VI. Noise

Introduction and Purpose

The Noise Element describes how the City considers noise control in the planning process. This element identifies noise-sensitive land uses and noise sources, evaluates existing noise issues, defines potential noise impact areas, and advocates creative methods to protect the community from excessive noise. The element provides proactive solutions to noise problems varying from construction noise and clamoring mechanical equipment to roadway noise and the cacophony of barking dogs, and describes noise control measures designed to avoid noise problems before they occur.

The noise environment relates to a community's quality of life. Noise has been linked directly to numerous human health factors; aside from general annoyances, excessive noise is a source of discomfort, interferes with sleep, and disrupts communication and relaxation.

Recognizing that excessive or unusual noise affects human health and welfare, the state has developed guidelines both for determining community noise levels and for establishing programs to reduce community exposure to adverse noise levels. Policies, plans, and programs outlined in the Noise Element are designed to minimize the effects of human-caused noise in the community, and to improve residents' quality of life by regulating and reducing noise, particularly in residential areas and near such noise-sensitive land uses as residences, hospitals, convalescent and day care facilities, schools, and libraries. The element provides direction regarding practices and strategies to protect city residents and businesses from severe noise levels.

Mixed-use residential and commercial development present unique noise reduction challenges. Although located in predominantly commercial environments, the residential portions of mixed-use projects are nonetheless subject to residential noise standards and guidelines established by the state. Strategies to address these noise concerns focus on incorporating noise-reducing features into project design.

Scope and Content

California Government Code Section 65302(f) establishes the requirement for a noise element to "identify and appraise noise problems in a community" and to "analyze and quantify, to the extent practicable…current and projected noise levels." The noise element must identify the sources of noise and identify both existing and future noise contours—distances at which a predicted noise level will occur. State law requires that the noise element consider the following major noise sources:

- Highways and freeways
- Primary arterials and major local streets
- Railroad operations
- Aircraft and airport operations
- Local industrial facilities
- Other stationary sources

This element consists of this *Introduction and Purpose* summarizing the general purpose of the Noise Element; a *Noise Plan* describing fundamentals of sound and noise, defining noise standards, presenting contour maps, and recommending strategies to achieve goals and implement policies; and *Issues, Goals, and Policies* outlining the most important noise issues affecting the planning area.

Relationship to Other Elements

Noise policies and programs affect implementation of the Land Use Element as it relates to both noise sources and noise-sensitive uses. The noise contours and land use compatibility standards contained in the Noise Element should be used when evaluating planning and development decisions.

The Noise Element also relates directly to the Circulation Element, because Huntington Beach's primary noise sources are transportation-related noise along arterial roadways and highways, and, to a lesser extent, the freeway, railways, and aircraft. Noise policies mitigate excessive noise along transportation routes. Similarly, noise policies relate to the Housing Element by directing new housing development to appropriate sites away from sources of excessive noise and requiring that design features be incorporated to ensure acceptable indoor noise levels.

Noise Plan

The following describes the fundamentals of sound and noise, defines noise standards, and presents contour maps.

Measuring Noise

Noise Fundamentals

Noise sources in Huntington Beach fall into two categories: transportation oriented and non-transportation oriented. Examples of transportation-oriented noise include noise generated by vehicles, airplanes, and rail cars operating within the planning area. Examples of non-transportation noise include noise generated from mechanical or industrial processes, such as oil extraction, lawn equipment, and construction activities.

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise levels is subjective and the physical response to sound complicates the analysis of its effects on people. People judge the relative magnitude of sound sensation in subjective terms such as noisiness or loudness. Sound pressure magnitude is measured and quantified using a logarithmic ratio of pressures, the scale of which gives the level of sound in decibels (dB). **Table N-1** presents the subjective effect of changes in sound pressure levels.

Table N-1
Changes in Sound Pressure Levels, dB

Decibel Change	Change in Apparent Loudness
+/- 3 dB	Threshold of human perceptibility
+/- 5 dB	Clearly noticeable change in noise level
+/- 10 dB	Twice/half as loud
+/- 20 dB	Louder/much quieter

Source: Engineering Noise Control, Bies and Hansen (1988).

To account for the pitch of sounds and an average human ear's response to such sounds, a unit of measure called an A-weighted sound pressure level (dBA) is used.

