17th Street and Superior Avenue

Chapter 7:
Noise Element

Introduction

Costa Mesa residents enjoy the diversity of their neighborhoods. With the pleasant, ocean-influenced climate, they find many reasons to spend time outdoors. While some level of noise is part of the urban environment—with noise conditions varying depending upon the type and density of development—residents desire to keep Costa Mesa a relatively quiet place. This Noise Element establishes goals focused on creating a local noise environment that contributes to positive community health and minimizes exposure of residents to adverse noise conditions.

Federal and State statutes define noise to be an environmental pollutant that can affect the quality of life and human health by causing annoyance and disrupting everyday activities. Many laws are in place to protect individuals from excessive noise at their workplaces and in their homes. In Costa Mesa, significant noise sources include I-405, SR-73 and SR-55, major arterials such as Harbor Boulevard and 17th Street, the Orange County Fairgrounds and

Pacific Amphitheater, John Wayne Airport, and the activities of local industrial businesses. While the City does not have jurisdiction to control how most of these noise sources affects the community, it can direct land use policy and work with responsible agencies to minimize noise impacts on residents.

Purpose

The purpose of the Noise Element is to identify noise sources in Costa Mesa and define strategies for reducing the negative impact of noise on the community. The Noise Element identifies baseline and projected noise levels so that this information can guide future land use decisions in a manner that limit noises and its effect on the community.

Legal Requirement

State Law (Section 65302[f] of the California Government Code) requires that general plans include a Noise Element that identifies and appraises noise problems in the community. The Noise Element follows the revised State guidelines in Section 46050.1 of the Health and Safety Code that require the Element analyze and quantify—to the extent practical—baseline and projected noise levels for 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, helistop, military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation
- Local industrial plants, including, but not limited to, railroad classification yards
- Other ground stationary noise sources identified by local agencies as contributing to the community noise environment

State law is fairly specific as to how local noise conditions are presented. The 24-hour noise environment typically is expressed in terms of noise contour maps, which display average noise levels over a 24-hour period. They resemble topographic maps, which illustrate varying ground elevations. The

noise contour maps indicate an aggregation of noise from all sources, and state the noise levels in terms of Community Noise Equivalent Level (CNEL) or Day-Night Average Level (L_{dn}); these terms are described below. The noise contours establish a guide for establishing a pattern of land uses in the Land Use Element to minimize exposure of residents to excessive noise. State law specifies that the Noise Element is to include implementation measures to address existing and foreseeable noise problems and, importantly, to serve as a guideline for compliance with the State's noise insulation standards.

Noise Metrics

Noise—in its most simplistic terms—is defined as unwanted sound. While sound can be defined easily using scientific standards, noise has qualities that require more complex treatment. Sound is measured and expressed by decibels (dB), with an adjustment referred to as the A-weighted measure (dBA) to correct for the relative frequency response of the human ear. Decibels are measured on a logarithmic scale, representing points on a sharply rising curve. For example, a sound level of 10 decibels is 10 times more intense than one decibel, 20 decibels represent a noise 100 times more intense, and 30 decibels reflects a condition 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than a zero decibel level.

The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10-decibel increase is perceived by the human ear as only doubling of the loudness. Ambient sounds in the urban environment generally range from 30 dBA (very quiet) to 100 dBA (very loud), as indicated in Table N-1: *Typical Sound Levels*.

Because people generally are more sensitive to noise intrusions during the evening and night hours, State law requires, for planning purposes, use of such metrics as the CNEL or L_{dn}. These metrics add an artificial decibel increment to quiet time noise levels in a 24-hour noise descriptor to account for increased sensitivity during late hours. The CNEL descriptor requires that an artificial increment of five dBA be added to the actual noise level for the hours from 7:00 A.M. to 10:00 P.M., and 10 dBA for the 10:00 P.M.to 7:00 A.M.

period. The L_{dn} descriptor uses the same methodology, except that no artificial increment is added to the hours between 7:00 A.M. and 10:00 P.M.

Table N-1: Typical Sound Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Threshold of pain	140	
Near jet engine	130	
Jet fly-over at 1,000 feet	110	Rock band
Loud auto horn	100	
Gas lawnmower at 3 feet	90	
Diesel truck at 50 feet at 50 mph	80	Food blender at 3 feet
Noisy urban area during daytime	70	Vacuum cleaner at 10 feet
Heavy traffic at 300 feet	60	Normal speech at 3 feet
Quiet urban area during daytime	50	Large business office
Quiet urban area during nighttime	40	Theater, large conference room (background)
Quiet suburban area during nighttime	30	Library
Quiet rural area during nighttime	20	Bedroom at night, concert hall (background)
	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Both descriptors yield roughly the same 24-hour level, with the CNEL being only slightly more restrictive (that is, higher).

The discussion of noise requires the use of a number of technical terms. Some of the key noise-related terms used in this element include:

- **Decibel (dB).** A decibel is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic

basis. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities.

