NOISE element

City of Long Beach General Plan

PUBLIC REVIEW DRAFT May 2019

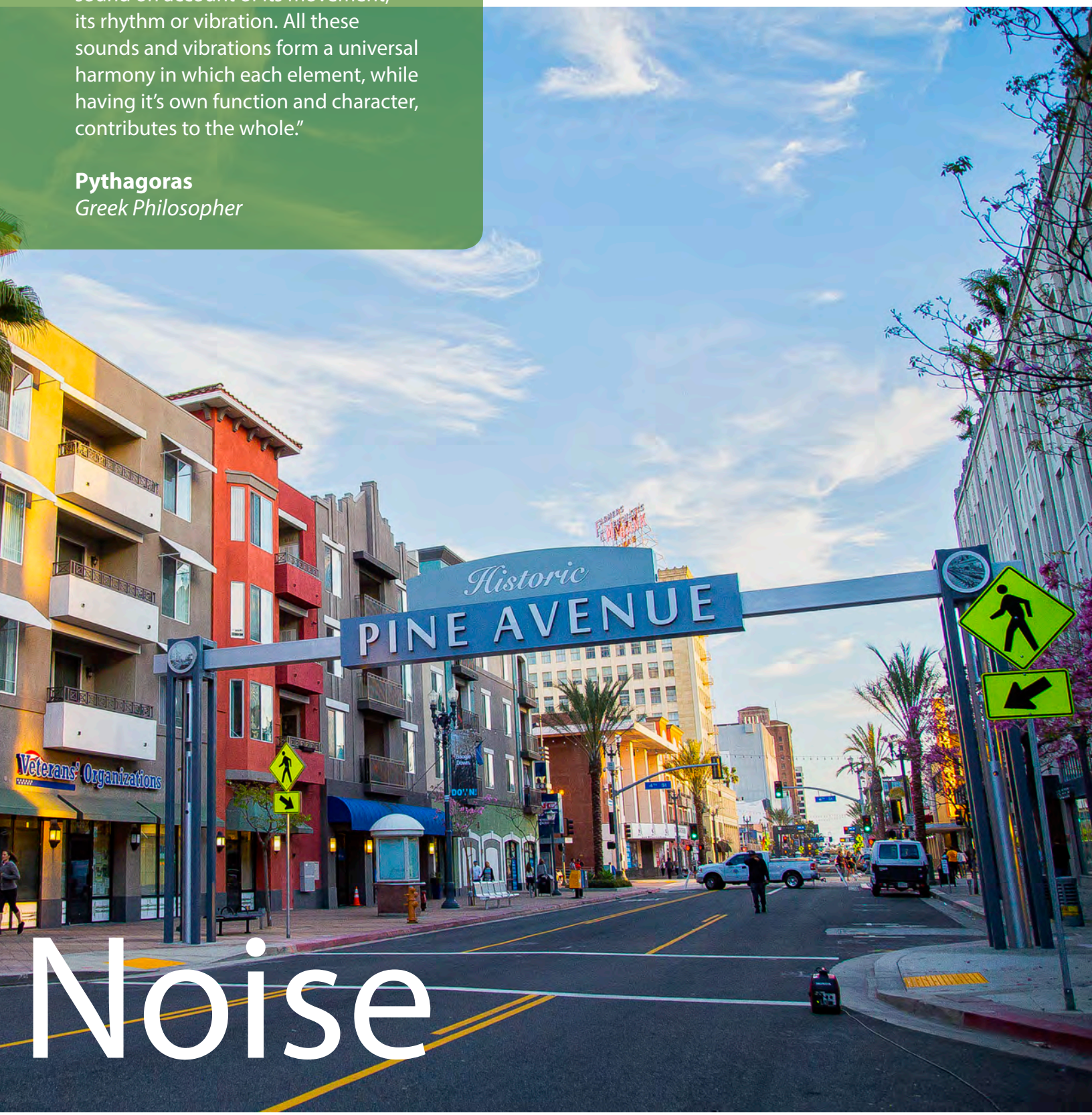
creating livable environments

LONGBEACH DEVELOPMENT SERVICES

CITY OF LONGBEACH

"Each celestial body, in fact each and every atom, produces a particular sound on account of its movement, its rhythm or vibration. All these sounds and vibrations form a universal harmony in which each element, while having it's own function and character, contributes to the whole."

Pythagoras
Greek Philosopher



Noise

NOISE element

City of Long Beach General Plan

PUBLIC REVIEW DRAFT May 2019

Adopted by the Long Beach City Council on (xx.xx.xxxx)

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Vision

A City That Thrives

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"Just as we share the air we breathe, we are submerged in a sea of shared sound. We are all connected by the vibrations we make as we use energy in daily life."

Bruce Odland and Sam Auinger
Reflections on the Sonic Commons, a Special Section of the Leonardo Music Journal

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Vision

A City That Thrives

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INTRODUCTION

The City of Long Beach has evolved into a vibrant urban community, a home for residents and enterprise alike. Long Beach has become a metropolitan community in its own right—supporting a thriving port, an international airport, and transit lines. Additionally, Long Beach is a destination for nightlife, festivals, and concerts. As Long Beach transitions from a Los Angeles suburb to a young, spirited stand-alone city, the soundscape will inevitably also transition.

Our vision for Long Beach includes an urban environment with all the amenities of life in a city while maintaining healthy, livable neighborhoods for all residents. Balancing the needs of transit, industry, entertainment, and business with the livelihood of all residents, is essential for a growing city. These aspects are part of the daily lives of residents and visitors in Long Beach. An ambient level of noise is to be expected as part of life in an urban environment; the key will be minimizing incidences of noise and striving for equality throughout all neighborhoods of Long Beach. Desired goals of the Noise Element include: A healthy, livable community, equitable distribution of noise, minimizing exposure to excessive noise, and allowances for elements necessary for a dynamic, growing city.

A Healthy, Livable Community

A base level of noise as part of life in an urban environment can be normal and healthy. Incidences of noise that disturb the peace of residents can lead to negative health outcomes; therefore, this Noise Element should prioritize the health and well-being of City residents and visitors.

Long Beach: A vibrant, growing community

Equitable Distribution of Noise

Urban noise may be more likely to occur in some parts of Long Beach than others. An equitable distribution of noise is a pillar of environmental justice, and as such, this Noise Element prioritizes the well being of all residents by ensuring equitable spatial distribution of potential noise impacts.

Minimizing Exposure to Excessive Noise

Though an ambient level of noise is to be expected as part of daily life in Long Beach, excessive incidences of noise can be disruptive and unwelcomed. Frequent occurrences of excessive incidences of noise can lead to negative health outcomes, and should be minimized to the extent feasible. A main purpose of the Noise Element is to limit exposure of the community to excessive noise levels in noise sensitive areas and at noise sensitive times of day.

Allowances for Elements Necessary for a Dynamic, Growing City

Many of the elements that make Long Beach such an exciting place to live also contribute to urban noise. Long Beach is a desirable place to live due to its many amenities including availability of transportation and wide-range of entertainment. Buses, cars, airplanes, ships, and light rail as well as nightlife, concerts, and festivals are all part of the urban fabric of Long Beach. Allowing for these elements while minimizing their impact is a priority of the Noise Element.

Downtown Long Beach at night

Introduction

What is a Noise Element?

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"Sound is the vocabulary of nature."

Pierre Schaeffer
French Composer

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Introduction

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INTRODUCTION

Noise surrounds us; it is a constant presence in urban life. A certain level of noise in a community can be indicative of a healthy, active neighborhood. Noise from busy shops and restaurants, children playing, and public transportation are all signs of a thriving environment. While technical in nature, noise is often interpreted subjectively. Certain types of noise are commonly perceived as negative, such as busy transportation corridors, construction zones, and landscaping activities. However, in the context of a dynamic neighborhood, these noises may be perceived as less obtrusive. In addition, some development goals, such as "infill", use of vacant or underused lots in developed neighborhoods, may create acceptably higher levels of noise.

The overall objective of the Noise Element is to create and maintain a healthy noise environment in Long Beach. Specific goals of the Noise Element include: striving for a more equitable distribution of noise, limiting the exposure of the community to excessive noise levels in noise sensitive areas and at noise sensitive times of day, and creating allowances for Long Beach to thrive as a dynamic, growing city.

WHAT IS A NOISE ELEMENT?

Due to potential impacts associated with elevated noise and vibration impacts and the effects on citizens within its cities, the California legislature in 1972 mandated that a noise element be included as part of city and county general plans. The current State of California General Plan Guidelines provides the specific requirements for a noise element (2017).

The Noise Element is a mandatory element of the City of Long Beach General Plan, and sets forth policies regarding noise and land use throughout the City. The Noise Element was last updated in 1975, and was implemented through a 1977 noise ordinance. Since that time, the City's physical makeup, population, regional context, and the regulatory guidance around noise have changed significantly.

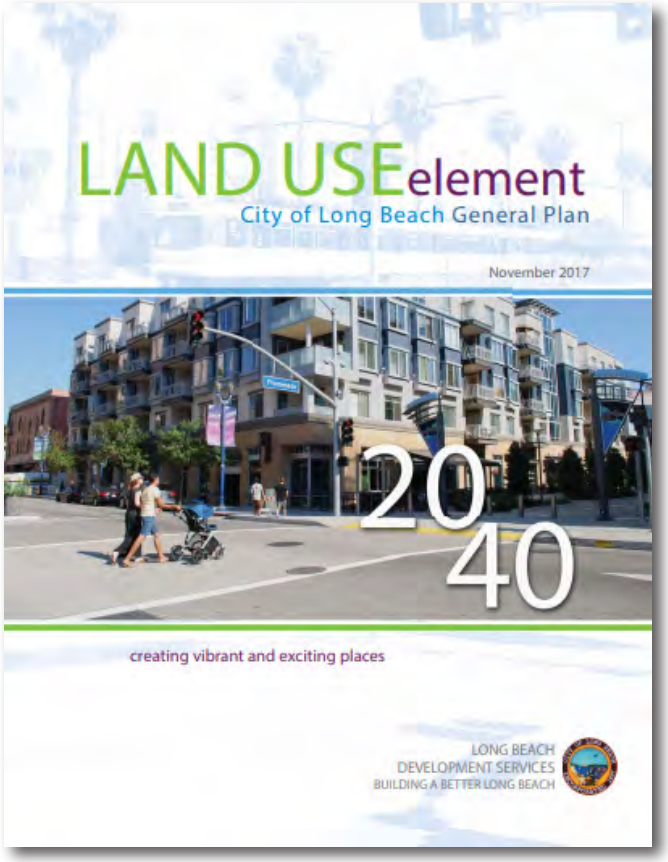
Downtown Long Beach skyline

Relationship to Other Elements

Additionally, state law mandates that the Noise Element be consistent with all other General Plan Elements. Policies and strategies in the Noise Element are intended to provide protection for land uses, as identified in the Land Use Element, from excessive noise. The Noise Element identifies potential and anticipated noise sources and establishes programs to avoid or mitigate noise impacts. All policies and strategies established in the Noise Element are designed to support the vision established in Chapter 1.