Noise Descriptors

Several rating scales have been developed to analyze the adverse effect of community noise on people. Since environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise as well as the time of day when the noise occurs. The following common metrics describe the way humans perceive sound:

- L_{eq}, the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- L_{dn}, the Day-Night Average Level, is a 24-hour average L_{eq} with a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24 hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- CNEL, the Community Noise Equivalent Level, is a 24-hour average L_{eq} with a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m., and an additional 5 dBA weighting during the hours of 7:00 p.m. to 10:00 p.m. to account for noise sensitivity in the evening and nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
- L_{min}, the minimum instantaneous noise level experienced during a given period of time.
- L_{max}, the maximum instantaneous noise level experienced during a given period of time.

Assigning the proper noise descriptor when evaluating a noise source is essential to determining potential environmental impact on the community. Stationary-source noise (e.g., leaf blowers; heating, ventilation, and air conditioning; and loading docks) is generally analyzed using an hourly standard (L_{eq}). Transportation noise sources (e.g., vehicular traffic, aircraft overflights, and train passbys) occur as variable, individual events throughout the day. Hourly descriptors are not effective at describing transportation noise because it occurs at all hours. Instead, a 24-hour descriptor (L_{dn} or CNEL) is used to analyze transportation noise sources because the evening and nighttime penalties are applied to reflect increased sensitivity to noise during the evening and nighttime hours. CNEL is the noise level descriptor, consistent with state guidelines, applied by the City throughout this Noise Element to describe the current and future noise environment affected by transportation-generated noise.

Noise Sources and Concentration Areas

Land uses in the planning area include a range of residential, commercial, institutional, industrial, recreational, and open space areas. In general, the greatest source of noise throughout Huntington Beach is vehicle roadway noise generated along arterial roadways, as well as minor arterial roads within residential areas, and various stationary sources such as commercial heating, ventilation, and air conditioning (HVAC) units and petroleum extraction activities.

Mobile Sources

Roadways

Traffic noise originates from vehicles traveling on roads, with major roads such as Beach Boulevard, Bolsa Chica Street, Goldenwest Street, Adams Avenue, Brookhurst Street, and Pacific Coast Highway being significant contributors due to the volume and composition of traffic. Roadway noise is a combination of direct noise emissions from vehicles and the sound of tires passing over the road surface. In addition, large volumes of truck traffic can dramatically contribute to roadway noise, as the sounds generated from some vehicle brake technologies, large tires, and diesel engines greatly exceeds noise from passenger cars and light trucks.

Railways

The Union Pacific Railroad right-of-way runs east of Gothard Street, extending from the northern city limits to a terminus just north of Garfield Avenue. It provides freight service for the industrial corridor located along Gothard Street and is generally not located adjacent to noise-sensitive land uses. Current rail service is extremely limited, with approximately three trains per week traveling through the planning area. Although no specific proposal is anticipated at this time, the City intends to preserve options for future passenger rail transit along this corridor throughout the planning horizon of the General Plan.

Aircraft

No airport is located in the planning area, and no major flight corridors overlie Huntington Beach, although aircraft approaching or leaving nearby airports may fly over the community. Long Beach Airport is located approximately 12.5 miles to the northwest of the planning area, and John Wayne Airport is located approximately 3.5 miles to the southeast. The planning area is not located within the noise contours for either airport.

According to a Noise Analysis Report prepared by Veneklasen Associates in 2007, flights approaching Long Beach Airport regularly pass over the area near the intersection Bolsa Chica Street and Edinger Avenue at an altitude ranging between 1,600 feet to 2,100 feet. Individual commercial aircraft flying at these altitudes can result in noise levels of approximately 72 dBA on the ground. The control of aircraft flying over the city and the noise they make are under the jurisdiction of the Federal Aviation Administration (FAA). As such, the City has no authority over their operations.

Stationary Sources

Construction Activities

Construction activities are a regular and ongoing source of noise throughout the planning area. Noise levels generated by construction activities are generally isolated to the immediate vicinity of a construction site and occur during daytime hours in accordance with City regulations for relatively short-term periods ranging from a few weeks to a few months.

Commercial and Industrial Uses

Existing commercial uses are predominantly located in regional shopping centers such as Bella Terra, in Downtown Huntington Beach, and along the blocks adjacent to both sides of Beach Boulevard, Gothard Street, Edinger Avenue, and Warner Avenue. The primary noise sources associated with commercial

uses are commercial HVAC systems. Other noise sources include truck noise associated with the delivery of goods, as well as human activity.