- **A-weighted sound level (dBA).** The A-weighted sound level is the most common method to characterize sound in California. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. All sound levels in this chapter are A-weighted, unless reported otherwise.
- **Community Noise Equivalent Level (CNEL).** CNEL is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10:00 P.M. and 7:00 A.M. and five dB added to the A-weighted sound levels occurring between 7:00 P.M. and 10:00 P.M.
- **Energy-equivalent sound/noise level (L_{eq}).** L_{eq} describes the average level that has the same acoustical energy as the summation of all the time-varying events. This descriptor is useful because sound levels can vary markedly over a short period of time. The most common averaging period for L_{eq} is hourly, but it can be of any duration.
- **Day/night average sound level (L_{dn}).** Ldn is a measure over a 24-hour period at a given location, with a 10 dB added to the A-weighted sound levels occurring between 10:00 P.M. and 7:00 A.M.

Noise Standards

While primary responsibility for control of noise rests with State and local governments, the United States Noise Control Act of 1972 and the Quiet Community Act of 1978 recognized the role of the federal government in addressing major commercial noise sources to provide uniform treatment of such sources. The federal government specifically preempts local control of noise emissions from aircraft, railroad, and interstate highways.

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, California Building Code. These noise standards apply to new construction for providing suitable interior noise environments. The regulations specify that acoustical studies must be prepared when noise-

sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that structures have been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

Costa Mesa has a comprehensive Noise Ordinance within the Municipal Code (Chapter XIII-Noise Control) that sets standards for noise levels citywide and provides the means to enforce the reduction of offensive noises. The noise standards in Table N-2: *Residential Exterior and Interior Standards*, apply to both indoor and outdoor residential areas. Between the hours of 11:00 P.M. and 7:00 A.M., the noise standards are five dBA more stringent for exterior areas and 10 dBA more stringent for indoor areas. The Noise Ordinance further specifies that residential exterior areas such as private balconies, roof decks, and internal courtyards in a Mixed-Use Overlay District for live/work and multi-family residential development that are approved pursuant to a Master Plan, and subject to the land use regulations of an Urban Plan, are exempt from the residential exterior noise standards. A similar exemption also applies to high-rise residential development in the North Costa Mesa Specific Plan.

Table N-2: Residential Exterior and Interior Standards

Exterior Noise Standards	Interior Noise Standards
55 dBA: 7:00 A.M. to 11:00 P.M.	55 dBA: 7:00 A.M. to 11:00 P.M.
50 dBA: 11:00 P.M.to 7:00 A.M.	45 dBA: 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.*

Source: *Costa Mesa Zoning Code, Chapter XIII*

Noise Conditions and Compatibility Standards

Two types of noise sources are considered in the community noise inventory: mobile sources and stationary sources. Mobile noise sources refer to cars, trucks, motorcycles, buses, aircraft, and trains. Stationary sources include industrial and construction activities (including truck loading), playgrounds, outdoor sports facilities, landscape maintenance equipment, construction activities, and the typical sounds heard in a residential neighborhood (power tools, barking dogs, etc.).

Table N-3: *Noise and Land Use Compatibility Matrix* presents the guidelines promulgated by federal and State agencies, modified to meet local conditions and Costa Mesa's needs. This table represents the primary tool the City will use to ensure integrated planning compatibility between land uses and outdoor noise.

Costa Mesa's noise environment is dominated by vehicular traffic and aircraft operations at John Wayne Airport. To provide a description of the baseline 2015 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.

Vehicular Noise

Traffic noise levels can be reliably predicted using formulas that take into account traffic volume, speed, and the percentage of trucks. Baseline 2015 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. 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).

Table N-3: Noise and Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure Ldn or CNEL, dBA			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential: Low-Density	50-60	60-70	70-75	≥75
Residential: Multiple Family	50-65	65-70	70-75	≥75
Mixed use	50-65	65-70	70-75	≥75
Transient Lodging-Motel, Hotels	50-65	65-70	70-80	≥80
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-60	60-65	65-80	≥80
Auditoriums, Concert Halls, Amphitheaters	NA	50-70	NA	≥80
Sports Arenas, Outdoor Spectator Sports	NA	50-75	NA	≥80
Playgrounds, Neighborhood Parks	50-67.5	NA	67.5-75	≥75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-70	NA	70-80	≥80
Office Buildings, Business Commercial and Professional	50-67.5	67.5-77.5	77.5-85	≥85 unless appropriately insulated
Industrial, Manufacturing, Utilities, Agriculture	50-70	70-80	80-85	NA

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

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

Normally Unacceptable. *New Construction or development should 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.*

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

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 that 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.

John Wayne Airport

John Wayne Airport, operated by the County of Orange, abuts industrial and commercial properties at the northeast corner of Costa Mesa. A small portion of Costa Mesa lies 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 within the City's sphere of influence lie within the 65 dBA CNEL noise impact area south of the runway.