The Noise Element is related to other mandated elements, including Land Use, Housing, Circulation, and Open Space. Recognition of the interrelationship of noise and these four other mandated elements is necessary in order to prepare an integrated general plan. In addition, the Noise Element is related to policies in the Urban Design Element, an optional element under state law. The relationship between noise and these elements is briefly discussed below.

Long Beach General Plan 2040 Land Use Element



- **Land Use**—A key objective of the Noise Element is to provide noise exposure information for use in the land use element. When integrated with the Noise Element, the Land Use Element will show acceptable land uses in relation to existing and projected noise contours. Section 65302(f) states that: "The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise."
- **Housing**—The Housing Element considers the provision of adequate sites for new housing and standards for housing stock. Since residential land use is among the most noise sensitive, the noise exposure information provided in the Noise Element must be considered when planning the location of new housing. Also, state law requires special noise insulation of new multifamily dwellings constructed within the 60 dB (CNEL or Ldn) noise exposure contour. This requirement may influence the location and cost of this housing type.
- **Mobility**—The circulation system must be correlated with the Land Use Element and is one of the major sources of noise. Noise exposure will thus be a decisive factor in the location and design of new transportation facilities and the possible mitigation of noise from existing facilities in relation to existing and planned land uses. To ensure consistency, consider noise policies in the context of the goals and policies of the Mobility Element and Land Use Element.
- **Open Space**—Excessive noise can adversely affect the enjoyment of recreational pursuits in designated open space. Thus, noise exposure levels should be considered when planning for this kind of open space use. Conversely, open space can be used to buffer sensitive land uses from noise sources through the use of setbacks and landscaping. Open space designation can also effectively exclude other land uses from excessively noisy areas.
- **Urban Design**—Urban design techniques can be employed to mitigate noise impacts. Strategies such as creative incorporation of noise attenuation methods can be effective in accomplishing both urban design goals as well as noise mitigation goals. Additionally, the Urban Design Element utilizes a differentiated approach for neighborhoods of Long Beach, complementing that of this element.

State Requirements for Noise Elements

The State of California's Governor's Office of Planning and Research (OPR), under California Government Code 65303, allows a city or county to adopt "any other elements or address any other subjects, which, in the judgement of the legislative body, relate to the physical development of the county or city." Once adopted, this Noise Element will carry the same legal weight as any of the seven mandatory elements and will be consistent with all the other elements, as required by §65300.5.

OPR also states: "The noise element of the general plan provides a basis for comprehensive local programs to control and abate environmental noise and to protect residents from excessive exposure. The fundamental goals of the noise element are:

- To provide sufficient information concerning the community noise environment so that noise may be effectively considered in the land use planning process. In so doing, the necessary groundwork will have been developed so that a community noise ordinance may be utilized to resolve noise complaints.
- To develop strategies for abating excessive noise exposure through cost-effective mitigating measures in combination with zoning, as appropriate, to avoid incompatible land uses.
- To protect those existing regions of the planning area whose noise environments are deemed acceptable and also those locations throughout the community deemed "noise sensitive."
- To utilize the definition of the community noise environment in the form of CNEL or Ldn noise contours as provided in the noise element for local compliance with the State Noise Insulation Standards. These standards require specified levels of outdoor to indoor noise reduction for new multifamily residential constructions in areas where the outdoor noise exposure exceeds CNEL (or Ldn) 60 dB."

Document Organization

The chapters of the Noise Element are organized by topic as follows:

1. **Vision**
   - This chapter discusses the overall vision of the Noise Element.
2. **Introduction: What is a Noise Element?**
   - This chapter discusses the function of a noise element and its role within other planning and regulatory frameworks and the community engagement involved in shaping this element. It concludes with a discussion of concepts important for implementing the vision of the element.
3. **Context: Understanding the Noise Environment**
   - This chapter discusses the context and sources of noise and vibration in the City of Long Beach.
4. **Noise Fundamentals: Characteristics of Sound**
   - This chapter details the technical aspects of how noise is measured and its impact on human health.
5. **Noise Plan: Creating Livable Environments**
   - This chapter contains the strategies and policies that implement the vision of the Noise Element. Topics include land use compatibility, mobility, construction, special events, environmental justice and noise management.
6. **Administration + Implementation: Maintaining the Noise Environment**
   - This chapter describes the tools for administering and implementing the Noise Element.

A. **Appendix**
   - Detailed information on modeled future traffic noise contours (2040) may be found here.

The upcoming sections discuss the many ways noise is regulated and planned for within the City of Long Beach. The primary tools for regulation are this Noise Element and the Long Beach Municipal Code Noise Ordinance. Beyond the local level, different types of noise are regulated by several federal and state organizations and policy frameworks.

REGULATORY SETTING

Federal Regulations

Long Beach does not typically rely on any specific federal noise regulations given that the State level requirements, specifically the California Environmental Quality Act (CEQA), and the City's Noise Element and Municipal Code Noise Ordinance provide more specific and restrictive regulations related to noise and vibration impacts. However, the following information is provided for reference and may be used when local criteria are not established.

Federal Railroad and Federal Transit Administrations

The guidelines in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* (2006) general assessment establishes thresholds for construction noise identified as a 1-hour noise level of 90 dBA L_{eq} for residential uses during daytime hours and a 1-hour noise level of 100 dBA L_{eq} for commercial and industrial uses. This provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction when the noise thresholds are exceeded.

In addition to the vibration standards included in the FTA *Transit Noise and Vibration Impact Assessment* for ground-borne vibration impacts on human annoyance are shown below, the criteria for potential damage from ground-borne vibration and noise are based on the maximum levels for a single incidence. Table N-1 lists the potential vibration building damage criteria associated with construction activities, as suggested in the *Transit Noise and Vibration Impact Assessment*. FTA guidelines show that a vibration level of up to 102 VdB (equivalent to 0.5 in/sec in peak particle velocity (PPV)) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered (those not designed by an engineer or architect) timber and masonry building, the construction building vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

Human Response to Different Levels of Ground-Borne Noise and Vibration

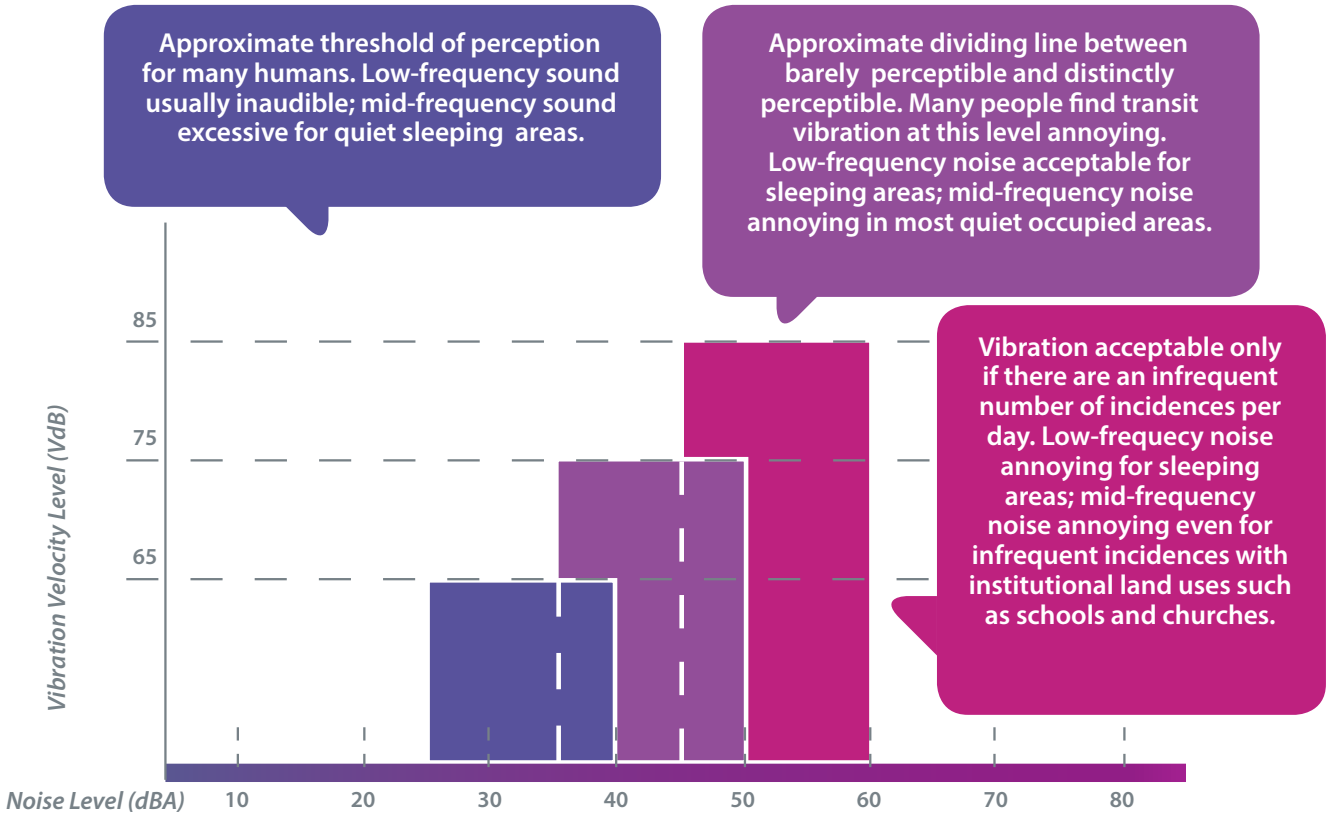


Table N-1: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L_V (VdB)[1]
Reinforced concrete, steel, or timber (no plaster)	0.50	102
Engineered concrete and masonry (no plaster)	0.30	98
Non-engineered timber and masonry	0.20	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: Table 12-3, Transit Noise and Vibration Impact Assessment (FTA 2006).