Industrial uses are located primarily in the northwestern portion of the planning area (including and adjacent to the Boeing campus), along the Gothard Street corridor, in the Holly-Seacliff area, and along Pacific Coast Highway (near and including oil production facilities and the AES power plant). Aside from oil extraction, most industrial uses consist of warehousing, including vehicle and equipment storage along the Gothard Street corridor. Similar to commercial uses, the primary exterior noise sources associated with these uses are related to HVAC systems and medium-duty commercial trucks.

Land use changes anticipated in both the northwest industrial area and along the Gothard Street corridor will gradually transition to a mix of lighter industrial and commercial uses characterized by research and development and technology uses. These land use transitions are intended to be more compatible with sensitive receptor uses located in the vicinity of these areas, as these uses would be less noise intensive.

Oil Extraction

Huntington Beach has been an active site for oil extraction since the 1920s, and large-scale oil and gas production continues. Oil wells are scattered throughout much of the planning area, although most are concentrated along the coastal areas and mesas. Noise sources associated with oil extraction activities are related to heavy-duty vehicle use, including noise associated with site preparation, and are considered similar to construction noise levels.

Special Events

Many parks provide facilities for organized sports including baseball, soccer, and basketball. Noise from these activities can have a negative impact on neighboring residential land uses, particularly at parks where lighted fields allow evening activities. Additionally, the City regularly hosts special events on a local, regional, and international level. Local events include farmers markets, Surf City Nights, and evening music events in public parks, drawing crowds from a few dozen to a few thousand people. Regional and international events include the Huntington Beach Association of Volleyball Professionals Finals, the BB Jazz Festival at Central Park, and the Association of Surfing Professionals US Open of Surfing. Special events often use amplification devices, such as public address systems, and feature amplified music.

Noise Standards and Land Use Compatibility

Huntington Beach has developed land use compatibility standards, based on recommended parameters from the California Governor's Office of Planning and Research, that rate compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable. Using these land use compatibility guidelines, the City has established interior and exterior noise standards.

Some types of noise are only short-term irritants, like the banging of a hammer, the whine of a leaf blower, or amplified music and crowd noise from outdoor events. City noise regulations, including the Noise Control Ordinance, can control this type of noise. The City's Noise Ordinance (Chapter 8.40 of the Huntington Beach Municipal Code) identifies exterior and interior noise standards, specific noise restrictions, exemptions, and variances for sources of noise in the city. As such, the Municipal Code provides standards against intrusive noises such as loud gatherings, unauthorized construction-generated noise, and other invasive noises.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day, night, or over a 24-hour period. Environmental noise levels would generally be considered low below 55 dBA CNEL, moderate in the 55 to 70 dBA CNEL range, and high above 70 dBA CNEL.

The City's land use-noise compatibility standards are presented in **Table N-2**. These standards are used in the land planning stage of the development process to identify project opportunities and constraints. In conjunction with the noise contour maps (**Figures N-1** and **N-2**), the standards may be used to determine whether a certain type of land use would be compatible with the existing and future noise environment. Proposed land uses should be compatible with existing and forecasted future noise levels. Projects with incompatible land use-noise exposures should incorporate noise attenuation and/or control measures within the project design that reduce noise to an acceptable interior level of 45 dBA CNEL or lower, as required by state regulations (California Code of Regulations Title 24) for residential uses.

The City's compatibility standards provide only for normally acceptable conditions, and are generally based on state recommendations and City land use designations. These standards, which use the CNEL noise descriptor, are intended to be applicable for land use designations exposed to noise levels generated by transportation-related sources. Land use compatibility noise exposure limits are generally established as 60 dBA CNEL for low-density and medium-density residential uses. However, for medium-high density residential, high-density residential, and mixed-use land use designations, a higher 65 dBA CNEL is permitted. Higher exterior noise levels are more often permitted for multiple-family housing and housing in mixed-use contexts than for single-family houses. This is

because multiple-family complexes are generally located in transitional areas between single-family and commercial districts or near major arterials served by transit, and a more integrated mix of residential and commercial activity (accompanied by higher noise levels) is often desired in such locations. These standards establish maximum interior noise levels for new residential development, requiring that sufficient insulation be provided to reduce interior ambient noise levels to 45 dBA CNEL.

