type of aircraft using the airport, the magnitude and duration of each fly over, flight paths, and the time of day when flights occur. The Airport Noise Standards contained in Title 4 of the *California Administrative Code* specify that airports shall not permit noise exposures of 65 CNEL or greater to extend into residential or school areas. The State Aeronautics Act specifies 65 dB CNEL as the criterion which airports must meet to protect existing residential communities from unacceptable exterior exposures to aircraft noise. The exterior maximum of 65 CNEL is given as the level deemed acceptable to a reasonable person residing in urban residential areas where houses are of typical California construction and may have windows partially open.

There are two primary sources of air traffic affecting noise levels within the City of Buena Park including the Fullerton Municipal Airport and the Los Alamitos Joint Forces Training Base. The Orange County Airport Land Use Commission (ALUC) is an advisory body that ensures airport land use compatibility and reviews local agency land use actions and airport plans. Lead agencies are required to use the *Airport Land Use Planning Handbook* as a technical resource when assessing the airport related noise and safety impacts of airport vicinity projects. Table N-6, *Airport Environs Land Use Plan Limitations Due to Aircraft Noise*, provides the Orange County Airport Land Use Commission land use plan limitations based on aircraft noise.

Fullerton Municipal Airport

The Fullerton Municipal Airport (IATA: FUL), in conjunction with the Airport Noise and Safety Committee and the Fullerton Airport Pilots Association (FAPA), has been active in reducing noise from the facility. FAPA has tested and found innovative methods to lessen noise impacts on take-off by adjusting engine revolutions per minute (RPM). The airport has a Runway 6 Preferred Policy which provides take-offs over the Fullerton industrial area to the east (when winds are permitting), rather than over Buena Park. In addition, the Fullerton Municipal Airport restricts "pattern work" (flying in the traffic pattern to repeatedly practice take-offs and landings) after 10:00 PM, in order to minimize noise impacts to neighbors. Also, the City of Fullerton currently has an ordinance in effect which prohibits "touch and goes" (where the aircraft does not make a full stop after a landing, and proceeds immediately to another take-off) between the hours of 6:00 PM and 7:00 AM on weekends and holidays (Chapter 18.03.30(28) of the Fullerton Municipal Code). However, this practice does not restrict pilots from departures or arrivals at the airport.

Table N-6
Airport Environs Land Use Plan Limitations Due to Aircraft Noise

Land Use Category	CNEL						
	55	60	65	70	75	80	85
Residential (all types): Single and Multi-Family Residences							
Community Facilities: Churches, Libraries, Schools, Preschools, Day-Care Centers, Hospitals, Nursing/Convalescent Homes, ad other Noise sensitive uses							
Commercial: Retail, Office							
Industrial							

CNEL = Community Noise Equivalent Level

	Normally Consistent:
	Conventional construction methods used. No special noise reduction requirements.
	Conditionally Consistent:
	Must use sound attenuation required by the California Noise Insulation Standards, Title 25, California Code of Regulations. Residential use sound attenuation required to ensure that the interior CNEL does not exceed 45 dB. Commercial and industrial structures shall be sound attenuated to meet Noise Impact Zone "1" criteria.
	Normally Inconsistent:
	All residential units are inconsistent unless are sound attenuated to ensure that the interior CNEL does not exceed 45 dB, and that all units are indoor oriented so as to preclude noise impingement on outdoor living areas.

Source: Orange County Airport Land Use Commission, *Airport Environs Land Use Plan for Fullerton Municipal Airport*, November 18, 2004.

With the current level of aircraft activity, the impact of Fullerton Municipal Airport flight operations is considered significant at some existing residential locations in the northeastern section of the City. However, as the flight tracks extend over the entire City, there are few areas that are not affected by these operations. It should be noted that the California Highway Patrol, Anaheim Police Department, and Orange County Fire Authority maintain helicopters on the airfield.

Los Alamitos Joint Forces Training Base

The Los Alamitos Joint Forces Training Base has units of the California National Guard and Army Reserve. It also houses the Southern California Governor's Office of Emergency Services. The aircraft noise contours from the Los Alamitos Air Force Reserve Center currently extend to and impact the southernmost portions of the City, west of Knott Avenue and south of Ball Road. The Los Alamitos Joint Forces Training Base encourages a flight profile that reduces noise and avoids the over flight of houses. The following describes the flight patterns of the various approach routes to the Los Alamitos Joint Forces Training Base:

- *West Route (along Katella Avenue)*. Arrivals and departures are required to fly at 1,500 feet above mean sea level (MSL) to avoid noise impacts.