1 RMS VdB re 1 µin/sec.

µin/sec = microinches per second

FTA = Federal Transit Administration

in/sec = inches per second

LV = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

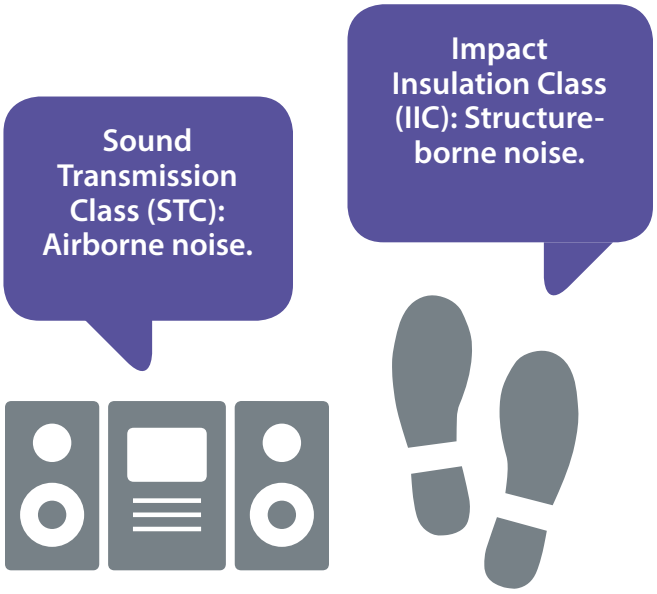
VdB = vibration velocity in decibels

Environmental Protection Agency

In 1972 Congress enacted the Noise Control Act. This act authorized the Environmental Protection Agency (EPA) to publish descriptive data on the effects of noise and establish appropriate levels of sound. The document *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety* (EPA 1974) established that noise levels less than or equal to 45 dBA would not interfere with indoor activities or cause annoyance. Thus, an interior noise level of 45 dBA CNEL or less is often used to assure exterior façades will provide adequate noise reduction.

International Building Code

The International Building Code (IBC) (ICC 2015) has been adopted and used as a standard code throughout most of the United States. Within the IBC, standards for both reference or laboratory ratings as well as field measured rating requirements are identified to assure interior noise environment thresholds are met. There are two specific class ratings: (1) STC or Sound Transmission Class and (2) IIC or Impact Insulation Class. The STC rating is often used for room-to-room assemblies and focuses more on airborne noise impacts such as radio, television, and human speech. The IIC rating is often used for floor/ceiling assemblies to focus on structure-borne noise such as footfall or objects being dropped. The IBC specifies that a minimum STC or IIC rating of 50 is desired to provide a comfortable living environment.



Two class ratings help to measure interior noise thresholds.

State Regulations

State of California Noise Control Act

In 1975, the State of California established its own Noise Control Act located in Division 28 of the State's Health and Safety Code. Chapter 6, Assistance to Local Agencies, provides direction on how the state will assist each local agency in establishing local ordinances and policies, as expected.

Chapter 6. Assistance to Local Agencies

46060. *It is the purpose of this chapter to encourage the enactment and enforcement of local ordinances in those areas which are most properly the responsibility of local government. It is further the purpose to insure that the state is of maximum assistance to local agencies in the discharge of those responsibilities, furnishing technical and legal expertise to assist local agencies in the enactment and enforcement of meaningful and technically sufficient noise abatement measures.*

46061. *The office shall provide technical assistance to local agencies in combating noise pollution. Such assistance shall include but not be limited to:*

G. Advice concerning methods of noise abatement and control.

H. Advice on training of noise control personnel.

I. Advice on selection and operation of noise abatement equipment.

46062. *The office shall provide assistance to local agencies in the preparation of model ordinances to control and abate noise. Such ordinances shall be developed in consultation with the Attorney General and with representatives of local agencies, including the County Supervisors Association of California and the League of California Cities. Any local agency which adopts any noise control ordinance shall promptly furnish a copy to the office.*

State of California Building Code

The State of California's noise insulation standards are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Part 2, California Building Code. These noise standards are applied to new construction in California for the purpose of ensuring that the level of exterior noise transmitted to and received within the interior living spaces of buildings is compatible with their comfortable use. For new residential dwellings, hotels, motels, dormitories, and school classrooms, the acceptable interior noise limit for habitable rooms in new construction is 45 dBA CNEL or Ldn. Title 24 requires acoustical studies for residential development in areas exposed to more than 60 dBA CNEL to demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. Where exterior noise levels are projected to exceed 60 dBA CNEL or Ldn at the facade of a building, a report must be submitted with the building plans that describe the noise control measures that have been incorporated into the design of the project to meet the 45 dBA CNEL or Ldn noise limit.

California Green Building Code

The California Green Building Code, also referred to as CalGreen (ICC 2017), provides requirements under Environmental Comfort related to noise, including acoustical control, exterior noise transmission prescriptive method, noise exposure where noise contours are not readily available, performance method, site features, and interior sound transmission.

State of California Land Use Compatibility Criteria

The State of California adopts suggested land use noise compatibility levels as part of its General Plan Guidelines. These suggested guidelines provide urban planners with an integral tool to gauge the compatibility of land uses relative to existing and future noise levels. The guidelines identify normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for various land uses. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated into the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements. The Land Use Compatibility Guidelines are shown in Table N-2.

State of California Land Use Compatibility Criteria.

Table N-2: Land Use Compatibility Matrix for Noise Exposure

Land Use Category	Community Noise Exposure L_{dn} or CNEL, dB						
	55	60	65	70	75	80	85
Residential - Low Density Single Family Duplex, Mobile Homes							
Residential - Multi-Family							
Transient Lodging - Hotels, Motels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings - Business, Commercial & Professional							
Industrial, Manufacturing, Utilities, Agriculture							

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 generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.*
Clearly Unacceptable	*New construction or development should generally not be undertaken.*

Source: California Office of Planning and Research, General Plan Guidelines (2017), Appendix D.

State of California Vehicle Code

Division 12, Equipment of Vehicles, Chapter 5, Other Equipment, Article 2, Exhaust Systems, and Article 2.5, Noise Limits, provide regulations related to noise levels associated with motor vehicles, including exhaust systems and noise limits.

Long Beach Airport

State of California Airport Land Use Requirements

The State of California has multiple regulations and standards that apply to airports. These are briefly summarized below:

- The Aeronautics Division of the California State Department of Transportation (Caltrans)
- Enforces the California Airport Noise Regulations. These regulations establish 65 dB CNEL as the noise impact boundary within which there shall be no incompatible land uses. Airports are responsible for achieving compliance with these regulations. Compliance can be achieved through noise abatement alternatives, land acquisition, land use conversion, land use restrictions, or sound insulation of structures. Airports not in compliance can operate under variance procedures established within the regulations.
- California Noise Insulation Standards apply to all multi-family dwellings built in the State. Single-family residences are exempt from these regulations. The regulations require that all multi-family dwellings with exterior noise exposures greater that 60 dB CNEL must be sound insulated such that the interior noise level will not exceed 45 dB CNEL. These requirements apply to all roadway, rail, and airport noise sources.
- The State of California requires that all municipal General Plans contain a Noise Element. The requirements for the Noise Element of the General Plan include describing the noise environment quantitatively using a cumulative noise metric such as CNEL or DNL, establishing noise/land use compatibility criteria, and establishing programs for achieving and/or maintaining compatibility. Noise elements shall address all major noise sources in the community including mobile and stationary sources.
- Airport Land Use Commissions were created by State Law for the purpose of establishing a regional level of land use compatibility between airports and their surrounding environs. The Los Angeles County Airport Land Use Commission has adopted an Airport Environs Land Use Plan (AELUP) for Los Angeles County airports including Long Beach Airport. The AELUP criteria for sensitive land uses are 65 dB CNEL for outdoor areas and 45 dB CNEL for indoor areas of residential land uses.

State of California Motorized Watercraft Requirements

The State of California has established requirements and limits as it relates to noise associated with watercraft. Any motorized vessel operated on the inland waters of California or on ocean waters within one mile of the coastline must be muffled or otherwise prevented from exceeding the following noise levels:

» As measured using a stationary sound level test as defined by SAE J-2005:

- 90 decibels if the engine was manufactured before January 1, 1993
- 88 decibels if the engine was manufactured on or after January 1, 1993, or

» 75 decibels measured as defined by SAE J-1970 for all engines. However, such measurement shall not preclude a stationary sound level test as prescribed by SAE J-2005.

Exceptions to the above restrictions are made for vessels participating in permitted regattas, boat races or speed trials. Authorities generally agree that unbaffled exhaust pipes (stacks) and most water-injected pipes do not meet the above noise level requirements. Unmodified outboards usually meet legal requirements.

Municipal Code

The Long Beach Municipal Code (LBMC) contains the City's Noise Ordinance in Chapter 8.80. In addition to this section, many chapters and sections of the Municipal Code contain regulations related to noise within Long Beach. The LBMC implements Long Beach General Plan policies and strategies.

COMMUNITY ENGAGEMENT

To inform the Noise Element update and identify potential issues, a variety of community engagement strategies were employed. A City of Long Beach project webpage was established as well as a Facebook and Twitter account for the Noise Element at #ListenUpLB. Project background was furnished and the community was invited to use an online engagement tool linked on the sites. The online tool provided a map-based ability to provide comments on a range of topics linked to specific locations throughout the city. Awareness of this opportunity for participation was provided through the City's website, emails, Facebook and Twitter advertising, and counter cards placed throughout city hall and other locations. Materials were provided in both English and Spanish.

#ListenUpLB materials

In addition, a series of meetings were conducted with internal and external stakeholders. Initial meetings were held with City departments and local agencies including the Police Department, Noise Control Office, Animal Care Services, Public Works, Port, Airport and Long Beach Unified School District. Meetings with focus groups included public health professionals/academics, environmental justice, bar and restaurant operators, and the construction industry, as well as the Environmental Health Workgroup, a workgroup focused on improving environmental health for residents in West and Central Long Beach, and various local school students in their classrooms. Further, a Planning Commission study session was conducted on April 20, 2017 to introduce the Noise Element work effort and solicit comments from commissioners and members of the public.