The City's land use compatibility standards are based first on the General Plan land use designation of the property, and secondly on the proposed use of the property. For example, in the mixed-use designation, a multiple-family use exposed to transportation-related noise would have an exterior noise standard of 65 dBA CNEL, and an interior noise standard of 45 dBA CNEL. Noise standards for multiple-family and mixed-use land use designations are higher than those for single-family residential areas, reflecting that these uses are generally located along arterial roadways with higher ambient noise levels than single-family residential neighborhoods. The standards are purposefully general, and not every specific land use is identified. Application of the standards will vary on a case-by-case basis according to location, development type, and associated noise sources.

Table N-2
Land Use-Noise Compatibility Standards

General Plan Land Use Designation	Proposed Uses	Exterior Normally Acceptable[1] (dBA CNEL)	Exterior Conditionally Acceptable[2] (dBA CNEL)	Exterior Normally Unacceptable[3] (dBA CNEL)	Interior Acceptable[4] (dBA CNEL)
Residential					
Low Density	Single-family, mobile home, senior housing	Up to 60	61–65	≥66	45
Medium Density, Medium High Density, High Density	Attached single-family, duplex, townhomes, multi-family, condominiums, apartments	Up to 65	66–70	≥71	45
Mixed-Use					
Mixed-Use	Combination of commercial and residential uses	Up to 70	71–75	≥76	45
Commercial					
Neighborhood Commercial, General Commercial	Retail, professional office, health services, restaurant, government offices, hotel/motel	Up to 70	71–75	≥76	45
Visitor Commercial	Hotel/motel, timeshares, recreational commercial, cultural facilities	Up to 65	66–75	>75	45

General Plan Land Use Designation	Proposed Uses	Exterior Normally Acceptable[1] (dBA CNEL)	Exterior Conditionally Acceptable[2] (dBA CNEL)	Exterior Normally Unacceptable[3] (dBA CNEL)	Interior Acceptable[4] (dBA CNEL)
Office	Office, financial institutions	NA	NA	NA	NA
Public/Semi-public					
Semi-public (School)	Schools	Up to 60	61–65	≥66	45
Semi-public (Other)	Hospitals, churches, cultural facilities	Up to 65	66–70	≥71	45
Public	Public utilities, parking lot	NA	NA	NA	NA
Industrial					
Research and Technology	Research and development, technology, warehousing, business park	NA	NA	NA	NA
Industrial	Manufacturing, construction, transportation, logistics, auto repair	NA	NA	NA	NA
Open Space and Recreational					
Conservation	Environmental resource conservation	NA	NA	NA	NA
Park	Public park	Up to 65	65–75	≥76	NA
Recreation	Golf courses, recreational water bodies	Up to 65	66–75	≥76	NA
Shore	City and state beaches	NA	NA	NA	NA

Notes:

1. *Normally acceptable means that land uses may be established in areas with the stated ambient noise level, absent any unique noise circumstances.*
2. *Conditionally acceptable means that land uses should be established in areas with the stated ambient noise level only when exterior areas are omitted from the project or noise levels in exterior areas can be mitigated to the normally acceptable level. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.*
3. *Normally unacceptable means that land uses should generally not be established in areas with the stated ambient noise level. If the benefits of the project in addressing other General Plan goals and policies outweigh concerns about noise, the use should be established only where exterior areas are omitted from the project or where exterior areas are located and shielded from noise sources to mitigate noise to the maximum extent feasible. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.*
4. *Interior acceptable means that the building must be constructed so that interior noise levels do not exceed the stated maximum, regardless of the exterior noise level. Stated maximums are as determined for a typical worst-case hour during periods of use.*

In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply. To ensure that noise produced by stationary sources does not adversely affect noise-sensitive land uses, the City applies a second set of standards. These hourly and maximum performance standards (expressed in L_{eq}) for stationary noise sources are designed to protect noise-sensitive land uses.

Noise Contours and Impact Areas

The community noise environment can be described using contours derived from monitoring major sources of noise. Noise contours define areas of equal noise exposure. Future noise contours have been estimated using information about both current and projected future land uses and traffic volumes. The contours assist in setting land use policies for distribution and establishing development standards.

The City completed a study of baseline noise sources and levels in June and July 2014. As part of the study, the City collected long-term (24-hour) noise measurements during a typical weekday at seven locations, and short-term (one-hour) noise measurements at eight locations, in the planning area. Long-term monitoring sites included locations characterized by unique noise generators due to high traffic volumes, large numbers of truck trips, or commercial or industrial activities occurring in the vicinity of noise-sensitive land uses. Short-term monitoring sites were generally located in residential areas where ambient noise levels are anticipated to be lower than those along major transportation corridors and commercial areas. The primary purpose of noise monitoring was to establish a noise profile that could be used to estimate current and future noise levels.