- *South Route (from the shoreline)*. Arrivals and departures from the South Route are required to fly at 700 feet MSL and 1,000 feet MSL. The inbound route begins at the Anaheim Bay Breakwater and follows the train tracks along the northern edge of Seal Beach Weapons Station, crossing Interstate 405 at the new golf course southwest of Interstate 605.

- *Garden Grove Freeway (SR-22)*. Arrivals and departures are required to fly at 3,500 feet MSL.

- *North Route (previously along the tracks; however, the tracks have been dug up)*. Arrivals and departures are required to fly at 1,500 feet MSL.

8.7 STATIONARY NOISE SOURCES

Commercial and industrial land uses located near residential areas currently generate occasional noise impacts. The primary noise sources associated with these facilities are caused by delivery trucks, air compressors, generators, outdoor loudspeakers, and gas venting. Other significant stationary noise sources in the City may include noise from construction activities, street sweepers, and landscaping equipment. Single-family (highly sensitive) and multi-family (moderately sensitive) residential land uses and other areas identified as noise-sensitive must be protected from excessive noise from stationary sources including commercial and industrial centers. These impacts are best controlled through effective land use planning and application of the City Noise Ordinance.

PARKS

The City of Buena Park has a total of 11 public parks with more than 95 acres, the largest of which include George Bellis Park (22.5 acres) and William A. Peak Park (15.8 acres). The Buena Park Recreation, Parks, and Community Service Department, which is responsible for the development and maintenance of the City's park facilities, offers after school programs, special events, cultural arts, youth and adult sport programs (i.e., ballfeilds, basketball courts, pools, picnic shelters, etc.). The City parks include the following:

- John D. Beat Park – 6660 Mount Shasta Circle
- George Bellis Park – 7171 8th Street
- Henry Boisseranc Park – 7520 Dale Street
- Carl W. Brenner Park – 7373 San Rafael Drive
- Walter Ehlers Community Center – 8150 Knott Avenue
- Larwin Park – 6150 Ball Road
- Lindbergh Mini Park – 4th and Stanton Avenue
- William A. Peak Park – 7225 El Dorado Drive
- San Antonio Park – 8810 San Francisco Drive
- San Marino Park – 6200 San Rolando Circle
- Smith-Murphy Park – 5290 Cameron Drive
- Buena Park Senior Center (in the Walter D. Ehlers Community Recreation Center) – 8150 Knott Avenue
- Whitaker-Jaynes Estate – 6631 Beach Boulevard

- Image Park – Pacific & Rostrata Avenue
- Community Gymnasium – 6931 Orangethorpe Avenue

Also located within the northeastern portion of the City is the Ralph B. Clark Regional Park, which is approximately 105 acres in size. Ralph B. Clark Regional Park is owned and operated by Orange County Parks, and not by the City of Buena Park.

COMMERCIAL CORRIDORS

Commercial development covers a broad spectrum of uses including retail, office, and service commercial. Overall, 8.8 percent (596 acres) of the total land within the City has a commercial/office use. The commercial/office uses are generally located along major corridors along Beach Boulevard (Artesia Boulevard to Orangethorpe Avenue), Orangethorpe Avenue (Knott Avenue to Beach Boulevard), Orangethorpe Avenue (Stanton Avenue to Dale Avenue), La Palma Avenue (Stanton Avenue to Dale Avenue), and along the I-5 Freeway. Other commercial districts are located along Valley View Street and Lincoln Avenue. The distribution of commercial land throughout the City results in a large number of residents located within walking distances of uses such as food stores. Additionally, there are small neighborhood grocery stores and other service uses located throughout the City on the edges or within residential neighborhoods that provide shopping for residents.

A variety of stationary noise sources associated with commercial activities exists throughout the City of Buena Park. Commercial noise sources may include mechanical equipment and engines in non-moving motors such as power tools. Additional stationary noise sources include animals, stereos, musical instruments, sporting events, and horns. These noise sources have the potential to temporarily disrupt the quietness of an area.