Noise contours resulting from operations at John Wayne Airport, indicated on Figure N-1, *John Wayne Airport Noise Contours*, are those on file with the County of Orange Office of Noise Abatement and the Orange County Airport Land Use Commission (ALUC).

The 2008 *Airport Environs Land Use Plan* (AELUP) adopted by the Airport Land Use Commission specifies acceptable uses proximate to the airport. These are defined as uses that will not subject people to adverse noise impacts. John Wayne Airport, primarily through the General Aviation Noise Ordinance (GANO), has ongoing programs of noise reduction that include limits on the number of commercial airline flights, noise abatement arrival and departure procedures, admonishment of noisy operators (including private aircraft), curfew, and take-off weight limitations.

The Orange County Board of Supervisors approved a master plan for the airport in February, 1985. Settlement of lawsuits concerning airport expansion were reached in December 1985 between the County, City of Newport Beach, and two community organizations. In 2003, the settlement agreement was amended which extended the agreement until 2015, allowed an increase in passengers served from 8.4 million annual passengers to 10.8 million annual passengers, allowed an increase in regular Class A flights to 85 average daily departures, and allowed facility improvements.

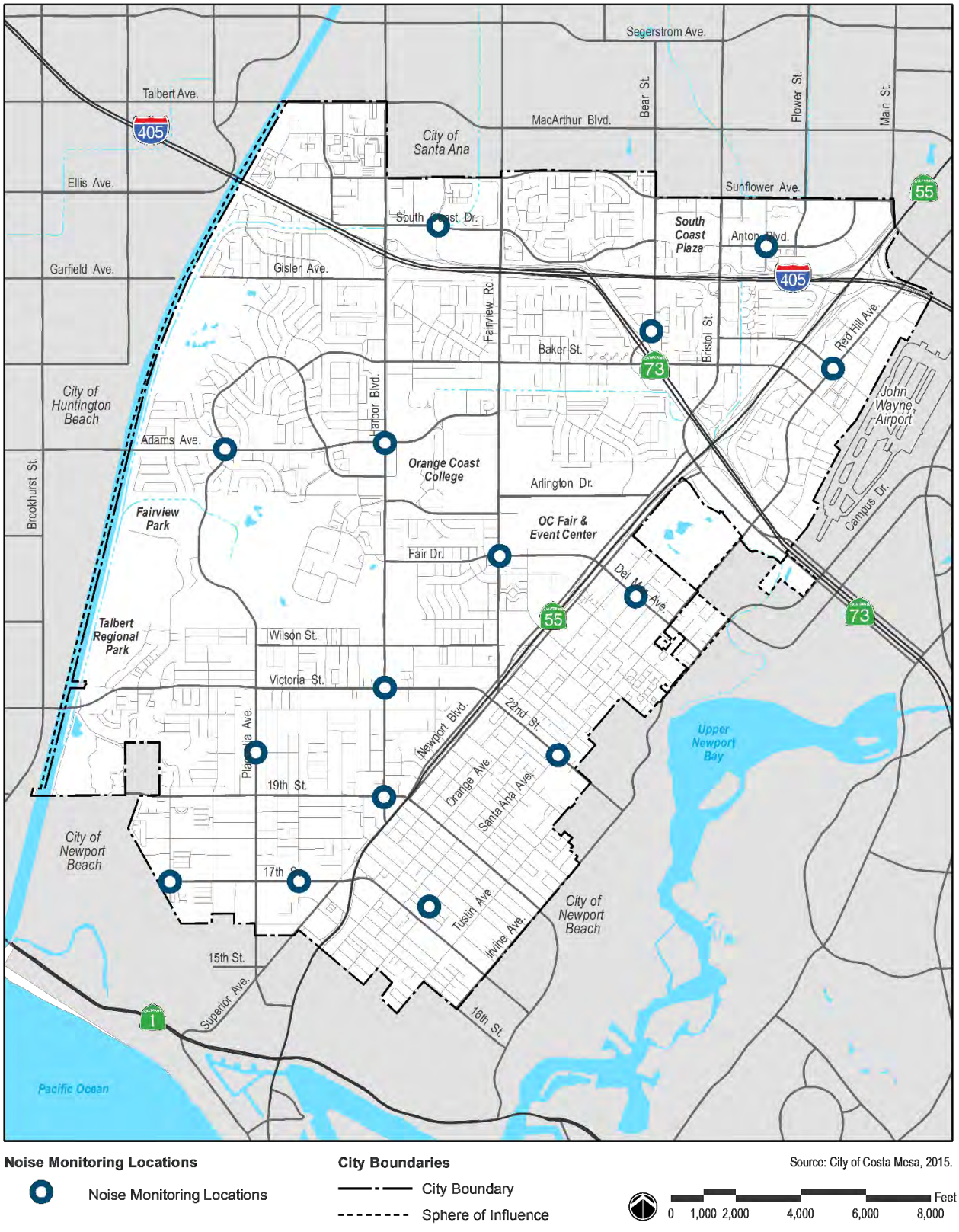


Figure N-1: Noise Monitoring Locations

In 2014, the Board of Supervisors authorized an increase in operational capacity and extended the terms of the settlement agreement through December 31, 2030, with no change to curfew until December 31, 2035.