Measurements represent motor vehicle noise emanating from highways and freeways, the local roadway network, and industrial land uses. Typical noise sources measured during the short-term survey included vehicular traffic; standard gardening and landscaping equipment such as lawn mowers and leaf-blowers; police, ambulance, and fire sirens; motorcycles; heavy trucks; and typical home maintenance equipment such as handsaws. Of these sources, traffic noise was determined to be the predominant noise source in Huntington Beach. Typical of developed areas, noise levels in commercial and industrial areas were substantially higher than those in residential neighborhoods, particularly along major arterials such as Beach Boulevard, Goldenwest Street, and Bolsa Chica Street. Additionally, the planning area experiences regular aircraft overflight from commercial airlines from Los Angeles International Airport, Long Beach Airport, and John Wayne Airport.

Figure N-1 identifies modeled noise contours for baseline year 2014. A number of locations experience noise levels above 65 dBA CNEL, including areas near Pacific Coast Highway, Beach Boulevard, Goldenwest Street, Warner Avenue, Edinger Avenue, Brookhurst Street, Bushard Street, Springdale Street, Yorktown Avenue, and Heil Avenue.

The Land Use Element anticipates that Huntington Beach will accommodate additional future growth, accompanied by an increase in citywide traffic volumes. Traffic volume increases represent the major anticipated measurable new noise sources in the community over the long term. **Figure N-2** identifies anticipated changes in 2040 noise levels along major roads based upon future traffic levels. Noise levels may be expected to rise in areas located near roadways where traffic volumes will increase over time. Specifically, these areas include Bolsa Avenue, Atlanta Avenue, Adams Avenue, Pacific Coast Highway, Bolsa Chica Street, Goldenwest Street, and Brookhurst Street.

Developments along the following roadway segments should be reviewed for potential future noise impacts:

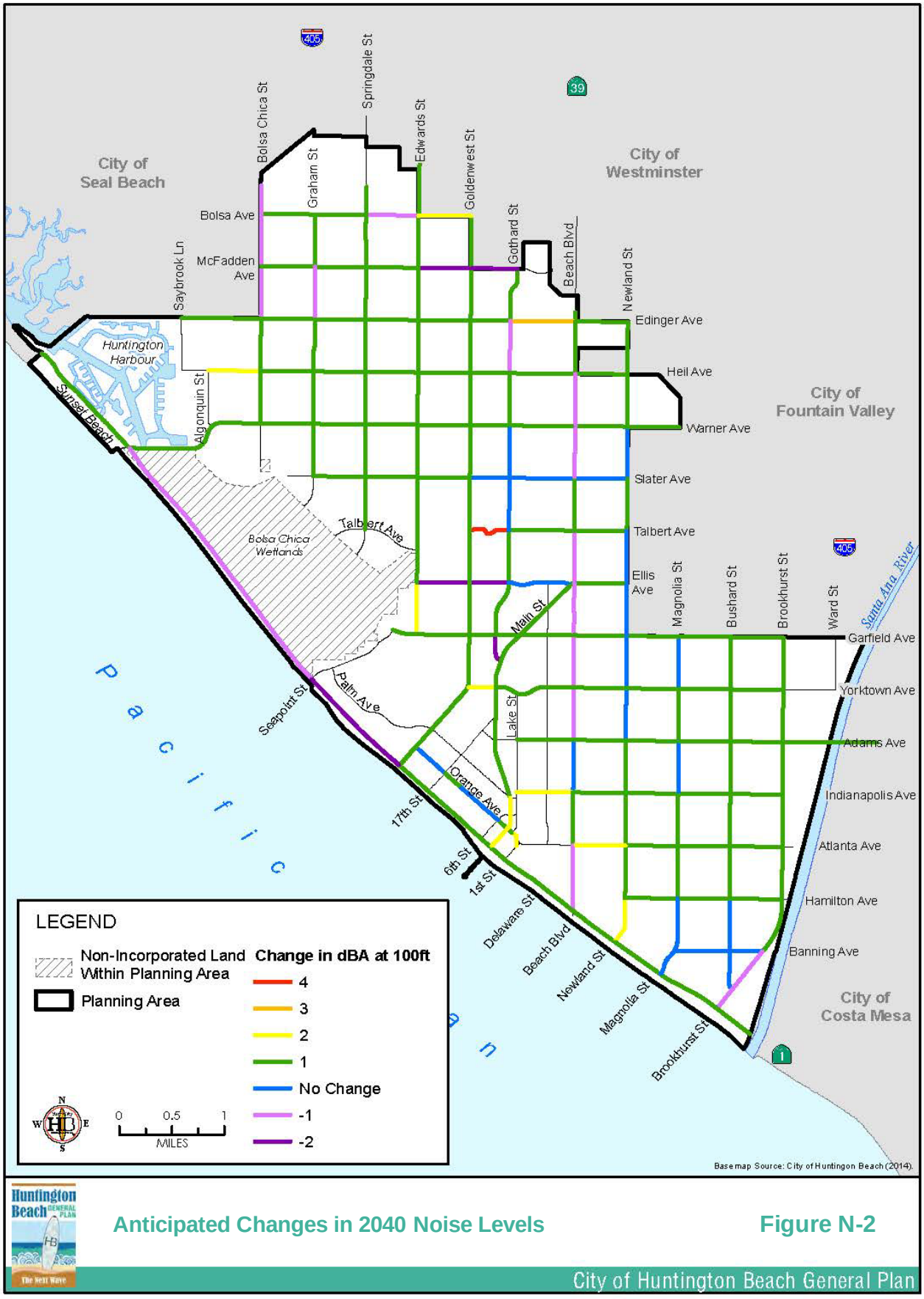
- Talbert Avenue between Goldenwest Street and Gothard Street
- Edinger Avenue between Gothard Street and Beach Boulevard
- Heil Avenue between Algonquin Street and Bolsa Chica Street
- Bolsa Avenue between Edwards Street and Goldenwest Street
- Edwards Street between Ellis Avenue and Garfield Avenue
- Yorktown Avenue between Goldenwest Street and Main Street
- Indianapolis Avenue between Lake Street and Beach Boulevard
- Main Street between Palm Avenue and Pacific Coast Highway
- Orange Avenue between 3rd Street and 1st Street
- Atlanta Avenue between Beach Boulevard and Newland Street
- Newland Street between Hamilton Avenue and Pacific Coast Highway

