



CHAPTER 7 NOISE ELEMENT

The Noise Element describes existing noise levels and noise sources in the City of Costa Mesa. Federal, State, and City regulations relating to noise are outlined in this Section. Goals and supporting policies related to the control of noise levels and the maintenance of a quiet environment are described in this Section.

7.1 PURPOSE

The purpose of the Noise Element is to limit the exposure of the community to excessive noise levels. The Noise Element lists and maps current and projected noise levels for existing and planned land uses and levels for freeways, airports, and railroads. The projected noise levels are used to guide future land use decisions to limit noise and its effects on the community. The Noise Element contains policies and standards for limiting the noise generated from future projects as well as means to abate existing noise problems.

Government Code Section 65302(f) states that a general plan shall include a Noise Element which identifies and appraises noise problems in the community. The Noise Element shall recognize the guidelines established by the Office of Noise Control in the California State Department of Health Services and shall analyze and quantify, to the extent practical, current and projected noise levels for all of the following sources:

- ◆ Highways and freeways.
- ◆ Primary arterials and major local streets.
- ◆ Passenger and freight on-line railroad operations and ground rapid transit systems.
- ◆ Commercial, general aviation, heliport, and military airport operations, aircraft overflights, and jet engine test stands.
- ◆ Stationary noise sources, including local industrial plants.
- ◆ Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

Noise contours are provided for all referenced sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (Ldn). The noise contours are to be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques. The noise contours are used as a guide for establishing a pattern of land uses in the Land Use Element that minimizes exposure of residents to excessive noise.

The Noise Element includes implementation measures and mitigation which addresses existing and foreseeable noise problems. The adopted Noise Element also serves as a guideline for compliance with the state's noise insulation standards.

7.2 RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The policies of the Noise Element are directly related to the policies within the Land Use, Circulation, Housing and Public Safety Elements. The goals, policies, standards and proposals within the Noise Element are consistent with all other elements of the Costa Mesa 2000 General Plan.

7.3 NOISE SCALES

Decibels (dB) are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). The A-weighted sound pressure level is the sound pressure level, in decibels, as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear. Examples, of various sound levels in different environments are shown in Table N-1, *Sound Levels and Human Response*.

Many methods have been developed for evaluating community noise to account for, among other things:

- ◆ The variation of noise levels over time;
- ◆ The influence of periodic individual loud events; and
- ◆ The community response to changes in the community noise environment.

Numerous methods have been developed to measure sound over a period of time. These methods include: 1) the Community Noise Equivalent Level (CNEL); 2) the Equivalent Sound Level (Leq); and 3) the Day/Night Average Sound Level (Ldn). These methods are described below.

**TABLE N-1
SOUND LEVELS AND HUMAN RESPONSE**

Noise Source	dB(A) Noise Level	Response
	150	
Carrier Jet Operation	140	Harmfully Loud
	130	Pain Threshold
Jet Takeoff (200 feet; thence.) Discotheque	120	
Unmuffled Motorcycle Auto Horn (3 feet; thence.) Rock'n Roll Band Riveting Machine	110	Maximum Vocal Effort Physical Discomfort
Loud Power Mower Jet Takeoff (2000 feet; thence.) Garbage Truck	100	Very Annoying Hearing Damage (Steady 8-Hour Exposure)
Heavy Truck (50 feet; thence.) Pneumatic Drill (50 feet; thence.)	90	
Alarm Clock Freight Train (50 feet; thence.) Vacuum Cleaner (10 feet; thence.)	80	Annoying
Freeway Traffic (50 feet; thence.)	70	Telephone Use Difficult
Dishwashers Air Conditioning Unit (20 feet; thence.)	60	Intrusive
Light Auto Traffic (100 feet; thence.)	50	Quiet
Living Room Bedroom	40	
Library Soft Whisper (15 feet; thence.)	30	Very Quiet
Broadcasting Studio	20	
	10	Just Audible
	0	Threshold of Hearing