Feedback provided through these various platforms covered an array of topics and key themes are summarized below:

- Develop regulations that respond to the evolution of neighborhoods
- Needed coordination with other regulatory agencies (rail, on-road vehicles, aircraft)
- Common annoyances: Leaf blowers, rail line operations, motorcycles, helicopters, loud music, construction, dogs, park/beach activities, bars/restaurants, autos/freeway, industrial and commercial uses
- Noise impacted communities in West Long Beach
- Effectiveness of good communication, relationship-building, proactive noticing
- Technology trending toward quieter equipment

Received comments and input informed collection of noise data and the preparation of the Noise Element.

NEXT BOLD MOVES: VISION IN MOTION

Long Beach is committed to innovative and meaningful policies to advance the vision of the community and this Noise Element. In order to create a healthy, more equitable noise environment, the City will work to pave the way in several aspects of noise management. Communication of noise policy, creative and thoughtful urban design, and advanced technology will help foster a balanced noise environment in Long Beach.

Communication

Communication is a central aspect of noise management. Ensuring clear communication between the various City departments that manage noise, residents, business owners, and special event managers will serve as a strong foundation for noise management and minimizing noise impacts. Noise policy and the noise ordinance should be clear and enforced, as well as continue to evolve over time based on feedback and better information. Reminders of the noise ordinance should be strategically provided throughout the City.

Design

Land use compatibility and urban design can prevent noise impacts before they begin. Thoughtfully sited and oriented uses, along with creative placemaking can focus noise sources and buffer noise sensitive uses from noise impacts.

Technology

Long Beach will seek the latest technology regarding noise mitigation. This includes building materials, freeway noise buffering, public transit, and even technology such as silent fireworks. Noise monitoring equipment used within the City will also be as advanced as possible.

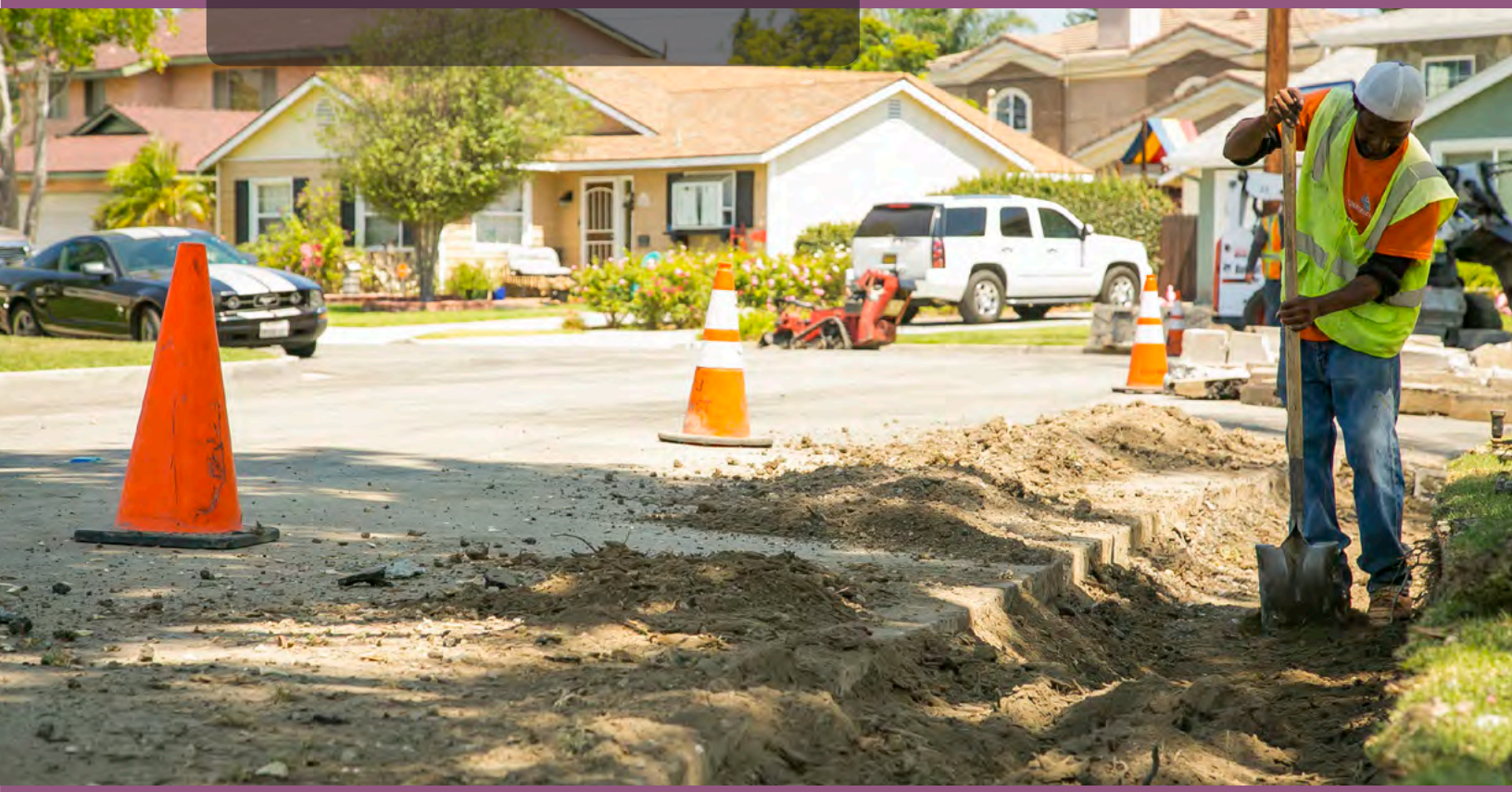
Context

Understanding the Noise Environment

3

"But a city is more than a place in space, it is a drama in time."

Patrick Geddes
Scottish Scientist



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OUR REGION. OUR CITY.

Long Beach is committed to creating a healthy noise environment throughout the metropolitan City. The Long Beach Noise Ordinance (Chapter 8.80 of the Long Beach Municipal Code) is intended to protect people from non-transportation noise sources such as construction activities, commercial operations, machinery, and nightlife. Enforcement of the noise ordinance requires new developments to show compliance with the ordinance, including operating in accordance with noise levels recommended in this element. The ordinance also provides general standards for prohibited noises and identifies specific activities that are prohibited because of their capability to create unreasonable noise. As an example, the City requires construction activity to comply with established work schedule limits (see Section 8.80.202, Construction Activity-Noise Regulations).

Long Beach is an urban, developed City. As with any developed environment, it is subject to numerous noise sources. Major sources of noise include traffic, rail, aircraft, and stationary sources. Many freeways and corridors throughout Long Beach contribute to traffic noise within the City, including I-405, I-605, I-710, SR-22, SR-91, Pacific Coast Highway or State Route 1 (SR-1), and Long Beach Boulevard. In addition to the automobile and truck traffic along these corridors, the City is currently served by Long Beach Transit, a public transit agency with bus service along major roadways in the City through various routes (i.e., Routes 1, 21, 22, 81, and 192). The Los Angeles County Metropolitan Transportation Authority (Metro) operates a limited number of local and express buses. The Long Beach Transit Gallery serves as the southern terminus of the Metro Blue Line and is the main transit hub for bus connections to various Metro, Long Beach Transit, Los Angeles Department of Transportation Commuter Express, and Torrance Transit bus routes. Rail noise is due to the three freight rail lines and one public transit line, the Metro Blue Line, that pass through the City. Aircraft noise is from the Long Beach Airport, located within City limits.

Anaheim Street and Long Beach Boulevard

NOISE SOURCES

Land Use Patterns

Noise is a key element for consideration in the arrangement of land uses throughout Long Beach. Thoughtfully designed land use patterns can be the first step in avoiding potential noise impacts on a neighborhood or group of people. Additionally, priority should be given to reduction of noise in severely impacted areas through rehabilitative improvements.

The overall noise environment is a conglomeration of noise from several sources. Mobility sources, including vehicular traffic, rail, aircraft and watercraft, contribute to the daily transportation-related noise in Long Beach. Another noise source is special events, which occur on a periodic basis. The last category of noise sources is construction and nuisance noises, which include machinery, heating ventilation and air conditioning systems, compressors, and landscape maintenance equipment among others.

Though Long Beach is unique in that the Port of Long Beach is so active, operation noise levels are generally limited to areas within the perimeter of the Port. Noise associated with the Port includes cranes, forklifts, and truck activities. Due to the distance from daily operations, which are located close to the coast, to the nearest sensitive uses, noise impacts are rarely audible at such a large distance. Heavy truck traffic associated with the transport of cargo along the I-710 corridor is the primary source of noise associated with the Port. Impacts associated with the Port of Long Beach, including noise, were assessed in the Port of Long Beach Community Impact Study in July 2016.

Commercial, commercial-industrial, light-industrial, and to a lesser extent residential land uses in the City have the potential to generate high noise levels and impact surrounding land uses with their equipment operation. Noise sources from these land uses include air conditioning or refrigeration units, power tools, lawn equipment, generators, and other powered mechanical equipment. Additionally, activities that are not necessarily "stationary" include parking lot activities, truck deliveries, and events are oftentimes classified in the same categories.

The highest priority for protection from noise are noise sensitive uses, or uses typically occupied by groups which are particularly vulnerable to the impacts of noise. Examples of noise sensitive uses include residential neighborhoods, schools, hospitals, religious facilities, libraries, offices and parks. Noise sensitive uses in Long Beach should be protected through proper land use planning.

Pine Avenue

Mobility

Traffic Noise

Automobiles, buses, trucks, motorcycles and trains dominate transportation noise in the City. Traffic moving along streets and freeways produces a sound level that remains relatively constant and is part of the City's minimum ambient noise level. Vehicular noise varies depending on the volume, speed and type of traffic. Slower traffic produces less noise than fast moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise is also associated with vehicles, including sirens, vehicle alarms, slamming of doors, garbage and construction vehicle activity and honking of horns. These noises add to urban noise and are regulated by a variety of agencies. Often times, noise from motorcycle activities are specifically noticed over general traffic noise impacts due acceleration, exposed motor and, in some cases, lack of or modified mufflers.

Bus service is provided on major streets, collectors, and local streets within the City's circulation system. For the purpose of assessing vehicular noise, three generic weight classifications are considered (light, medium, and heavy). At 35 mph, 1 medium duty truck is as loud as 10 cars, 1 bus is as loud as 20 cars, and 1 heavy truck is as loud as 30 cars. In addition, noise from traffic sources may be worsened by grade (inclined roadway) or by the condition of the pavement.