KNOTT'S BERRY FARM

Noise from roller coasters and other rides at Knott's Berry Farm can be heard in the areas surrounding the amusement park. Mechanical noise and guest screaming are the predominant sources of sound. The noise events can occur at a high elevation, with minimal shielding.

Roller coasters are the most significant noise sources at theme parks for three reasons: (1) the wheel-rail rolling noise can be significant; (2) screaming is often frequent and high in level; and (3) the relatively high elevation of much of the ride allows sound propagation over long distances with limited attenuation from building shielding and ground effect. Water/boat rides can also produce noticeable noise from splashes and accompanying screams.[8] Knott's Berry Farm has taken measures to reduce noise from roller coasters by installing new wheels, valves, and diffusers to quiet the rides. Additionally, features such as metal canopies have been added on roller coaster drops to reduce noise.

[8] Menge, Christopher W., *Noise from Amusement Park Attractions: Sound Level Data and Abatement Strategies*, Noise Control Engineering Journal, September-October 1999.

INDUSTRIAL NOISE

Industrial noise sources are located in industrial zoned properties throughout the City. In general, industrial noise sources are not creating large-scale problems, but some localized noise problems related to industrial sources do exist. The major industrial zone in the City is located in the northwesterly portion of the City, west of Knott Avenue and north of Orangethorpe Avenue. Other light industrial districts are located along Orangethorpe Avenue, Artesia Boulevard, and the I-5 Freeway. Several residential uses can be found adjacent to these industrial zones and are subject to high single event noise levels from nearby industrial sources.

Industrial land uses have the potential to generate noise that can be considered intrusive to sensitive land uses. Depending on the type of industrial operation, noise sources can involve mechanical equipment, loading and unloading of vehicles and trucks, as well as amplified or un-amplified communications. The level and intrusiveness of the noise generated also vary depending on the size and type of the facility, type of business, hours of operation, and location relative to sensitive land uses.

8.8 AMBIENT NOISE

Buena Park's noise environment is dominated by vehicular traffic, including vehicular generated noise along the I-5 and SR-91 Freeways, as well as major and primary arterials. The primary arterials that serve the City are Valley View Street, Beach Boulevard, Knott Avenue, Lincoln Avenue, and Orangethorpe Avenue. During peak travel hours, heavy traffic on Buena Park's streets cause higher noise levels compared to noise levels during non-peak hours. These roadways have been designed to specifically carry large volumes, although long-established land use patterns have placed residential uses along some portions of these roadways.

8.9 SENSITIVE NOISE RECEPTORS

Sensitive populations are more susceptible to the effects of noise and air pollution than are the general population. Land uses considered sensitive by the State of California include schools, playgrounds, athletic facilities, hospitals, rest homes, rehabilitation centers, long-term care, and mental care facilities. Some jurisdictions also consider day care centers, single-family dwellings, mobile home parks, churches, and libraries to be sensitive to noise and air pollutants. Generally, a sensitive receptor is identified as a location where human populations (especially children, senior citizens, and sick persons) are present, and where there is a reasonable expectation of continuous human exposure to noise.

According to City of Buena Park Code Enforcement staff, there are very few noise complaints that are reported within the City. The majority of the calls include complaints about after hours construction activities, loud music, motorcycles, trains traveling along the Metrolink/BNSF lines, and noise from Knott's Berry Farm. Land uses less sensitive to noise are business, commercial, and professional developments. Noise receptors categorized as being least sensitive to noise include industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, motorcycle parks, rifle ranges, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals. These types of land uses often generate high noise levels. Moderately sensitive land uses typically include: multi-family dwellings, hotels, motels, dormitories, and outpatient clinics. Current land uses located within the City of Buena Park that are sensitive to intrusive noise include residential uses, schools, hospitals, churches, and parks.

8.10 NOISE CONTROL TECHNIQUES

In addition to the noise standards previously identified, there are several basic techniques available to minimize the adverse effects of noise on sensitive noise receivers. Acoustical engineering principles suggest controlling the noise source whenever feasible and protecting the noise receptors when noise source control mechanisms have been preempted by State and Federal governments. For example, the City does not have direct control over noise produced by trains, trucks, and cars, as State and Federal noise regulations preempt local laws. Therefore, the City focuses on reducing transportation noise through noise reduction measures that interrupt the path of the noise or directly shield receivers.