Source: Melville C. Branch and R. Dale Beland, *Outdoor Noise in the Metropolitan Environment*, 1970, page 2.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL)

The predominant community noise rating scale used in California for land use compatibility assessment is the Community Noise Equivalent Level (CNEL). The CNEL rating represents the average of equivalent noise levels, known as Leq's, for a 24 hour period based on an A-weighted decibel with upward adjustments added to account for increased noise sensitivity in the evening and night periods. These adjustments are +5 dBA for the evening, 7:00 p.m. to 10:00 p.m., and +10 dBA for the night, 10:00 p.m. to 7:00 a.m. CNEL may be indicated by "dBA CNEL" or just "CNEL".

LEQ

The Leq is the sound level containing the same total energy over a given sample time period. The Leq can be thought of as the steady sound level which, in a stated period of time, would contain the same acoustic energy as the time-varying sound level during the same period. Leq is typically computed over 1, 8 and 24-hour sample periods.

DAY NIGHT AVERAGE (LDN)

Another commonly used method is the day/night average level or Ldn. The Ldn 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 Leq. The Ldn 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 p.m. to 7:00 a.m.), by 10 dBA to account for the increased sensitivity of people to noises that occur at night.

OTHER NOISE METRICS

The maximum noise level recorded during a noise event is typically expressed as Lmax. The sound level exceeded over a specified time frame can be expressed as Ln (i.e., L₉₀, L₅₀, L₁₀, etc.). L₅₀ equals the level exceeded 50 percent of the time, L₁₀ ten percent of the time, etc.

7.4 NOISE STANDARDS

FEDERAL NOISE STANDARDS

The United States Noise Control Act of 1972 (NCA) recognized the role of the Federal government in dealing with major commercial noise sources in order to provide for uniform treatment of such sources. As Congress has the authority to regulate interstate and foreign commerce, regulation of noise generated by such commerce also falls under congressional authority. The Federal government specifically preempts local control of noise emissions from aircraft, railroad and interstate highways.

The U.S. EPA has identified acceptable noise levels for various land uses, in order to protect public welfare, allowing for an adequate margin of safety, in

addition to establishing noise emission standards for interstate commerce activities.

STATE NOISE STANDARDS

The Office of Noise Control in the State Department of Health Services has developed criteria and guidelines for local governments to use when setting standards for human exposure to noise and preparing noise elements for General Plans. These guidelines include noise exposure levels for both exterior and interior 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. The State indicates that locating units in areas where exterior ambient noise levels exceed 65 CNEL is undesirable. Whenever such units are to be located in such areas, the developer must incorporate into building design construction features which reduce interior noise levels to 45 dBA CNEL. Tables N-2 and N-3, below, summarize standards adopted by various State and Federal agencies. Table N-3, *Noise and Land Use Compatibility Matrix*, presents criteria used to assess the compatibility of proposed land uses with the noise environment. Table N-4, *State Interior and Exterior Noise Standards*, indicates standards and criteria that specify acceptable limits of noise for various land uses throughout Costa Mesa. These standards and criteria will be incorporated into the land use planning process to reduce future noise and land use incompatibilities. These tables are the primary tools which allow the City to ensure integrated planning for compatibility between land uses and outdoor noise.

CITY NOISE STANDARDS

The City of Costa Mesa maintains a comprehensive Noise Ordinance within the City Code which sets standards for noise levels citywide and provides the means to enforce the reduction of obnoxious or offensive noises.