Additionally, beginning on January 1, 2021, the approval allows a gradual increase in passenger count from 8.4 million average passengers to 11.8 million average passengers and 95 average daily departures. Further, on January 1, 2026, the number passengers would again be allowed to increase, up to 12.5 million average passengers, depending upon the actual service levels in the preceding five years.

Despite the increase in air traffic from John Wayne Airport, the ultimate CNEL noise contours are considerably less than the noise contour contained in the 2008 AELUP due to updated technology creating quieter fleets of commercial aircrafts.

Helicopter Services

The City of Costa Mesa contracts with Huntington Beach for police helicopter services on a case-by-case basis. Depending on altitude and speed, noise levels generated by the craft under normal conditions range from 61 to 65 dBA. As of 2015, four heliports were located in Costa Mesa at the following locations:

- Costa Mesa Police Department, 99 Fair Drive
- Former Los Angeles Times building, 1375 West Sunflower Avenue
- South Coast Metro Center, 555 Anton Boulevard
- Tridair Helicopter, 3000 Airway Avenue

The *AELUP for Heliports* establishes regulations and restrictions for the siting of heliports/helipads. The purpose of the *AELUP for Heliports* is to protect the public from the adverse effects of aircraft noise by ensuring that heliports/helipads are sited in areas of compatible land use. The City regulates the siting of helipads 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. Heliports and helistops must comply with the all conditions of approval imposed or recommended by the Federal Aviation Administration, Orange County ALUC, and Caltrans/Division of Aeronautics.

OC Fair & Event Center

The OC Fair & Event Center (OCFEC) has existed at its location across from the Civic Center for over 65 years and has become a year-round exhibition, conference, and event center. The primary function of the OCFEC is to host the annual summer fair, which includes rides, exhibits, theater, the centennial farm area, equestrian center, and amphitheater for concerts. Over 1.3 million people attend the fair during its summer run.

Several noise sources exist within the fairgrounds property. A majority of the on-site stationary noise is due to the weekly Orange County Market Place, Farmers Market, Centennial Farm, and Food Truck Fare Wednesday, as well as annual events such as the OC Home and Garden Show, Orange County Fair, and concerts at the Pacific Amphitheater. Parking lot activity during various fairground events also generates noise.

In 1980, a stricter, modified Noise Ordinance for fairground operations was established in an agreement between the 32nd District Agricultural Association and the City of Costa Mesa ("1980 Settlement Agreement"). Table N-4, *Orange County Fairgrounds Modified Noise Ordinance*, applies to the activities within the Orange County Fairgrounds, with the exception of the events at the Pacific Amphitheater.

Table N-4: Orange County Fairgrounds Modified Noise Ordinance[1]

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 and 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.

Note: 1. Does not apply to events at Pacific Amphitheater

Source: City of Costa Mesa Inter Office Memorandum, August 24, 2010.

Orange County Fair

The Orange County Fair operates for four weeks annually during the summer months. Noise sources during the fair events include a public address system, carnival rides, and several sound reinforcement systems used for concerts and carnival rides. Noise levels in the activity areas of a typical fair are in the range of 65 to75 dBA.

Pacific Amphitheater

The 8,200-seat Pacific Amphitheater is owned and managed by the OC Fair & Event Center and provides year-round events. Prior to 1990, noise levels generated by concert events at Pacific Amphitheater exceeded the Costa Mesa Noise Ordinance, impacting surrounding residential neighborhoods. In 1990, a permanent injunction ("1990 Order") was entered against the former operators of the Amphitheater and the order set the current noise level established in Table N-5. The order specifically stated that the City's Noise Ordinance does not apply to the Pacific Amphitheatre. The amphitheater closed in 1997, but reopened in 2003 and remains subject to the noise restrictions of the 1990 Order outlined in Table N-5.

Table N-5: Pacific Amphitheater Court Order Current Noise Restriction (1990 Order)

Maximum Noise Level	Time Period	Days of the Week
55 dBA	7:00 A.M. - 10:30 P.M.	Sunday-Thursday
50 dBA	10:30 P.M.- 7:00 A.M.	Sunday-Thursday
55 dBA	7:00 A.M. - 11:00 P.M.	Friday-Saturday
50 dBA	11:00 P.M.- 7:00 A.M.	Friday-Saturday

Source: City of Costa Mesa Inter Office Memorandum, August 24, 2010.

Stationary Noise Sources

Stationary noise sources in Costa Mesa include restaurants, bars, entertainment establishments, mixed-use structures, mechanical equipment, outdoor industrial and commercial activities, and use of recreational facilities.

Delivery trucks, air compressors, generators, outdoor loudspeakers, and gas venting cause the primary noise sources associated with these facilities. Other significant stationary noise sources include 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 Noise Ordinance.