Many neighborhoods located along busy arterial streets have existing masonry walls between the roadway and the residential uses. Furthermore, topography in the planning area does not vary considerably. As a result, the contours shown in **Figures N-1** and **N-2** are considered reasonably representative of actual traffic noise conditions. Nonetheless, it is not possible to evaluate the localized effects of topography and screening by intervening structures on traffic noise within the framework of the Noise Element. Therefore, the City should consider the contour distances conservative estimates of traffic noise exposure (i.e., assuming noisier conditions than may be the case) to be supplemented by more detailed and project-specific study as needed.

Modeled Noise Contours for Baseline Year 2014

Figure N-1

City of Huntington Beach General Plan



Anticipated Changes in 2040 Noise Levels **Figure N-2**

Noise Reduction Strategies

The following strategies are intended to reduce noise impacts within Huntington Beach. These strategies should be employed along the roadway segments identified on page 6-12.

Noise Control Ordinance

The Noise Control Ordinance authorizes the City to regulate noise at its source, protect noise-sensitive land uses, and establish exterior and interior noise standards for residential properties. The City will continue to apply provisions of the Noise Control Ordinance.

State Noise Standards

Title 24 of the California Code of Regulations, also known as the California Building Code, establishes acoustical regulations for both exterior-to-interior sound insulation and sound and impact isolation between adjacent spaces of various occupied units. The Title 24 regulations state that interior noise levels generated by exterior noise sources shall not exceed 45 dB L_{dn}, with windows closed, in any habitable room for general residential uses.

Roadway Noise Barriers

The most efficient and effective means of controlling noise is to reduce noise at the source. However, the City has no direct control over noise produced by trucks, cars, and trains because federal and state noise regulations preempt local laws. Because the City cannot control transportation noise at the source, noise programs and standards use noise reduction methods that interrupt the path of the noise or shield adjacent land uses to reduce transportation noise along freeways, arterial roadways, and rail corridors. Such reduction methods may include building orientation, spatial buffers, landscaping, and noise barriers proposed during site planning and project design.

Using noise barriers, such as sound walls, is an effective way to achieve noise standards, but should be considered only after all other practical design-related noise reduction measures have been integrated into a project. New technologies should be used in place of sound walls as they become widely available, unless no other feasible options exist. Sound walls may not be desirable in some locations, such as intersections in commercial areas where visibility and access are equally important. For some projects, including those implemented by the California Department of Transportation (Caltrans) or the Orange County Transportation Authority (OCTA), using sound walls may be the only feasible option or may be beyond the City's control.