NOISE ORDINANCE

The City Noise Ordinance establishes outdoor and indoor noise standards. The ordinance is designed to control unnecessary, excessive and annoying sounds generated on one piece of property from impacting an adjacent property, and to protect residential areas from noise sources other than transportation sources. The basic noise standards contained in Table N-2, *City Noise Ordinance Standards-Residential*, below, are for the daytime period (7:00 a.m. to 11:00 p.m.) and apply to both outdoor and indoor residential areas. Between the hours of 11:00 p.m. and 7:00 a.m., the noise standards are 5 dBA more stringent for exterior areas and 10 dBA more stringent for indoor areas. The City Noise Ordinance further specifies exterior residential areas in a Mixed-Use Overlay District for live/work and multi-family residential development which are approved pursuant to a Master Plan and which are subject to these exterior noise standards.

**TABLE N-2
CITY NOISE ORDINANCE STANDARDS-RESIDENTIAL**

Exterior Noise Standards	Interior Noise Standards
55dBA-7:00 a.m. to 11:00 p.m.	55dBA-7:00 a.m. to 11:00 p.m.
50dBA-11:00 p.m. to 7:00 a.m.	45dBA-11:00 p.m. to 7:00 a.m.

NOTE: These represent the basic standards applicable for time periods exceeding 15 minutes each hour. Higher levels may be generated for specified shorter time periods.

**TABLE N-3
NOISE AND LAND USE COMPATIBILITY MATRIX**

COMMUNITY NOISE EXPOSURE				
LAND USE CATEGORY	Ldn or CNEL, dBA			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low-Density	50-60	60-70	70-75	75-85
Residential-Multiple Family	50-65	65-70	70-75	75-85
Transient Lodging-Motel, Hotels	50-65	65-70	70-80	80-85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-60	60-65	65-80	80-85
Auditoriums, Concert Halls, Amphitheaters	NA	50-70	NA	70-85
Sports Arenas, Outdoor Spectator Sports	NA	50-75	NA	75-85
Playgrounds, Neighborhood Parks	50-67.5	NA	67.5-75	75-85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-70	NA	70-80	80-85
Office Buildings, Business Commercial and Professional	50-67.5	67.5-77.5	77.5-85	NA
Industrial, Manufacturing, Utilities, Agriculture	50-70	70-80	80-85	NA

Source: Modified from U.S. Department of Housing and Urban Development Guidelines and State of California Standards.

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

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but, 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 included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

NA: Not Applicable.

**TABLE N-4
STATE INTERIOR AND EXTERIOR NOISE STANDARDS**

LAND USE CATEGORIES		CNEL	
Categories	Uses	Interior ¹	Exterior ²
Residential	Single-Family, Duplex, Multiple-Family	45 ³	65 ⁵
	Mobile Home	--	65 ⁴
Commercial Industrial Institutional	Hotel, Motel, Transient Lodging	45	--
	Commercial Retail, Bank, Restaurant	55	--
	Office Building, Research and Development, Professional Offices, City Office Building	50	--
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	--
	Gymnasium (Multipurpose)	50	--
	Sports Club	55	--
	Manufacturing, Warehousing, Wholesale, Utilities	65	--
	Movie Theaters	45	--
Institutional	Hospital, Schools' Classrooms/Playgrounds	45	65
	Church, Library	45	--
OPEN SPACE	Parks	--	65

NOTES:

1. Indoor environmental including: Bathrooms, closets, corridors.
2. Outdoor environment limited to: Private yard of single family
Multi-family private patio or balcony which is served by a means of exit from inside the dwelling
Balconies 6 feet deep or less are exempt
Mobile home park
Park's picnic area
School's playground
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.
4. Exterior noise levels should be such that interior noise levels will not exceed 45 dBA CNEL.
5. The City Noise Ordinance further specifies exterior residential areas in a Mixed-Use Overlay District for live/work and multi-family residential development which are approved pursuant to a Master Plan and which are subject to these exterior noise standards.

The Noise Ordinance prohibits stationary noise sources to exceed the following:

- ◆ The noise standard for a cumulative period of more than 30 minutes in any hour;
- ◆ The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour;
- ◆ The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour;
- ◆ The noise standard plus 15 dBA for a cumulative period of more than one minute in any hour; or
- ◆ The noise standard plus 20 dBA for any period of time.