Ambient Noise

To describe the ambient or background noise level throughout the City, several noise measurement samples were taken in 2015. Noise sensitive land uses include schools, residences, churches, hospitals, and similar facilities. The locations included a mix of public schools, preschools (childcare centers), hospitals, convalescent homes and a senior housing development. The locations shown in Figure N-1: *Noise Monitoring Locations*, were distributed throughout the City to provide an overall understanding of the noise environment.

The noise measurement locations also functioned as noise-sensitive indicators. These noise-sensitive indicators are uses, such as schools and hospitals, that 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*.

Table N-6: Field Noise Measurements – 2015 Ambient Noise Levels

Site	Time	L_{eq}	L_{max}	L_{min}	Location
1	7:12 A.M.	67.8	84.5	57.8	Northeast corner of Anton and Avenue of the Arts
2	7:45 A.M.	77.6	102.1	55.3	Southeast corner of Bear and Paularino
3	8:12 A.M.	71.5	88.5	57.6	Northeast corner of Harbor and Adams
4	8:37 A.M.	70.2	84.3	56.2	Northwest corner of Fairview and Fair
5	9:12 A.M.	66.2	82.3	55.1	Southwest corner of South Coast and Susan
6	11:07 P.M.	68.4	80.7	45.5	Northwest corner of Mesa Verde and Adams
7	11:35 P.M.	52.5	65.2	39.1	East corner of Santa Ana and 22nd
8	7:02 A.M.	67.8	84.9	46.4	North corner of Del Mar and Orange
9	7:33 A.M.	61.5	75.1	45.5	East corner of Santa Ana and Cabrillo
10	7:55 A.M.	73.1	86.9	57.1	Northeast corner of Harbor and 19th
11	8:21 A.M.	73.8	89.4	60.5	Northeast corner of Harbor and Victoria
12	8:47 A.M.	69.4	82.5	54.3	Northeast corner of 17th and Pomona
13	9:11 A.M.	63.1	82.0	42.3	Northeast corner of 17th and Whittier
14	9:43 A.M.	74.1	93.9	53.9	Northeast corner of Placentia & 20th
15	10:24 A.M.	69.3	85.5	56.2	South corner of Red Hill and Paularino

Note: This table displays the short-term noise measurements results that were conducted to identify the ambient noise in the City. An American National Standards Institute (ANSI Section SI4 1979, Type 1) Larson Davis model LxT sound level meter was used to monitor noise levels. The noise meter was programmed to record noise levels in A-weighted form. The microphone height was set at five feet. Fifteen 15-minute daytime noise measurements were taken on Tuesday August 4, 2015, through Thursday August 6, 2015.

Source: MIG, 2015.

Citywide Noise Environment

Existing Noise Environment (2015)

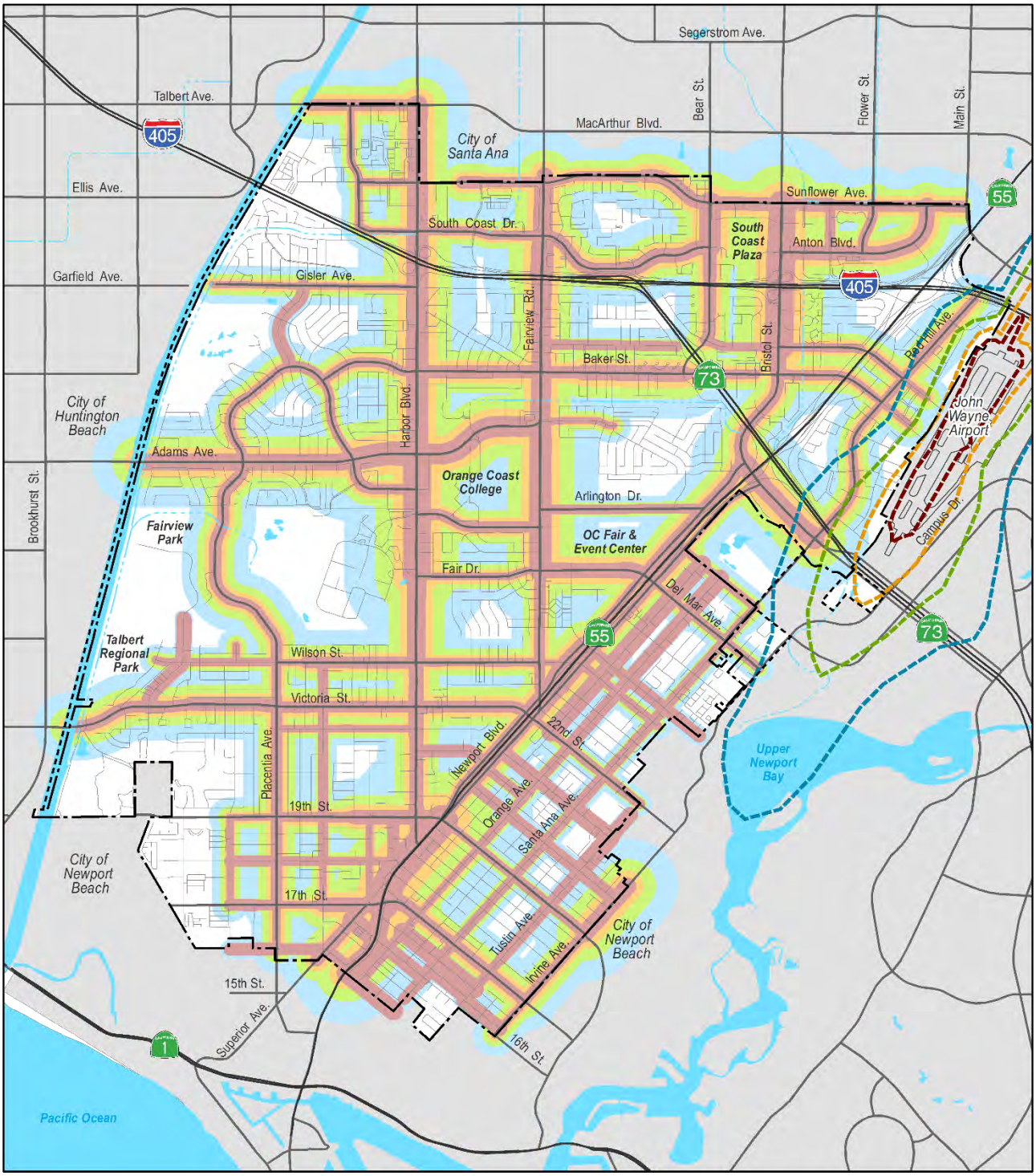
Figure N-2: *Existing Noise Contours - 2015*, illustrates the existing (2015) CNEL noise contours along many of the City's major roadways in the City. CNEL contours are found by calculating distances to the 55, 60, 65, and 70 CNEL contours. Figure N-2 also depicts John Wayne Airport's CNEL noise contours prepared in 2013.