Noise producers within local jurisdictions include industrial processes, electrical substations, wastewater treatment facilities, transportation system locations, swimming pool/spa pump motors, air conditioning units, drive-through speakers, siren usage, and local government controlled or sanctioned activities (City vehicles, public works projects). Regulatory mechanisms available to control these noise sources include: City Noise Ordinances, the application of "conditions of approval" on new developments, land use policy and approval practices as outlined in the General Plan, and noise information in permit applications sources of stationary noise. In the event that source control mechanisms have been employed and noise impacts persist or are projected to occur, additional techniques should be considered. These techniques typically focus on site planning and design. Reduction measures include building orientation, design and layout, construction techniques, spatial buffers, and noise barriers.

- *Acoustic Site Planning*. Involves the careful arrangement of land uses, lots, and buildings to minimize intrusive noise levels. The placement of noise compatible land uses between the roadway and more sensitive uses is an effective planning technique. The use of buildings as noise barriers, and their orientation away from the source of noise, can shield sensitive activities, entrances, and common open space areas. Clustered and planned unit developments can maximize the amount of open space available for landscaped buffers next to heavily traveled roadways and thereby allow aesthetic residential lot setbacks in place of continuous noise barriers. Mixed-use developments require special consideration of the placement of uses within the development so that the residential component is protected from the commercial/office component, as well as exterior noise sources.

- *Acoustic Architectural Design*. Involves the incorporation of noise reduction strategies in the design and layout of individual structures. Building heights, room arrangements, window size and placement, balcony and courtyard design, and the provision of air conditioning all play an important role in shielding noise sensitive activities from intrusive sound levels.

- *Acoustic Construction*. Involves the treatment of various parts of a building to reduce interior noise levels. Acoustic wall design, doors, ceilings and floors, as well as dense building materials, the use of acoustic windows (i.e., double glazed, double paned, thick, non-opening, or small with air-tight seals), and the inclusion of maximum air spaces in attics and walls are all available options.

- *Noise barriers*. Ideally, noise barriers incorporate the placement of berms, walls, or a combination of the two in conjunction with appropriate landscaping to create an aesthetically pleasing environment. Where space is available (clustered developments), a meandering earth berm is both effective and aesthetically pleasing. Where space is restricted, a wall is an effective treatment.

The City will continue to enforce State laws and will ensure compliance with the Buena Park Noise Ordinance. The City may require acoustical studies be prepared as part of the development review process to ensure adequate analysis of potential noise impacts associated with the proposed development project. Additionally, the City will continue to coordinate with airport and rail operators to minimize noise impacts associated with these uses.

8.11 PRINCIPLES, GOALS, AND POLICIES

PRINCIPLE: NOISE CONTROL STANDARDS

The City recognizes the need for noise control standards and is committed to complying with the applicable requirements.

Goal N-1: Appropriate Federal, State, and City standards, guidelines, and ordinances for noise control implemented and enforced throughout the City.

Policy N-1.1: Continue to monitor noise throughout Buena Park and enforce the standards and regulations of the City's Noise Ordinance.

Policy N-1.2: Continue to enforce noise standards consistent with health and quality of life goals and employ effective techniques of noise abatement through such means as a noise ordinance, building codes, and subdivision and zoning regulations.

Policy N-1.3: Adhere to the City's Municipal Code Standards and planning guidelines that include noise control for the interior space of residential developments.

Policy N-1.4: Continue to encourage the enforcement of regulations such as the State Vehicle Code Noise Standards for automobiles, trucks, and motorcycles operating within the City.

Policy N-1.5: Coordinate with California Occupational Safety and Health Administration (Cal-OSHA) to provide information on occupational noise requirements within the City.

Policy N-1.6: Conform to the noise attenuation standards sets forth in the Airport Environs Land Use Plan (AELUP) for residential, commercial, and industrial development within the Fullerton Municipal Airport and Los Alamitos Joint Forces Training Center planning areas.

PRINCIPLE: CONSTRUCTION AND MAINTENANCE ACTIVITY NOISE

The City seeks to reduce noise levels created by construction and maintenance activities.

Goal N-2: Minimized noise levels from construction and maintenance equipment, vehicles, and activities.