The Noise Ordinance exempts several categories of noise sources, including construction activities which take place between the hours of 7:00 a.m. and 8:00 p.m. Monday through Saturday, excluding federal holidays. The ordinance is reviewed periodically for adequacy and amended as needed to address community needs and development patterns.

7.5 SUMMARY OF EXISTING NOISE ENVIRONMENT

Costa Mesa's noise environment is dominated by vehicular traffic including vehicular generated noise along Interstate 405 (I-405), State Route 55 (SR-55), State Route 73 (SR-73), primary and major arterials, and aircraft operations at John Wayne Airport. In addition, a number of other sources contribute to the total noise environment. These noise sources include construction activities, power tools and gardening equipment, loudspeakers, auto repair, radios, children playing and dogs barking. In order to provide a description of the existing noise environment in Costa Mesa, noise contours were obtained from the Orange County Airport Land Use Commission and quantified for highway and local street traffic. As referenced in Table N-6, field noise measurements were taken at various locations in the City to reflect ambient noise levels primarily in the vicinity of sensitive uses (i.e., schools, residences, churches, hospitals, etc.).

TRAFFIC NOISE

Traffic noise levels can be reliably predicted using formulas which take into account traffic volume, speed and percentage of trucks. Existing noise contours were calculated for all the City's primary and major arterials as well as the three freeways (I-405, SR-55, SR-73) that traverse the City. In addition a number of secondary and commuter streets were modeled as well. Noise generation for each roadway segment was calculated and the distance to the 60, 65, and 70 dBA CNEL contours was determined. (A noise contour is a line behind which the noise level does not exceed a certain value. For instance, the 60 dBA CNEL contour indicates that the CNEL between the street and the contour line is equal to, or greater than 60 dB; the CNEL beyond the contour line - away from the street - is less than 60 dB). Refer to Section 7.7, *Noise Contours*, for the approximate location of existing noise contours based on average daily traffic (ADT).

AIRCRAFT NOISE

The California Department of Transportation (Caltrans) has established guidelines in the California State Noise Standard to control residential area noise levels produced by aircraft operations which use the State's airports. Under these guidelines, residential noise sensitive areas exposed to an average CNEL of greater than the 65 dBA define the Noise Impact Area. Noise contours resulting from operations at John Wayne Airport, indicated on Exhibit N-1, *John Wayne Airport Noise Impact Area*, are those on file with the County of Orange Office of Noise Abatement and the Orange County Airport Land Use Commission's 1999 Airport Environs Land Use Plan and represent the latest (1999) measurement data.

As shown in Exhibit N-1, a small portion of Costa Mesa is within the 65 dBA CNEL contour of John Wayne Airport. The northeast corner of Costa Mesa is impacted by noise from the airport, however, the majority of this area is developed with industrial uses. Approximately 107 dwelling units in the City's sphere of influence (SOI) are located within the 65 dBA CNEL Noise Impact Area, south of the runway.

John Wayne Airport has implemented an on-going program of noise reduction which includes: limits on the number of commercial airline flights, noise abatement arrival and departure procedures, admonishment of noisy operators (including private aircraft), curfew, and takeoff weight limitations.

A Master Plan for the airport was approved in February 1985 by the County Board of Supervisors. Settlement of lawsuits concerning airport expansion was reached in December 1985 between the County, City of Newport Beach and two community organizations. Since the construction of the 337,900 square-foot terminal, the passenger count is limited to 8.4 million per year with 73 average daily departures (up to the year 2006). Regularly scheduled aircraft which generate less than 86 dB SENEL (Single Event Noise Equivalent Level) are exempt from daily flight restrictions but are subject to the passenger limitations. Despite the potential for future increases in air traffic from John Wayne, ultimate CNEL contours are anticipated to be similar to the noise contours as contained in the 1999 Airport Environs Land Use Plan, with implementation of the Master Plan and ANCLUC (Airport Noise Control and Land Use Compatibility). The Orange County Airport Land Use Commission, assumes that John Wayne Airport will continue to operate in accordance with the Master Plan until at least 2005. Subsequent to 2005, a prescribed limit on airport operations has not been identified. Therefore, the Commission has assumed that future Airport operations will continue at approximately the 2005 level.