Future Noise Environment (2035)

The noise environment in Costa Mesa is not expected to change as a result of implementation of the General Plan. Vehicular traffic noise—the dominant source citywide—is not anticipated to change substantially along local streets or major through routes, including I-405, SR-73 and SR-55, major arterials. Aircraft noise from John Wayne Airport, noise from events at the OC Fairground & Event Center, and non-transportation noise similarly are not anticipated to increase in the community.

The projected noise exposure contours for year 2035 are indicated in Figure N-3: *Future Noise Contours - 2035*. The future noise contours should be considered as a guide to identifying potential land use/noise compatibility issues and will be used to determine the requirement for project specific noise studies and mitigation. Future noise CNEL for John Wayne Airport are also shown in Figure N-3, which reflect the airport's 1985 Master Plan future noise conditions.

In comparison to the 2015 noise contours presented in Figure N-2, future noise levels will increase only modestly.



Existing Noise Contours
Community Noise Equivalent Levels (CNEL)

- 70 CNEL
- 65 CNEL
- 60 CNEL
- 55 CNEL

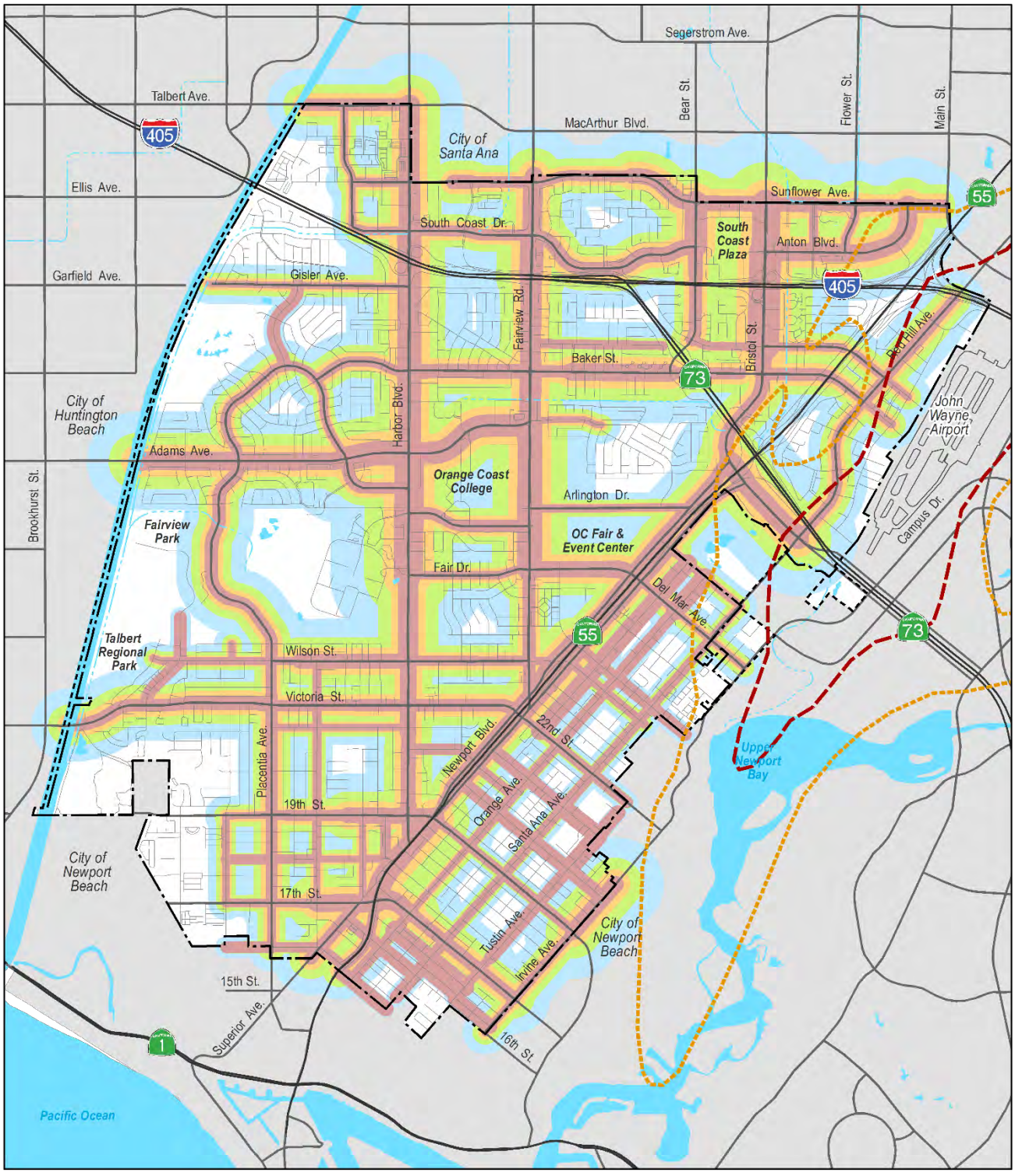
John Wayne Airport Existing (2013) Conditions CNEL Contours

- 75 CNEL
- 70 CNEL
- 65 CNEL
- 60 CNEL

Source: MIG, Inc., 2016 and Mastre Greve Associates, 2013.

0 1,000 2,000 4,000 6,000 8,000 Feet

N-2: Existing Noise Contours - 2015



Future Noise Contours
Community Noise Equivalent Levels (CNEL)

- 70 CNEL
- 65 CNEL
- 60 CNEL
- 55 CNEL

John Wayne Airport Master Plan
Noise Contours (CNEL)

- 60 CNEL
- 65 CNEL

Source: MIG, Inc., 2016 and Land Use Plan for John Wayne Airport, 2008.

0 1,000 2,000 4,000 6,000 8,000 Feet

N-3: Future Noise Contours - 2035

Key Noise Issues

The key noise issues in Costa Mesa are:

John Wayne Airport