Truck Routes

Truck traffic generates noise that can disturb people in residential and other noise-sensitive land uses. Heavy trucks are not permitted to drive through residential neighborhoods unless they are making a delivery in the neighborhood. Truck routes in Huntington Beach are located mostly on higher capacity roadways to reduce noise on other streets, increase safety, reduce roadway maintenance needs, and improve traffic operations.

Stationary Sources

Noise levels from stationary sources are addressed primarily at the source. In a mixed-use development, acoustical design should be applied to reduce the exposure of residents to noise from both commercial portions of the development and external noise sources. When addressing stationary noise at the source is infeasible, the aforementioned noise reduction methods will be employed to reduce noise exposure to the levels presented in **Table N-3**.

The most common and feasible method to control exterior-to-interior noise levels is to improve the building structure and use wall/façade treatments that reduce noise levels. Buildings constructed consistent with the Title 24 of the California Building Code typically provide approximately 15 dBA of exterior-to-interior noise level reduction with windows open, and 25 dBA of noise level reduction with windows closed. Therefore, special consideration must be given to reducing interior noise levels to the required 45 dBA CNEL at noise-sensitive land uses exposed to noise levels in excess of 60 dBA. The ability to perform these calculations requires detailed floor plans and façade construction details. A qualified acoustical consultant should calculate the required noise level reduction and resulting interior noise levels. **Table N-3** provides an example of varying levels of building façade improvements that may be required to comply with the interior noise level standard of 45 dBA CNEL for land uses exposed to three different noise levels: 60 dBA CNEL, 65 dBA CNEL, and 70 dBA CNEL.

Residential Project Design

To mitigate non-transportation-related noise, the City will require adjustments to site plans, design features, higher insulation performance, spatial buffers, and other measures that absorb and block sound as needed. For example, bedrooms, balconies, and open space areas can be located away from streets and focused toward the interior of a project to reduce noise exposure. The City will develop guidelines to assist developers in designing structures that respond to noise concerns.

Table N-3
Sample Interior Noise Control Measures

Noise Level Exposure	Exterior-to-Interior Noise Level Reduction Required to Achieve 45 dBA CNEL	Noise Control Measures and Façade Upgrades
Less than 60 dBA CNEL	15 dBA	Normal construction practices consistent with the Uniform Building Code are typically sufficient.
60 dBA to 65 dBA CNEL	20 dBA	Normal construction practices consistent with the Uniform Building Code are sufficient with the addition of the following specifications: Air conditioning or mechanical ventilation systems are installed so that windows and doors may remain closed. Windows and sliding glass doors are mounted in low-air infiltration rated frames. Exterior doors are solid core with perimeter weather stripping and threshold seals.
66 dBA to 70 dBA CNEL	25 dBA	Normal construction practices consistent with the Uniform Building Code are sufficient with the addition of the following specifications: Air conditioning or mechanical ventilation systems are installed so that windows and doors may remain closed. Windows and sliding glass doors are mounted in low-air infiltration rated frames. Exterior doors are solid core with perimeter weather stripping and threshold seals. Glass in both windows and exterior doors should have a Sound Transmission Classification rating of at least 30. Roof or attic vents facing the noise source of concern should be boxed or provided with baffling.

Notes:

The information listed in this table represents sample guidance for interior noise control recommendations and is not intended for application to individual development projects, renovations, or retrofits. Noise-sensitive land uses located in areas with noise level exposures exceeding 65 dBA CNEL should perform acoustical analysis on a case-by-case basis.

Issues, Goals, and Policies

The noise issues addressed in this element include:

- Protecting noise-sensitive land uses
- Ensuring land use/noise compatibility
- Reducing noise from mobile sources
- Mitigating noise from construction, maintenance, and other sources

Protecting Noise-Sensitive Land Uses

Sensitive land uses have associated human activities that may be subject to stress or significant interference from noise. Noise-sensitive land uses are located in portions of the planning area that vary from moderately quiet residential areas to noisy major transportation corridors.

Goal N-1. Noise-sensitive land uses are protected in areas with acceptable noise levels.

Policies

A. Maintain acceptable stationary noise levels at existing noise-sensitive land uses such as schools, residential areas, and open spaces.