Other aircraft operations affecting Costa Mesa involve the Costa Mesa Police Department, which maintains three helicopters for aerial surveillance. While the helicopters are located at John Wayne Airport, a helipad is located at the City's Civic Center on Fair Drive. Under normal circumstances, only one helicopter is in the air at a given time. Hours of operation are between 10:00 a.m. and 3:00 a.m. Depending on altitude and speed, noise levels generated by the craft under normal conditions range from 61 dBA to 65 dBA. These levels are exceeded upon landing and taking off from the Civic Center helipad for refueling, and in rare instances when landing or extremely low altitudes are required elsewhere in the City.

Insert Exhibit N-1, John Wayne Airport Noise Impact Area

Three additional private heliports are located in north Costa Mesa at the following locations:

- ◆ Los Angeles Times, 1375 Sunflower Avenue
- ◆ Office Building, 555 Anton Boulevard
- ◆ Tridair Helicopter, 3000 Airway Avenue

The City regulates the siting of helipads in the City through a Conditional Use Permit. The City requires an analysis to identify potential noise impacts and the City may regulate the hours of operation and arrival, departure/arrival routes, and type of helicopters which may use the heliport in order to minimize impacts to sensitive land uses.

ORANGE COUNTY FAIRGROUNDS

In 1980, a modified stricter Noise Ordinance for fairground operations was established in an agreement between the 32nd District Agricultural Association and the City of Costa Mesa. Table N-5, *Orange County Fairgrounds Modified Noise Ordinance*, applies to the activities within the Orange County Fairgrounds.

**TABLE N-5
ORANGE COUNTY FAIRGROUNDS MODIFIED NOISE ORDINANCE**

Land Use	Noise Level Not to Be Exceeded	Maximum Allowable Duration of Exceedance
Residential	50 Dba 55 Dba 60 Dba 65 Dba 70 Dba	30 min/hour 15 min/hour 5 min/hour 1 min/hour Not For Any Period of Time
Noise Zone	Noise Level (CNEL)	Time Period
1 & 2 Family Residential	60 dBA 50 dBA	7:00 a.m. to 11:00 p.m. 11:00 p.m. to 7:00 a.m.
Multiple Dwelling Residential, Public Space, Commercial	60 dBA 55 dBA	7:00 a.m. to 11:00 p.m. 11:00 p.m. to 7:00 a.m.
Title 4, Division 6 (Noise Control) of the Orange County Code, 1980.		

Several noise sources presently exist within the Orange County Fairgrounds property. A majority of the on-site stationary noise is due to sound reinforcement equipment utilized for the Speedway, the swap meet, and annual events such as Oktoberfest and Orange County Fair. Additionally motorcycle noise is generated during Speedway races. Parking lot activity during various fairground events also generates noise. The primary noise generators on the fairgrounds site are briefly described below.

PACIFIC AMPHITHEATER

Noise levels generated by concert events at Pacific Amphitheater have exceeded the Costa Mesa Noise Ordinance on several occasions in nearby residential areas in past years, and the amphitheater has been in litigation since 1983 regarding repeated violations and was closed in 1997.

SPEEDWAY MOTORCYCLE RACING

Speedway motorcycle racing events are held at the existing 8,500 seat outdoor arena located at the northern boundary of the fairgrounds. The racing season runs from approximately late March/early April through late September/early October, with racing events on Saturday evenings from 7:30 p.m. to 10:00 p.m. Noise levels are generated by the public address system and by the motorcycles themselves. Typical racing events are 10 dBA to 15 dBA lower than the noise limit of 98 dBA (at a distance of 100 feet from the outside edge of the track) imposed by the State of California Department of Health Services, Office of Noise Control.