John Wayne Airport, a very busy airport, has some of the most restrictions related to noise in the United States. Noise from operations at John Wayne Airport affects primarily industrial and commercial properties in northeast Costa Mesa (Figures N-2 and N-3). Departures from the airport were amended in 2011 under STREL, which directed departure flights away from residences and over Newport Bay. STREL is the name provided by the Federal Aviation Administration (FAA) to describe the Area Navigation (RNAV) departure procedure implemented in 2011, and replaced the flight departure pattern called DUUKE ONE/TWO.

The County's General Aviation Noise Ordinance regulates the hours of operation and the maximum permitted noise levels associated with general aviation projects. General aviation flights are allowed, as long as aircraft comply with the General Aviation Noise Ordinance. The County has installed 10 noise-monitoring stations along the main designated departure and arrival flight routes; no noise monitoring station was located in Costa Mesa as of 2015.

The FAA, under *its Next Generation Air Transportation System* program, also known as Southern California Metroplex project, seeks to optimize flight patterns departing out of the airport; it may affect the flight paths over Costa Mesa over the long term.

Construction Noise

Construction noise could occur in almost any part of the City. However, Section 13-279 of the Costa Mesa Municipal Code limits construction activity as follows:

Allowable Hours	***Applicable Days***
7:00 A.M. to 7:00 P.M.	Mondays through Fridays
9:00 A.M. to 6:00 P.M.	Saturdays

Construction is prohibited all hours on Sundays and on the following specified federal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

Helicopter Noise

Because of the nature of their operations, 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. The FAA does not have minimum altitude requirements for helicopters when weather, safety, and other air traffic permit.

Roadway Traffic Noise

Roadway 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 collector streets; freeways and major streets expose adjacent areas to levels of 65 dBA CNEL or greater.