Policy N-2.1: Regulate construction activities to ensure all noise associated with construction activities comply with the City's Noise Ordinance.

Policy N-2.2: Employ construction noise reduction methods to the maximum extent feasible. These measures may include, but not limited to, shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied sensitive receptor areas, and use of electric air compressors and similar power tools, rather than diesel equipment.

Policy N-2.3: Require municipal vehicles and noise-generating mechanical equipment purchased or used by the City to comply with noise standards specified in the City's Municipal Code, or other applicable codes.

Policy N-2.4: Exceedance of noise standards may occur on a case-by-case basis for special circumstances including emergency situations, special events, and expedited development projects.

Policy N-2.5: Ensure acceptable noise levels are maintained near schools, hospitals, convalescent homes, churches, and other noise-sensitive areas.

PRINCIPLE: LAND USE AND NOISE CONSIDERATIONS

Land use planning decisions can result in potential noise impacts. Buena Park recognizes the need for careful consideration of noise affects when considering land use decisions.

Goal N-3: Consideration of noise affects in the land use planning process.

Policy N-3.1: Fully integrate noise considerations into land use planning decisions to prevent new noise/land use conflicts.

Policy N-3.2: Consider the compatibility of proposed land uses with the noise environment when preparing, revising, or reviewing development proposals.

Policy N-3.3: Adhere to the City's Municipal Code Standards and planning guidelines that include noise control for the interior space of new residential developments within noise impacted areas (noise control practices include installing thick glass windows, restricting the hours of construction, double glazing, façade treatment, installing and maintaining mufflers, erecting noise barriers, etc.).

Policy N-3.4: Permit only those new development or redevelopment projects that have incorporated appropriate mitigation measures, so that standards contained in the Noise Element or adopted ordinance are met.

Policy N-3.5: Encourage proper site planning and architecture to reduce noise impacts.

Policy N-3.6: Discourage the development of sensitive uses in areas in excess of 65 dBA CNEL without appropriate mitigation.

Policy N-3.7: Require all residential units be attenuated to comply with the City's Noise Ordinance. .

Policy N-3.8: Encourage all new entertainment, tourist-related, commercial, or industrial development adjacent to residential or sensitive land uses to prepare an Acoustical Assessment discussing the existing noise environment, analyzing potential noise impacts of the operation of the new development, and recommending measures to mitigate potential impacts to meet established Federal, State, and City Standards, Guidelines, and Ordinances for noise control.

Policy N-3.9: Incorporate noise reduction features for items such as but not limited to parking and loading areas, ingress/egress point, HVAC units, and refuse collection areas, during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses.

Policy N-3.10: Require the design of mixed-use structures to incorporate techniques to prevent the transfer of noise and vibration from the commercial to residential use.

Policy N-3.11: Encourage commercial uses in mixed-use developments that are not noise intensive.

Policy N-3.12: Orient mixed-use residential units, where possible, away from major noise sources.

Policy N-3.13: Locate balconies and operable windows of residential units in mixed-use projects away from the primary street and other major noise sources, where possible, or provide appropriate mitigation.

Policy N-3.14: Conform to the noise attenuation standards set forth in the Airport Environs Land Use Plan (AELUP) for residential, commercial, and industrial development, within the Orange County Airport Land Use Commissions planning area boundaries for the Fullerton Municipal Airport and Los Alamitos Joint Forces Training Base.

Policy N-3.15: Continue to address community concerns about entertainment- or tourist-related uses, trains, or other uses that generate excessive noise adjacent to noise-sensitive uses.

PRINCIPLE: NOISE SENSITIVE LAND USES

The City seeks to reduce noise spillover or encroachment of non-residential uses on adjoining residential areas and other noise sensitive land uses.

Goal N-4: Ambient noise conditions in sensitive land use areas maintained and/or improved.

Policy N-4.1: Identify and reduce or eliminate unnecessary noise near noise sensitive areas (such as parks, residential areas, hospitals, libraries, convalescent homes, etc.) to meet established regulations outlined in the City's Municipal Code.

Policy N-4.2: Encourage the use of noise absorbing materials in existing and new development to reduce interior noise impacts to sensitive land uses.