ORANGE COUNTY FAIR

Noise is generated by several sources during the annual two week Orange County Fair. Noise sources during the fair events include a public address system, carnival rides, and several sound reinforcement systems which are used for concerts and carnival rides. Noise levels in the activity areas of a typical fair are in the range of 65 dBA to 75 dBA.

URBAN RAIL TRANSPORTATION

As previously discussed within the Circulation Element, no urban rail facilities currently exist within the City. However, OCTA is in the planning stages of a light rail system (Centerline Rail System) that is proposed to pass through the northeast portion of the City, including a line connecting the South Coast Plaza Town Center area to the system. Due to the preliminary nature of the urban rail line proposals, potential long-term noise impacts within the City can not be identified. Further review including detail noise analysis of final route alignments, hours of operation and station locations will be required as the planning for the urban rail line progresses.

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 is caused by delivery trucks, air compressors, generators, outdoor loudspeakers and gas venting. Other significant stationary noise sources in the City include noise from construction activity, street sweepers and gas-powered leaf blowers. Residential land uses and 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 the application of the City Noise Ordinance.

AMBIENT NOISE

In order to describe the ambient or background noise level throughout the City, several noise measurement samples were taken. The locations included a mix of public schools, preschools (childcare centers), hospitals, convalescent homes and a senior housing development. The numerous locations shown in Exhibit N-2, *Noise Sensitive Land Uses*, were distributed throughout the City in order to provide an overall understanding of the noise environment.

Insert Exhibit N-2, Noise Sensitive Land Uses

**TABLE N-6
CITY OF COSTA MESA EXISTING NOISE LEVELS
(Based on Field Measurements)**

Site	Location	Leq dBA	L ₉₀ dBA	Address
1	TeWinkle Intermediate School	50.9	40.3	3224 California Avenue
2	California School	43.6	34.5	3232 California Avenue
3	Killybrooke School	37.6	34.8	3155 Killybrook Lane
4	Paularino School	44.2	39.8	1060 Paularino Avenue
5	St. John the Baptist School/Church	55.7	48.9	1021 Baker Street
6	Costa Mesa High School	53.0	45.6	2650 Fairview Road
7	Back Bay Montessori	59.0	49.4	398 University Drive
8	N-M Alternative Education Center Monte Vista High School/ Back Bay High School	55.9	45.0	390 Monte Vista Avenue
9	Kaiser School	54.7	39.2	2130 Santa Ana Avenue
10	Wilson School	55.2	43.5	801 Wilson Avenue
11	Estancia High School	54.9	39.7	2323 Placentia Avenue
12	College Hospital	58.3	45.7	301 Victoria
13	Head Start	45.0	35.3	661 Hamilton
14	Rea	45.5	36.2	601 Hamilton
15	Costa Mesa Senior Center	49.6	41.8	695 W. 19 th Street
16	Pomona School	46.2	35.5	2051 Pomona Avenue
17	Mesa Verde Convalescent Hospital	41.2	32.3	661 Center
18	Whitter School	43.3	39.5	1500 Whittier Street
19	Ocean Breeze Children's Center	44.1	39.0	190 E. 15 th Street
20	Jewish Community Center of OC	44.7	42.5	250 E. Baker Street
21	Playmates – Paularino Preschool	53.8	45.5	795 Paularino Avenue
22	Giant Step Learning Center	51.8	47.8	758 Saint Clair
23	Davis Elementary School	45.2	36.0	1050 Arlington Drive
24	Step By Step	53.8	47.4	2525 Fairview Road
25	College Park School	37.5	33.7	2380 Notre Dame Road
26	Harbor Trinity Preschool	47.9	44.2	1230 Baker Street
27	Adams School	43.9	37.7	2850 Clubhouse Drive
28	Montessori Harbor Mesa Preschool	43.0	34.5	1701 W. Baker Street
29	Prince of Peace	41.5	33.9	2987 Mesa Verde Drive East
30	Coastline Community College	42.2	34.3	2990 Mesa Verde Drive East
31	Montessori Harbor Mesa Elementary School	41.1	37.2	3025 Deodar Avenue
32	Vineyard Christian Preschool Harbor Mesa	42.2	38.9	3013 Deodar Avenue
33	Victoria School	52.2	40.4	1025 Victoria Street
34	Christ Lutheran Church of Costa Mesa LCMS	51.8	42.4	760 Victoria Street
35	Orange Coast College	57.4	43.2	2701 Fairview Road
36	Vanguard University of Southern California	48.2	41.4	55 Fair Drive
37	Woodland Elementary School	65.5	50.8	2025 Garden Lane
38	Sonora School	43.6	35.0	966 Sonora Road