Major transportation noise sources in the City include traffic on I-405, I-605, I-710, SR-22, SR-91, SR-103, Terminal Island Freeway, Pacific Coast Highway, and Long Beach Boulevard.

In addition to typical automobiles and medium and heavy trucks, the City is currently served by Long Beach Transit, a public transit agency, with bus service along major roadways in the City through various routes (i.e., Routes 1, 21, 22, 81, and 192). The Los Angeles County Metropolitan Transportation Authority (Metro) operates a limited number of local and express buses. The Long Beach Transit Gallery serves as the southern terminus of the Metro Blue Line light rail and is the main transit hub for bus connections to various Metro, Long Beach Transit, Los Angeles Department of Transportation Commuter Express, and Torrance Transit bus routes.

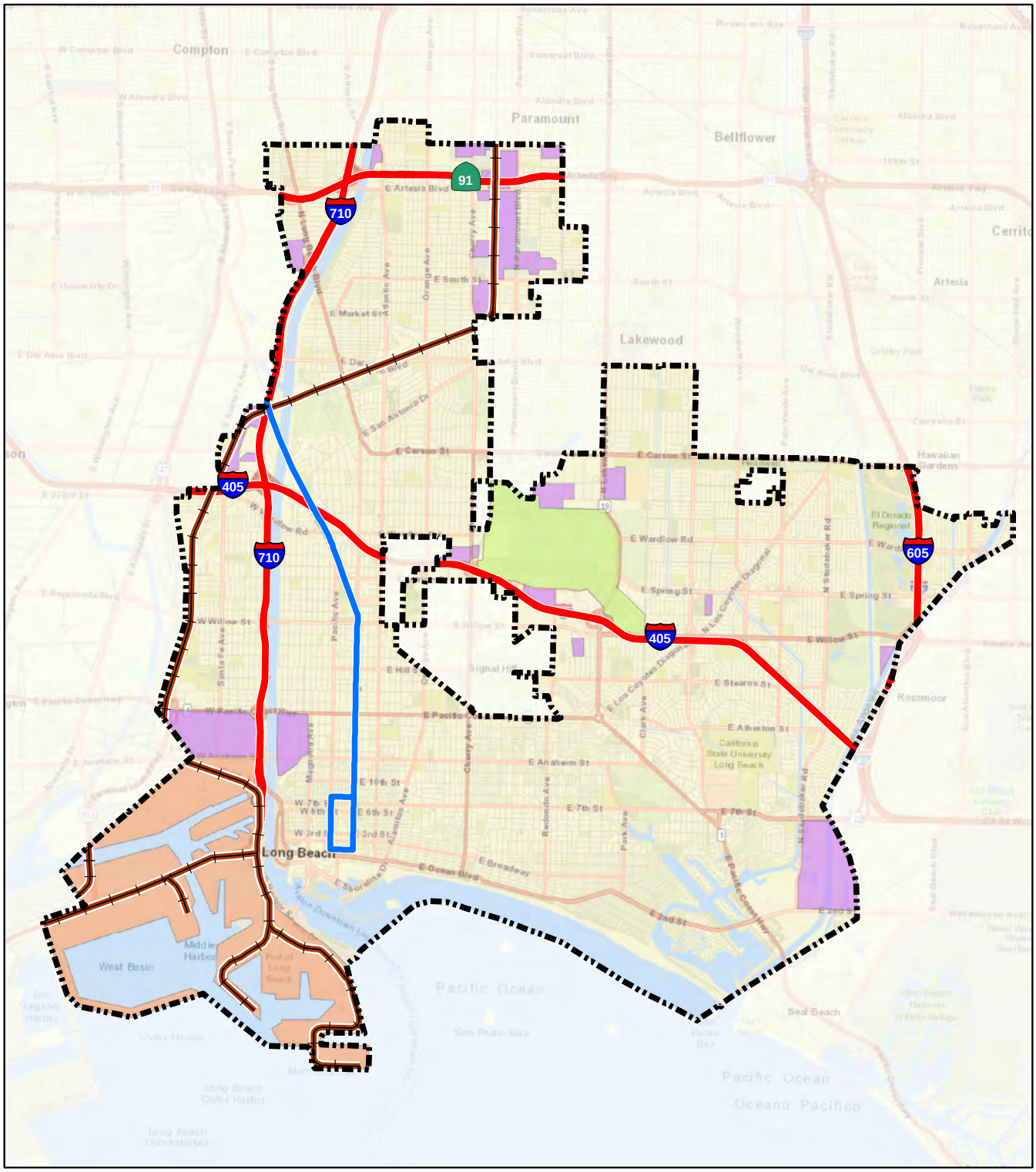
Rail Noise

The noise impacts associated with rail activities depend heavily on a number of factors, including the type of train, the length of train, the physical track conditions, the geometry and intervening structures between the rail line and its receptor, the number of trains operating during the daytime, the number of trains operating during the night time, and the speed of the train. Additionally, when a horn is required to sound a warning, which is typical for at-grade crossings, the noise impact would be greatest at the land uses closest to the intersection.

Currently, three freight rail lines pass through the City which are operated by Burlington Northern Santa Fe Corporation (BNSF) Railway, Union Pacific Railroad Company (UPRR), and Pacific Harbor Line Incorporated (PHL). The rail lines run north-south through the west side of the City, through the northwest corner of the City, around the neighborhood of North Long Beach.

Interstate 405

Metro Light Rail



LEGEND

- Long Beach City Boundary
- Long Beach Airport
- Port of Long Beach
- Industrial Area
- Freeway
- Metro Blue Line
- Freight Line

0 0.75 1.5 MILES

Figure N-1, Existing Major Noise Sources

In addition to freight activities, the Metro Blue Line which serves as public transit, is part of the Metro Rail System that runs north-south from Los Angeles to Long Beach, traveling south via Long Beach Avenue, Willowbrook Avenue, and Long Beach Boulevard to its final destination at the Long Beach Transit Gallery. The Metro Blue Line operates daily, including all major holidays.

Based on the Federal Railroad Administration crossing inventories completed between January 1, 2000 and September 17, 2017 conducted at various crossings in the City, typical operations along the main rail line included up to 74 trains per day ranging in speed from 5 to 25 mph.

Aircraft Noise

Aircraft noise within the City is predominately influenced by operations at the Long Beach Airport located within the City limits. Operations at the Long Beach Airport include commercial air carriers, commuter flights, industrial planes, charter flights, and other general aviation. Operations at the Long Beach Airport typically occur within the daytime hours of 7:00 a.m. to 10:00 p.m., with the exception of occasional unscheduled landings that occur after 10:00 p.m., and emergency and police helicopter activities. *The Long Beach Airport Community Guide to Aircraft Noise* presents factual information on the City of Long Beach Airport Noise Compatibility Ordinance (Long Beach Municipal Code Chapter 16.43) and Long Beach Airport's efforts to minimize aircraft noise over nearby neighborhoods. While the City is not able to control the flight paths, typical operations include approaches from the southeast of the airport and departures taking off in a northwest direction.

Apart from the restrictions on hours of day, noise budgets are utilized to limit aircraft activities. Noise budgets do not directly restrict the operation of a particular aircraft, in contrast to night time restrictions, but they restrict access by the fleet as a whole. Noise budgets restrict the overall noise during a certain period of time, which could be seasonally related or annual.

Currently, the City has implemented a Helicopter Noise Reduction Study Group that provides members of the public the opportunity to meet with both City and Airport staff to discuss issues and concerns regarding helicopter noise including rotor or "chop" noise, hovering, and inconsistent flight paths. While the City cannot directly control the majority of the operations associated with helicopters, specifically those related to emergency and police, the City maintains an interest in helping resolve noise issues where possible. Members of the communities

Long Beach Airport

are currently participating as a part of the Los Angeles Area Helicopter Coalition (LAAHNC) and regularly meet with Federal Aviation Administration (FAA) representatives, helicopter operators, and Long Beach Airport staff in an effort to reduce noise exposure from helicopter operations.

Watercraft Noise

Watercraft noise along the southern portion of the City varies greatly depending on watercraft type, distance from mainland, and overall control and use of equipment. While the City does not currently have any specific criteria related to noise associated with watercraft, the State of California Department of Motor Vehicles, as part of its requirements for watercraft operations, does have regulations that would also be applicable in the City of Long Beach.

Special Events

Long Beach is a vibrant coastal city with attractions serving residents, businesses, and visitors. As such, the City has experienced an increased interest in holding special events in Long Beach, especially outdoor special events along the waterfront in the downtown area. These events include, but are not limited to, community festivals, runs/walks, citywide holiday celebrations, Long Beach Grand Prix, Long Beach Marathon, Long Beach Lesbian and Gay Pride Parade and Celebration, Jazz Festival, film production, and events hosted at the Queen Mary. These activities help build a foundation that fosters sustainable community development, economic development, and tourism. However, with residents living in close proximity to these events, ensuring managed frequency and intensity of the noise from these events is a priority for the City. Long Beach is seeking an informed, balanced approach to managing the needs of these events while continuing to prioritize the well-being of residents.