B. Incorporate design and construction features into residential, mixed-use, commercial, and industrial projects that shield noise-sensitive land uses from excessive noise.

Ensuring Land Use/Noise Compatibility

Some residential, commercial, and institutional land uses, particularly those located along arterial roadways, experience excessive vehicular noise. Commercial and industrial land uses also have the potential to generate noise that can be considered intrusive to noise-sensitive land uses. Mixed-use development projects often include both residential uses located above or in close proximity to commercial uses and stand-alone multi-family residential uses. A unique challenge presented by mixed-use development is that on one hand, such uses desire locations along busy street

corridors, and on the other hand, state-mandated interior noise requirements for residential uses must be met within the residential portions of such uses.

Goal N-2. Land use patterns are compatible with current and future noise levels.

Policies

A. Require an acoustical study for proposed projects in areas where the existing or projected noise level exceeds or would exceed the maximum allowable levels identified in Table N-2. The acoustical study shall be performed in accordance with the requirements set forth in this Noise Element.

B. Allow a higher exterior noise level standard for infill projects in existing residential areas adjacent to major arterials if no feasible mechanisms exist to meet exterior noise standards.

C. Minimize excessive noise from industrial land uses through incorporation of site and building design features that are intended to reduce noise impacts to sensitive land uses.

D. Encourage new mixed-use development projects to site loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noise sources away from residential portions of the development, to the extent feasible.

Reducing Noise from Mobile Sources

Roadway noise from vehicle traffic is the most common source of noise in Huntington Beach. New development supporting anticipated population growth will increase traffic levels on arterials, resulting in increased noise levels. Future development of several vacant parcels and parcels that may support infill development or reuse will also have the potential to increase roadway noise levels in surrounding neighborhoods. In addition to roadways, rail and aircraft operations create noise in certain portions of the planning area. The general noise environment also includes occasional noise from private, police, emergency medical, and news/traffic monitoring helicopters.

Goal N-3. The community is not disturbed by excessive noise from mobile sources such as vehicles, rail traffic, and aircraft.

Policies

A. Mitigate noise created by any new transportation noise source so that it does not exceed the exterior or interior sound levels specified in Table N-2.

B. Prioritize use of site planning and project design techniques to mitigate excessive noise. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

C. Employ noise-reducing technologies such as rubberized asphalt, fronting homes to the roadway, or sound walls to reduce the effects of roadway noise on noise-sensitive land uses.

D. Continue to work with local, state, and federal agencies to install, maintain, and renovate highway and arterial right-of-way buffers and sound walls.

E. Continue to work with regional, state, and federal agencies, including officials at John Wayne Airport and Long Beach Airport, to implement noise-reducing measures and to monitor and reduce noise associated with aircraft:

   a. Coordinate with Long Beach Airport to modify the approach of commercial aircraft to an altitude of 2,100 feet or higher when passing over the area near Bolsa Chica Street.

   b. Coordinate with Long Beach Airport so that aircraft delay deployment of landing gear and flaps until they are over the Naval Weapons Station to reduce the noise levels they produce over the community.

F. Continue to coordinate with the Federal Aviation Administration, Caltrans Division of Aeronautics, and the Orange County Airport Land Use Commission regarding the siting and operation of heliports and helistops to minimize excessive helicopter noise.

Mitigating Noise from Construction, Maintenance, and Other Sources

Construction is a necessary part of community development. Construction noise typically occurs intermittently, and the amount of noise depends on the nature or phase of construction. Activities such as site preparation, trucks hauling materials, concrete pouring, and use of power tools can generate noise. Construction equipment also creates noise that reaches high levels for brief periods. Although these types of noise sources tend to be short term, temporary, and limited, they can be a source of annoyance.

Goal N-4. Noise from construction activities associated with discretionary projects, maintenance vehicles, special events, and other nuisances is minimized in residential areas and near noise-sensitive land uses.

Policies

A. Reduce construction, maintenance, and nuisance noise at the source as the first and preferred strategy to reduce noise conflicts.

B. Require that new discretionary uses and special events such as restaurants, bars, entertainment, parking facilities, and other commercial uses or beach events where large numbers of people may be present adjacent to sensitive noise receptors comply with the noise standards in Table N-2 and the City Noise Ordinance.

C. Encourage shielding for construction activities to reduce noise levels and protect adjacent noise-sensitive land uses.

D. Limit allowable hours for construction activities and maintenance operations located adjacent to noise-sensitive land uses.

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