Policy N-4.3: Encourage existing noise sensitive uses, including schools, libraries, health care facilities, and residential uses in areas where existing or future noise levels exceed 65 dBA CNEL to incorporate fences, walls, and/or other noise buffers and barriers, where appropriate and feasible.

Policy N-4.4: Discourage new projects located in commercial or entertainment areas from exceeding stationary-source noise standards at the property line of proximate residential or commercial uses, as appropriate.

Policy N-4.5: For sensitive land uses located near to or adjacent to industrial land uses, evaluate the ambient noise condition and, as appropriate, reduce noise affects upon the sensitive land use (such as erecting noise barriers, restricting hours of operation, investing in noise canceling technologies, etc.).

Policy N-4.6: Ensure new industrial uses comply with the City's Noise Ordinance.

Policy N-4.7: Encourage school districts or other educational facilities to locate outdoor activity areas, such as play grounds and sport fields, away from residential areas.

The Land Use and Community Design Element also acknowledges the importance of protecting sensitive land uses through goals and policies that address compatible development.

PRINCIPLE: TRANSPORTATION NOISE

The City seeks to minimize transportation noise impacts from motor vehicles, trains, and airport operations.

Goal N-5: Reduction of noise from circulation-related sources such as motor vehicles, trains, and airplanes.

Policy N-5.1: Encourage the construction of noise barriers and maintenance of existing noise barriers for residential uses along the Artesia (SR-91) and Santa Ana (I-5) Freeways.

Policy N-5.2: Continue to encourage the enforcement of regulations such as the State Vehicle Code Noise Standards for automobiles, trucks, and motorcycles operating within the City.

Policy N-5.3: Enforce established hours and routes for delivery trucks and through truck traffic.

Policy N-5.4: Discourage through traffic on residential local streets to reduce noise.

Policy N-5.5: Employ noise mitigation practices, as necessary, when designing future streets and highways, and when improvements occur along existing road segments. Mitigation measures should emphasize the establishment of buffers or setbacks between the arterial roadways and adjoining noise-sensitive areas.

Policy N-5.6: Continue to encourage all active railroads within the City to reduce the level of noise produced by train movements within the City.

Policy N-5.7: Encourage all active railroads within the City to schedule trains during daylight hours when possible.

Policy N-5.8: Encourage the Public Utilities Commission, Southern California Regional Rail Authority, Union Pacific, Burlington Northern & Santa Fe, Amtrak, and Metrolink to minimize the level of noise produced by train movements and whistle noise within the City by reducing the number of nighttime operations, improving vehicle system technology, and developing improved sound barriers where residences exist next to the track.

Policy N-5.9: Coordinate with the Fullerton Municipal Airport and the Los Alamitos Joint Forces Training Base to continue the implementation of noise control procedures for the airport and create new procedures and policies to reduce noise impacts to the City.

Policy N-5.10: Encourage Caltrans to meet the State standard of 65 dBA CNEL for exterior noise levels for the Artesia Freeway (SR-91) and Santa Ana Freeway (I-5).

Policy N-5.11: Encourage Caltrans to keep the interior residential noise levels below the State standard of 45 dBA CNEL, where appropriate and feasible.

Policy N-5.12: Continue to work with Caltrans to ensure that soundwalls or other appropriate mitigations are provided where the Artesia Freeway (SR-91) and Santa Ana Freeway (I-5) abuts residential areas or areas with sensitive receptors within the City.

Policy N-5.13: Encourage Caltrans to develop a range of sound attenuation alternatives to mitigate noise impacts from the Artesia Freeway (SR-91) and Santa Ana Freeway (I-5).

Goal N-6: Noise levels created by the Union Pacific, Southern Pacific, Metrolink, and any other future rail systems located in close proximity to residential and other noise-sensitive land uses will be minimized or reduced.

Policy N-6.1: Work with rail operators to ensure noise impacts are considered and mitigated through proper design, siting, and construction.

Policy N-6.2: Work with rail operators to install and maintain noise mitigation features where operations adversely impact existing or planned residential and other noise-sensitive land uses.

Policy N-6.3: Encourage noise attenuation measures be incorporated into all new development, renovations, and remodels of residential, health care facilities, schools, libraries, senior facilities, and churches in close proximity to existing or known planned rail lines.

Policy N-6.4: Require future rail projects under the City's control to analyze noise impacts and to identify and incorporate noise reducing features into the project design.

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