Construction and Nuisance Noises

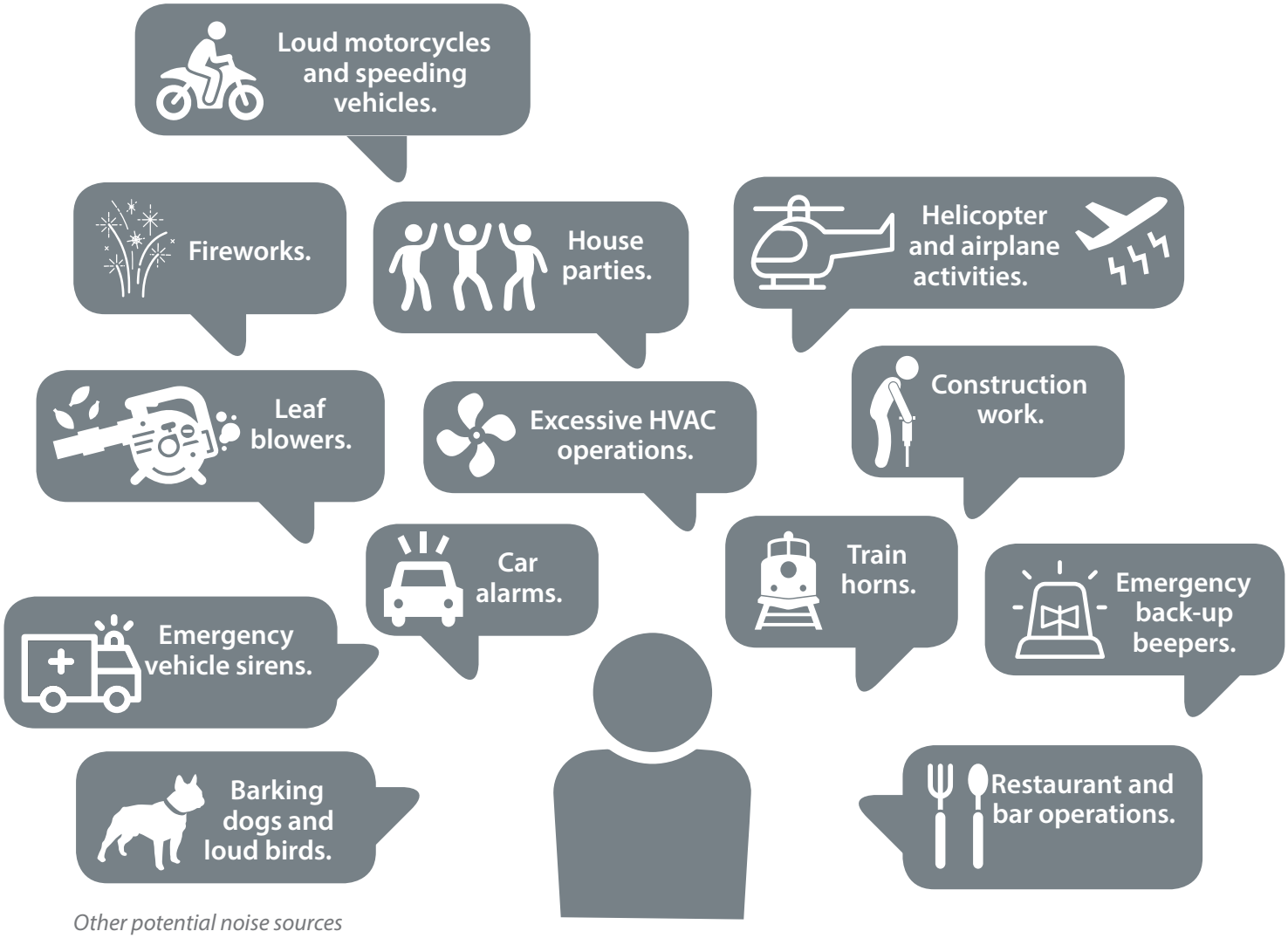
Construction noise, though temporary in nature, can cause noise disruptions on an on-going basis. Long Beach is a growing metropolitan City, therefore construction noise is an expected part of the noise environment. Restrictions on noise from construction are especially important for noise sensitive uses. The primary method of restricting noise from construction is through limiting the hours in which construction activity is permitted.

Beach Streets Concert

The City of Long Beach has a wide variety of land use types. Within the commercial and downtown area, certain uses including restaurants, bars, and clubs have the potential to generate noise which may be perceived as a nuisance or disturbing. Additionally, sources of noise that are permissible under existing laws and regulations still have the potential to disrupt the peace, cause sleep interference, and can create an undesirable setting for residents. The following graphic lists some of the potential sources of noise that have been noted to occur with regularity in the City limits:

VIBRATION SOURCES

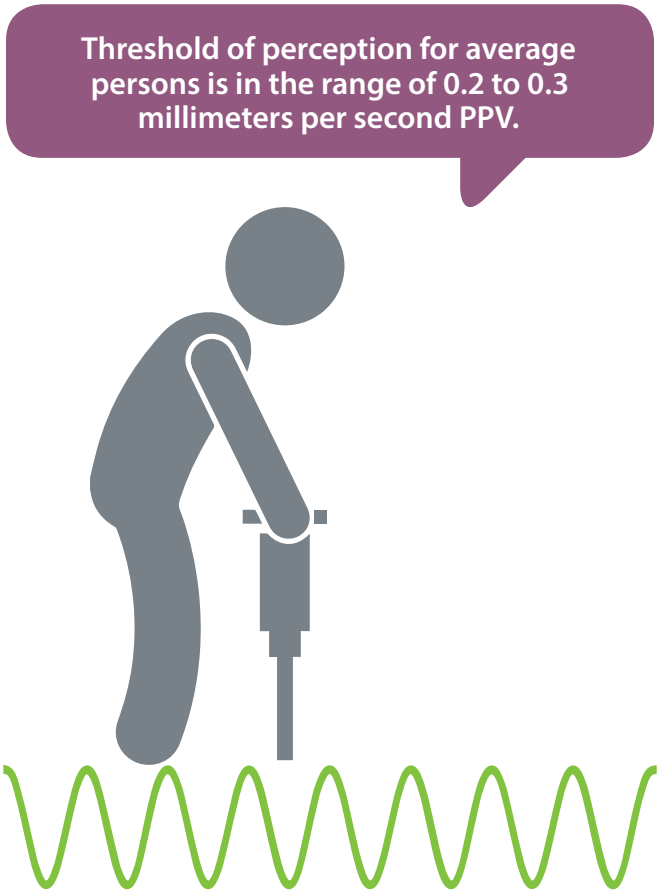
Major vibration sources in the City include construction activities, rail operations, heavy vehicle traffic, and vehicle loading and delivery operations. Other sources which have the potential to cause vibration impacts are aircraft operations, low-frequency music and some stationary sources. Similar to noise standards, cities can adopt vibration exposure standards regarding the sensitivity of land uses which may be affected. In relation to vibration impacts, there are two factors that are considered to assessing the level of impact expected: the potential for damage to a building or structure and the potential of annoyance to people. Also similar to potential noise impacts, the most efficient actions to help reduce vibration impacts occur during the planning and permitting phases of any project or development.



Other potential noise sources

Construction

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the peak particle velocity (PPV) descriptor has been routinely used to measure and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans. The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.2 to 0.3 millimeters per second (0.008 to 0.012 inches per second), PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels (e.g., people in an urban environment) may tolerate a higher vibration level. Structural damage can be classified as cosmetic only (e.g., minor cracking of building elements) or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to a building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity (e.g., impact pile driving) occurs immediately adjacent to the structure.



Construction-induced vibration may interfere with the enjoyment of life.

Two factors help measure the impact of noise to humans and buildings.

Rail Activity

Rail operations are potential sources of substantial ground-borne vibration depending on distance, the type and the speed of trains, and the type of railroad track. People's response to ground-borne vibration has been correlated best with how quickly sounds moves through the ground. The velocity of the ground is expressed on the decibel scale. The reference velocity is 1 x 10-6 inches per second. RMS, which equals 0 vibration velocity decibels (VdB), and 1 inch per second equals 120 VdB. Although not a universally accepted notation, the abbreviation "VdB" is used in this document for vibration decibels to reduce the potential for confusion with sound decibels.

One of the challenges with developing suitable criteria for ground-borne vibration is the limited research into human response to vibration and, more importantly, human annoyance inside buildings. The United States Department of Transportation, Federal Transit Administration has developed rational vibration limits that can be used to evaluate human annoyance to ground-borne vibration. These criteria are primarily based on experience with passenger train operations (e.g., rapid transit and commuter rail systems). The main difference between passenger and freight operations is the time duration of individual incidences. For example, a passenger train lasts a few seconds whereas a long freight train may last several minutes, depending on speed and length.

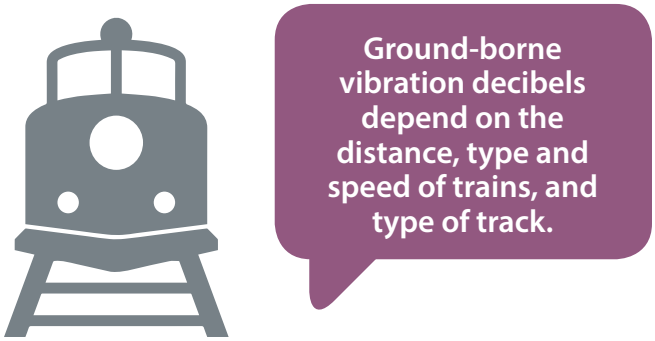
Heavy Vehicles and Buses

Ground-borne vibration levels from heavy trucks and buses are not normally perceptible, especially if roadway surfaces are smooth. Buses and trucks typically generate ground-borne vibration levels of about 63 VdB at a distance of 25 feet when traveling at a speed of 30 miles per hour (mph). Higher vibration levels can occur when buses or trucks travel at higher rates of speed or when the pavement is in poor condition. Vibration levels below 65 VdB are below the threshold for human perception.

Other

In addition to activities that have vibration impacts which translate through the ground surface between source and receptor, sources which generate high levels of low-frequency noise may generate vibration through air. These sources may include aircraft and helicopter operations, low-frequency music and other large stationary sources. When the vibration effects of these sources are felt or experienced by a receptor, to determine the level of impact, low-frequency noise measurements are the best method to determine the impact.

At 30 mph, buses and trucks typically generate vibration levels of 63 VdB at a distance of 25 feet. Vibration levels below 65 VdB are below the threshold for human perception.



Many factors affect ground-borne vibration.

How loud are busses and trucks?

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Noise Fundamentals

Characteristics of Sound

4

"The City is what it is because our citizens are what they are."

Plato
Classical Greek Philosopher

4

Noise Fundamentals

Characteristics of Sound

Characteristics of Sound 31

» Measurement of Sound 31

» Physiological Effects of Noise 34

CHARACTERISTICS OF SOUND

Sound is increasing in the environment and can affect quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations (or cycles per second) of a wave, resulting in the tone's range from high to low. Loudness is the strength of a sound and describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. Typically, a noise analysis defines the noise environment within a specific area in terms of sound intensity and the effect on adjacent sensitive land uses.

Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units, such as inches or pounds, decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 decibels (dB) is 10 times more intense than 1 dB, 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Thirty decibels (30 dB) represent 1,000 times as much acoustic energy as 1 dB. The decibel scale increases as the square of the change, representing the sound-pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. 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 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 A-weighted decibels (dBA) (very quiet) to 100 dBA (very loud).