Figures N-2 and N-3 show baseline 2015 and projected 2035 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. The figures display the average daily traffic volume 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. The improvements on the I-405, SR-55, and SR-73 would produce noise impacts on immediately adjacent Costa Mesa properties.

Noise/Land Use Compatibility Conflicts

A great proportion of mixed-use developments, typically multi-family residential or live/work units atop a leasable commercial space or loft studio, are located in the Westside. The Mixed-Use Overlay District encompasses three urban plans that govern almost all of the Westside of Costa Mesa—19 West, Mesa West Bluffs, and Mesa West Residential Ownership. In addition, the SoBECA Urban Plan allows for mixed-use development. Residents in Westside neighborhoods have expressed some concern regarding the operational ambient noise emanating from industrial activities from truck traffic, heavy machinery, materials processing, and general worker activity. In addition, the commercial spaces below the residential portions of buildings could also generate noise. The SoBECA district has additional noise issues associated with the proximity of the SR-55 and SR-73 freeways.

Land use development process within the context of these urban plans take into consideration noise impacts. A project application is required to include a

noise study to show how compliance with noise standards will be achieved. Furthermore, as part of conditions of project approval, the required Covenants, Conditions, and Restrictions (CC&Rs) must disclose the existing noise environment within and surrounding the mixed-use development.

Proper design that attenuates the impact of noise is embedded in the urban plans. The plans recommend noise-reduction building design approaches such as double-pane windows, wall and ceiling insulation, and the limitation on commercial operations to minimize interaction between noise-generating business activities such as deliveries and loading.

Noise Plan

Typical Noise Attenuation Techniques

Noise impacts can be mitigated in three ways: 1) by reducing the sound level of the noise generator, 2) by increasing the distance between the source and receiver, and 3) 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.

However, none of these noise mitigation measures 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 sound-rated doors and windows will have little effect

if left open. This may require installation of air conditioning for adequate ventilation.

Noise impacts can be reduced by insulating noise-sensitive uses, such as residences, schools, libraries, hospitals, nursing homes, and some types of commercial activities. 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 the City to assist in noise abatement.

Although vehicular noise emissions standards are established at the State and federal levels, Costa Mesa 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 reduce 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, public transit facilities, and other techniques.

Goals, Objectives, and Policies

Goal N-1: Noise Hazards and Conditions

The City of Costa Mesa aims to protect residents, local workers, and property from injury, damage, or destruction from noise hazards and to work toward improved noise abatement.

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

Policy N-1.1: Enforce the maximum acceptable exterior noise levels for residential areas at 65 CNEL.

Policy N-1.2: Give full consideration to the existing and projected noise environment when considering alterations to the City's circulation system and Master Plan of Highways.

Policy N-1.3: Encourage Caltrans to construct noise attenuation barriers along I-405, SR-55, and SR-73 where these freeways adjoin residential and other noise-sensitive areas.

Policy N-1.4: 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.

Policy N-1.5: Apply the standards contained in Title 24 of the California Code of Regulations as applicable to the construction of all new dwelling units.

Policy N-1.6: Discourage sensitive land uses from locating within the 65 CNEL noise contour of 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.

Policy N-1.7: 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.

Policy N-1.8: Monitor the noise levels at OC Fair and Event Center and the Pacific Amphitheater, and continue to monitor the status of legally binding noise levels on the OC Fair and the Event Center and the Pacific Amphitheater.

Goal N-2: Noise and Land Use Compatibility

Integrate the known impacts of excessive noise on aspects of land use planning and siting of residential and non-residential projects.

Objective N-2A: ***Plan for the reduction in noise impacts on sensitive receptors and land uses.***

Policy N-2.1: Require the use of sound walls, berms, interior noise insulation, double-paned windows, and other noise mitigation measures, as appropriate, in the design of new residential or other new noise sensitive land uses that are adjacent to arterials, freeways, or adjacent to industrial or commercial uses.

Policy N-2.2: Require, as a part of the environmental review process, that full consideration be given to the existing and projected noise environment.

Policy N-2.3: Consider alternative noise level standards for mixed-use projects that take into consideration the interaction of industrial operation noise impacts and the mixed-use developments planned for the Westside and SoBeca.

Policy N-2.4: Require that all proposed projects are compatible with adopted noise/land use compatibility criteria

Policy N-2.5: Enforce applicable interior and exterior noise standards.

Policy N-2.6: Allow a higher exterior noise level standard for infill projects in existing residential areas adjacent to major arterials if it can be shown that there are no feasible mechanisms to meet the exterior noise levels. The interior standard of 45 dBA CNEL shall be enforced for any new residential project.

Policy N-2.7: Encourage effective site planning in mixed-use areas that provides the optimal distance between source of excessive sound and residents.

Policy N-2.8: Require new mixed-use developments to site loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noise sources away from the residential portion of the development and adjacent established residential development.

Policy N-2.9: Limit hours and/or require attenuation of commercial/entertainment operations adjacent to residential and other noise sensitive uses in order to minimize excessive noise to these receptors.

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