Source: Noise monitoring survey conducted by Robert Bein, William Frost & Associates on August 13, August 16, August 17, August 26, and September 17, 1999.

The noise measurement locations also functioned as noise sensitive indicators. These noise sensitive indicators are uses, such as schools and hospitals, which have a lower tolerance for noise than do industrial and commercial activities or normal residential uses. Noise levels measured at these locations are reported in Table N-6 *Field Noise Measurements*.

7.6 KEY ISSUES

Although there are no significant broad-based noise problems in the City, there are locations which are subject to considerable noise impacts. These consist primarily of areas adjacent to major streets and John Wayne Airport. Construction noise may be experienced at various times in almost any part of the City. This is only a temporary impact, however, and the City's Noise Ordinance subjects construction activities to the limits of the noise ordinance during the more sensitive hours between 8:00 p.m. and 7:00 a.m.

Noise from operations at John Wayne Airport affects primarily industrial and commercial properties in Costa Mesa. Exhibit N-1 depicts the noise contours for the airport.

Because of the nature of the operation, police helicopter noise may impact any location in the City at any time between 10:00 a.m. and 3:00 a.m. Overflights are usually brief, lasting only a few seconds. Noise exposure of several minutes may occur when circling a crime scene. Although helicopter noise levels are not extremely high in either case, they may be sufficient to cause sleep interruption during nighttime hours.

Surface traffic noise has the greatest impact on the noise environment of Costa Mesa's residential properties. Between 55 and 60 dBA CNEL contours are common along City collector streets; freeways and major street expose adjacent areas to levels of 65dBA CNEL or greater.

7.7 NOISE CONTOURS

Exhibits N-3 and N-4 provide existing and expected 2020 noise contours along many of the City's major and primary arterials and the three freeways that traverse the City. Noise contours for selected secondary and commuter streets are also included. Tables are included in the 2000 General Plan Environmental Impact Report which indicate traffic volumes on designated street segments.

The exhibits display the average daily traffic volume (ADT) noise levels at 100 feet from the roadway centerline and the distance from the roadway centerline to the 70, 65 and 60 dBA CNEL contours.

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Insert Exhibit N-3, Existing Noise Contours (1999)
11 x 17

Insert Exhibit N-4, 2000 General Plan Noise Contours

7.8 DESCRIPTION OF NOISE PLAN

TYPICAL NOISE ATTENUATION TECHNIQUES

Noise impacts can be mitigated in three basic ways: by reducing the sound level of the noise generator, by increasing the distance between the source and receiver, and by insulating the receiver.

Noise reduction can be accomplished by placement of walls, landscaped berms, or a combination of the two, between the noise source and the receiver. Generally, effective noise shielding requires a solid barrier with a mass of at least four pounds per square-foot of surface area which is large enough to block the line of sight between source and receiver. Variations may be appropriate in individual cases based on distance, nature and orientation of buildings behind the barrier, and a number of other factors. Garages or other buildings may be used to shield dwelling units and outdoor living areas from traffic noise.