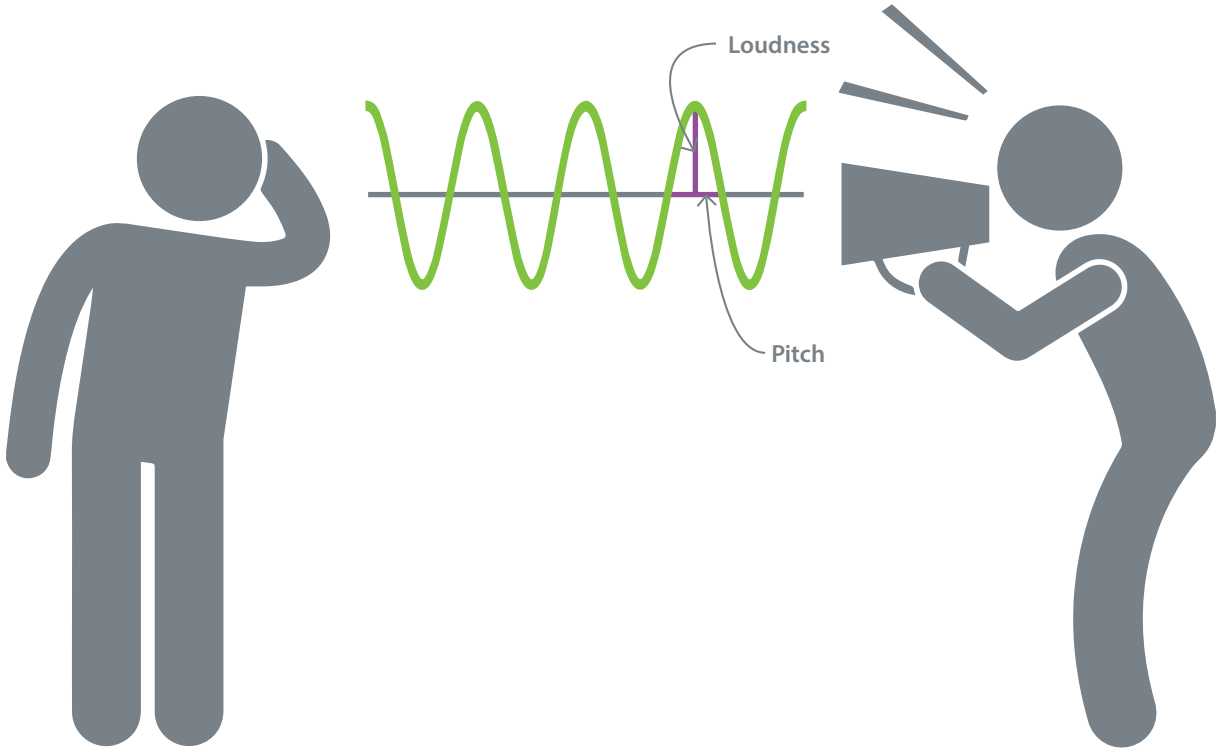


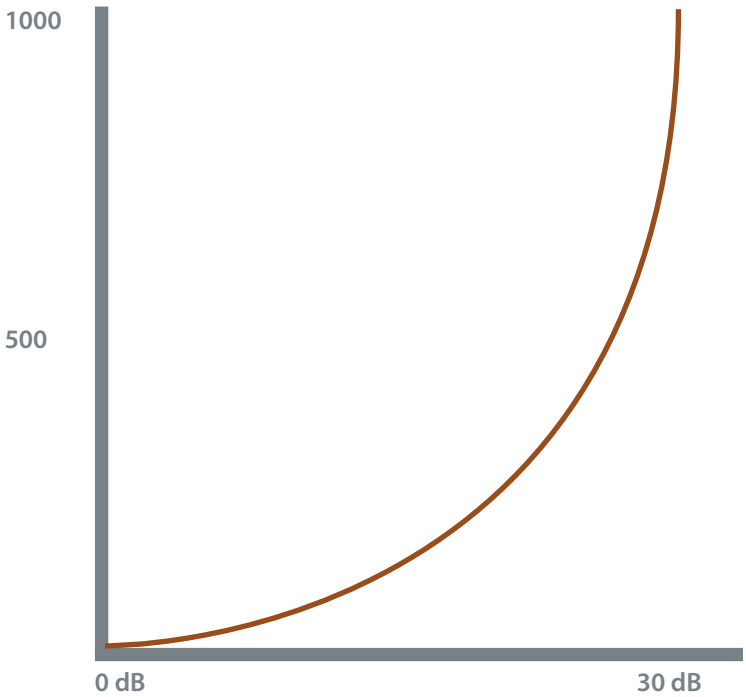
Table N-3: Definitions of Acoustical Terms

Term	Definition
Decibel, dB	A unit of noise level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time; the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted, unless reported otherwise.)
L_{02}, L_{08}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dB to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter during a designated time interval using fast-time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time; usually a composite of sound from many sources from many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, tonal or informational content, and the prevailing ambient noise level.
Sound Exposure Level (SEL)	A measure of the total noise within an event which accounts for duration.
Single Event Noise Equivalent Level (SENEL)	The sound exposure level for a defined noise threshold level.
Source: Handbook of Acoustical Measurement and Noise Control (Harris 1991).	

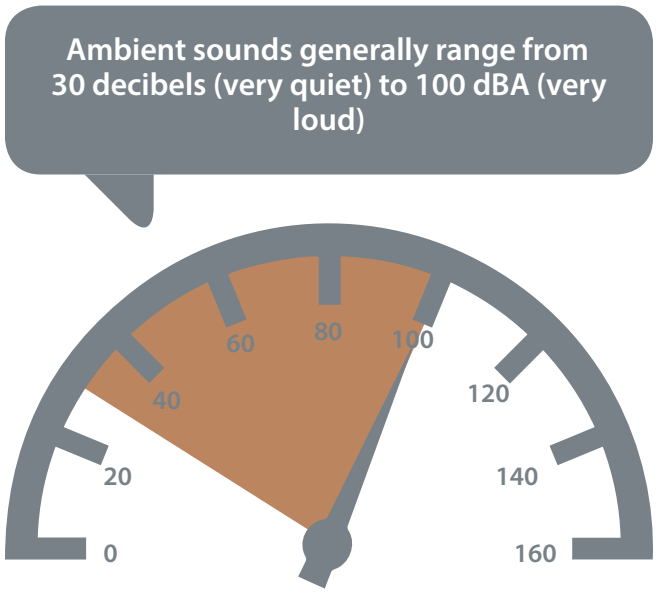
Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single-point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations) the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and the Community Noise Equivalent Level (CNEL) or the day-night average level (L_{dn}) based on A-weighted decibels. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for incidences occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The noise adjustments are added to the incidences of noise occurring during the more sensitive hours.

Other noise rating scales of importance, when assessing the annoyance factor, include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of Lmax for short-term noise impacts. L_{max} reflects peak-operating conditions and addresses the annoying aspects of intermittent noise.

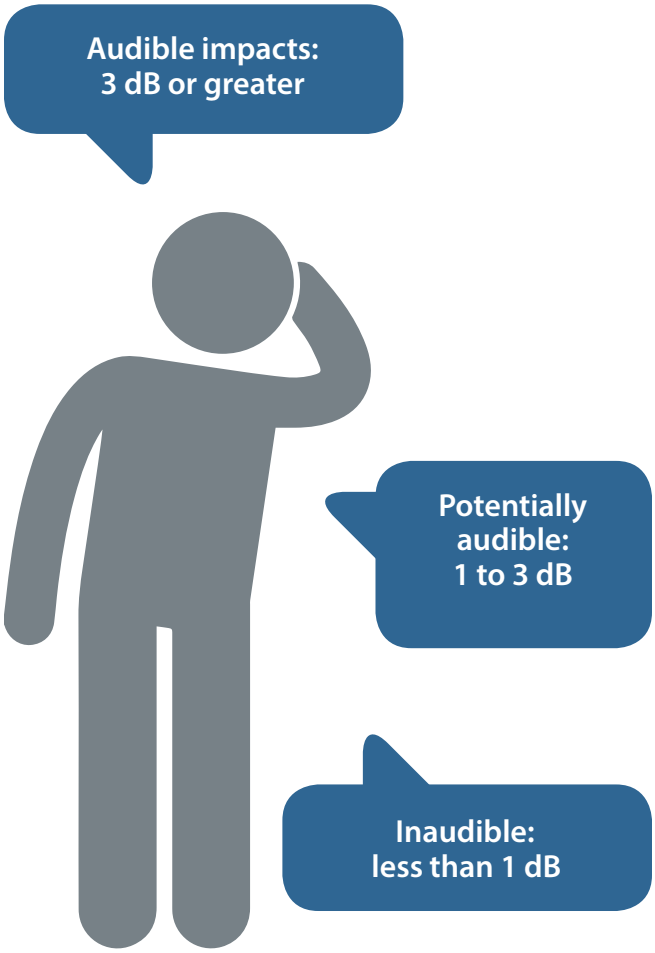


Exponential intensity of decibels



A-weighted decibels (dBA) of ambient sounds

Another noise scale often used together with the L_{max} in noise ordinances for enforcement purposes is noise standards in terms of percentile noise levels. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half of the time the noise level exceeds this level, and half of the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.



What noise level changes are audible?

Noise impacts can be described in three categories. The first includes audible impacts, which refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater, because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise level of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160 dBA to 165 dBA will potentially result in dizziness or loss of equilibrium. The ambient or background noise problem is common and generally more concentrated in urban areas than in outlying, less-developed areas.