In addition to site design techniques, noise insulation can be accomplished through proper design of buildings. Nearby noise generators should be recognized in determining the location of doors, windows and vent openings. Sound-rated windows (extra thick or multi-paned) and wall insulation are also effective. None of these measures, however, can realize their full potential unless care is taken in actual construction: doors and windows fitted properly; openings sealed; joints caulked; plumbing adequately insulated from structural members.

And, of course, sound-rated doors and windows will have little effect if left open. This may require installation of air conditioning for adequate ventilation. The chain of design, construction and operation is only as effective as its weakest link.

Noise impacts can be reduced by insulating noise sensitive uses, such as residences, schools, libraries, hospitals, nursing and carehomes and some types of commercial activities. But perhaps a more efficient approach involves limiting the level of noise generation at the source. State and Federal statutes have largely preempted local control over vehicular noise emissions but commercial and industrial operations and certain residential activities provide opportunities for local government to assist in noise abatement. Local ordinances may establish maximum levels for noise generated on-site. This usually takes the form of limiting the level of noise permitted to leave the property where it may impact other uses.

Although vehicular noise emissions standards are established at the State and Federal levels, local agencies can play a significant part in reducing traffic noise by controlling traffic volume and congestion. Traffic noise is greatest at intersections due to acceleration, deceleration and gear shifting. Measures such as signal synchronization can help to minimize this problem. Likewise, reduction of congestion aids in reduction of noise. This can be accomplished through the application of traffic engineering techniques such as channelization of turning movements, parking restrictions, separation of modes (bus, auto, bicycle, pedestrian) and restrictions on truck traffic.

Noise reduction through reduction of traffic volumes can also be accomplished with incentive programs for use of public transit facilities and high-occupancy vehicles, staggering of work hours and land use controls. Vehicle trips can be

turned into pedestrian trips with integration of housing and employment into the same project or area, construction of high-density, affordable housing in proximity to employment, shopping and public transit facilities and other techniques.

7.9 GOALS, OBJECTIVES AND POLICIES

The goals, objectives and policies that address noise hazards and conditions are as follows:

GOAL N-1: NOISE HAZARDS AND CONDITIONS

It is the goal of the City of Costa Mesa to protect its citizens and property from injury, damage, or destruction from noise hazards and to work towards improved noise abatement.

Objective N-1A. Control noise levels within the City for the protection of residential areas and other sensitive land uses from excessive and unhealthful noise.

- N-1A.1 Require, as a part of the environmental review process, that full consideration be given to the existing and projected noise environment.
- N-1A.2 The maximum acceptable exterior noise levels for residential areas is 65 CNEL.
- N-1A.3 Give full consideration to the existing and projected noise environment when considering alterations to the City's circulation system and Master Plan of Highways.
- N-1A.4 Encourage Caltrans to construct noise attenuation barriers along State freeways and highways adjoining residential and other noise sensitive areas.
- N-1A.5 Ensure that appropriate site design measures are incorporated into residential developments, when required by an acoustical study, to obtain appropriate exterior and interior noise levels. When necessary, require field testing at the time of project completion to demonstrate compliance.
- N-1A.6 Apply the standards contained in Title 24 of the California Code of Regulations as applicable to the construction of all new dwelling units.
- N-1A.7 Discourage sensitive land uses from locating in the 65 CNEL noise contour of the John Wayne Airport. Should it be deemed by the City as appropriate and/or necessary for a sensitive land use to locate in the 65 CNEL noise contour, ensure that appropriate interior noise levels are met and that minimal outdoor activities are allowed.

- N-1A.8 Support alternative methods for the reduction of noise impacts at John Wayne Airport while continuing to maintain safety and existing limitations on aircraft daily departures.