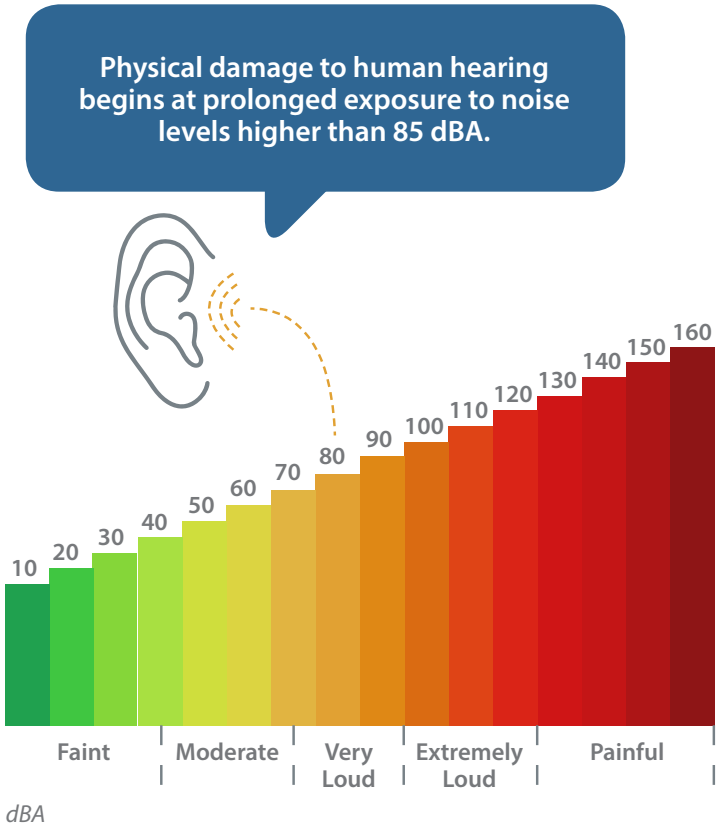
In addition to the audible effects of noise, research has shown that prolonged exposure to elevated noise levels may have other negative health effects. As presented in Wolfgang Babisch's *Cardiovascular Effects of Noise*, sleep disturbance is considered a major environmental effect. It is estimated that 80 to 90 percent of the reported cases of sleep disturbance in noisy environments are for reasons other than noise originating outdoors. Examples of sleep disturbance causes include restroom trips; indoor noises from other occupants; worries; illness; and climate. Field studies conducted with people in their normal living situations are scarce.

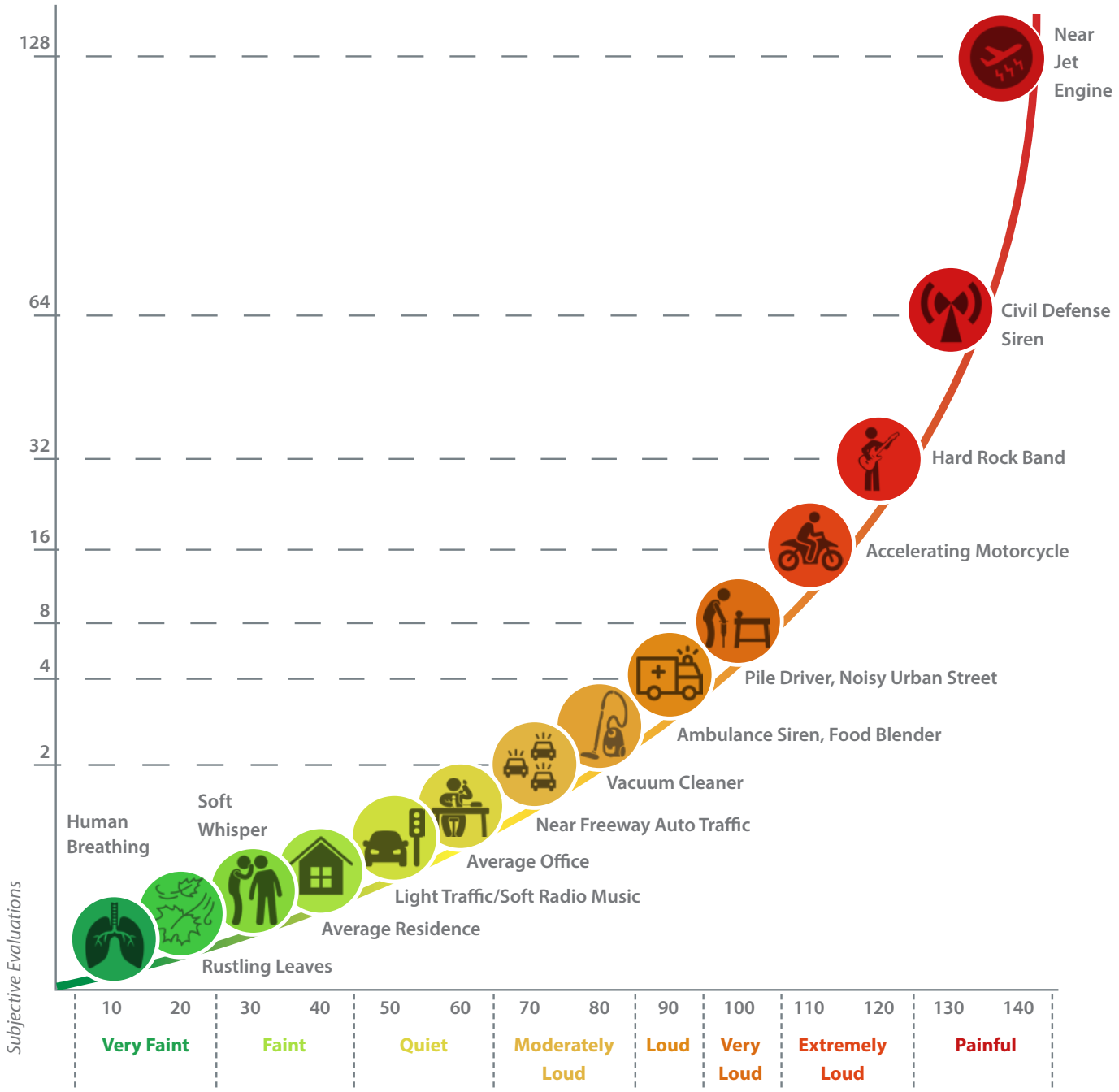
The primary sleep disturbance effects of noise are: difficulty in falling asleep (increased sleep latency time); awakenings; and alterations of sleep stages or depth, especially a reduction in the proportion of REM-sleep. Other physiological effects can be induced by noise during sleep, including increased blood pressure; increased heart rate; increased finger pulse amplitude; vasoconstriction; changes in respiration; cardiac arrhythmia; and an increase in body movements. For each of these physiological effects, both the noise threshold and the noise-response relationships may be different. Different noises may also have different information content and this also could affect physiological threshold and noise-response relationships.

Exposure to night time noise also induces secondary effects, or so-called after effects. These are effects that can be measured the day following the night time exposure, while the individual is awake. The secondary effects include reduced perceived sleep quality, increased fatigue, depressed mood or well-being, and decreased performance.

Long-term effects on psychosocial well-being have also been related to noise exposure during the night. Noise annoyance during the night time increased the total noise annoyance expressed by people in the following day. Various studies have also shown that people living in areas exposed to night time noise have an increased use of sedatives or sleeping pills. Other frequently reported behavioral effects of night time noise include closed bedroom windows and use of personal hearing protection. Sensitive groups include the elderly, shift workers, persons especially vulnerable to physical or mental disorders and other individuals with sleeping difficulties.

Table N-3 lists definitions of acoustical terms and Table N-4 shows common sound levels and their noise sources.





Noise Environments (dBA)

Table N-4: Common Sound Levels and Their Noise Sources

Noise Plan

Creating Livable Environments

5

"Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody."

Jane Jacobs
Urbanist, Author - The Death and Life of Great American Cities

5

Noise Plan

Creating Livable Environments

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Noise Management 54

This Noise Element identifies strategies and policies to implement the vision of a healthy, livable noise environment in Long Beach. The strategies and policies outlined in this chapter identify specific ways the City is working toward that vision. Long Beach is constantly pursuing innovative policies to lead the way in planning for noise in an evolving urban environment.

PLACETYPE CHARACTERISTICS AND LAND USE COMPATIBILITY

Long Beach values the health and wellness of its residents. PlaceTypes identified within the Land Use Element establish neighborhood form, character and community-scaled districts structured around development patterns, streetscape design, and urban form. These areas range in development intensity and activity. Land use compatibility and project design strategies and policies are established to protect more sensitive PlaceTypes such as Founding and Contemporary Neighborhoods and Multifamily Residential—Low and Moderate. Additional policies are provided for more active areas such as Transit-Oriented Development – Low and Moderate, Downtown, and Waterfront PlaceTypes to promote harmony within entertainment and visitor-serving areas. Finally, policies are provided for business and employment center PlaceTypes including Community Commercial, Industrial, Neo-Industrial, Regional-Serving Facility, as well as the Port of Long Beach, to address noise generated from operations and service. Development of buildings, neighborhoods, streets, and outdoor spaces within any PlaceType should be designed to identify and reduce or eliminate unnecessary noise near noise sensitive areas. In summary, noise policies are largely organized to correspond to established PlaceTypes that reflect differentiated area characteristics. A map of Long Beach PlaceTypes is brought forward from the Land Use Element for ease of reference.

Recognizing that much of Long Beach is currently developed and in proximity to existing arterials, land use decisions must be made in context considering ambient noise levels. For example, adaptive reuse of an existing building may be in a location with high ambient noise, however, measures to the degree practical, should be applied to minimize noise impacts.

Strategy No. 1 Apply site planning and other design strategies to reduce noise impacts, especially within the Founding and Contemporary Neighborhoods, Multifamily Residential—Low and Moderate, and Neighborhood-Serving Centers and Corridors – Low and Moderate PlaceTypes.

- **Policy N 1-1:** Integrate noise considerations into the land use planning process in order to prevent new land use noise conflicts.
- **Policy N 1-2:** Require noise attenuation measures to be incorporated into all development and redevelopment of noise sensitive uses, including residential, health care facilities, schools, libraries, senior facilities, and churches in close proximity to existing or known planned rail lines.
- **Policy N 1-3:** Ensure development and redevelopment is considerate of the natural topography of a site in order to reduce noise impacts.
- **Policy N 1-4:** Encourage developers or landowners to incorporate noise reduction features in the site planning process.
- **Policy N 1-5:** Incorporate urban design strategies such as courtyards, paseos, alleys, plazas and open space areas to provide a buffer to noise sensitive uses.
- **Policy N 1-6:** Ensure that project site planning, design, and function minimize the potential adverse impacts of noise.
- **Policy N 1-7:** Encourage educational facilities to locate playgrounds, sports fields, and other outdoor activity areas away from residential areas.
- **Policy N 1-8:** Require new development to provide facilities which support the use of alternative transportation modes, including, walking, bicycling, carpooling and, transit.
- **Policy N 1-9:** Utilize noise barriers after all practical design-related noise measures have been integrated into the project. In instances where sound walls are necessary, they should be incorporated into the architectural and site character of the development and pedestrian access should be integrated.

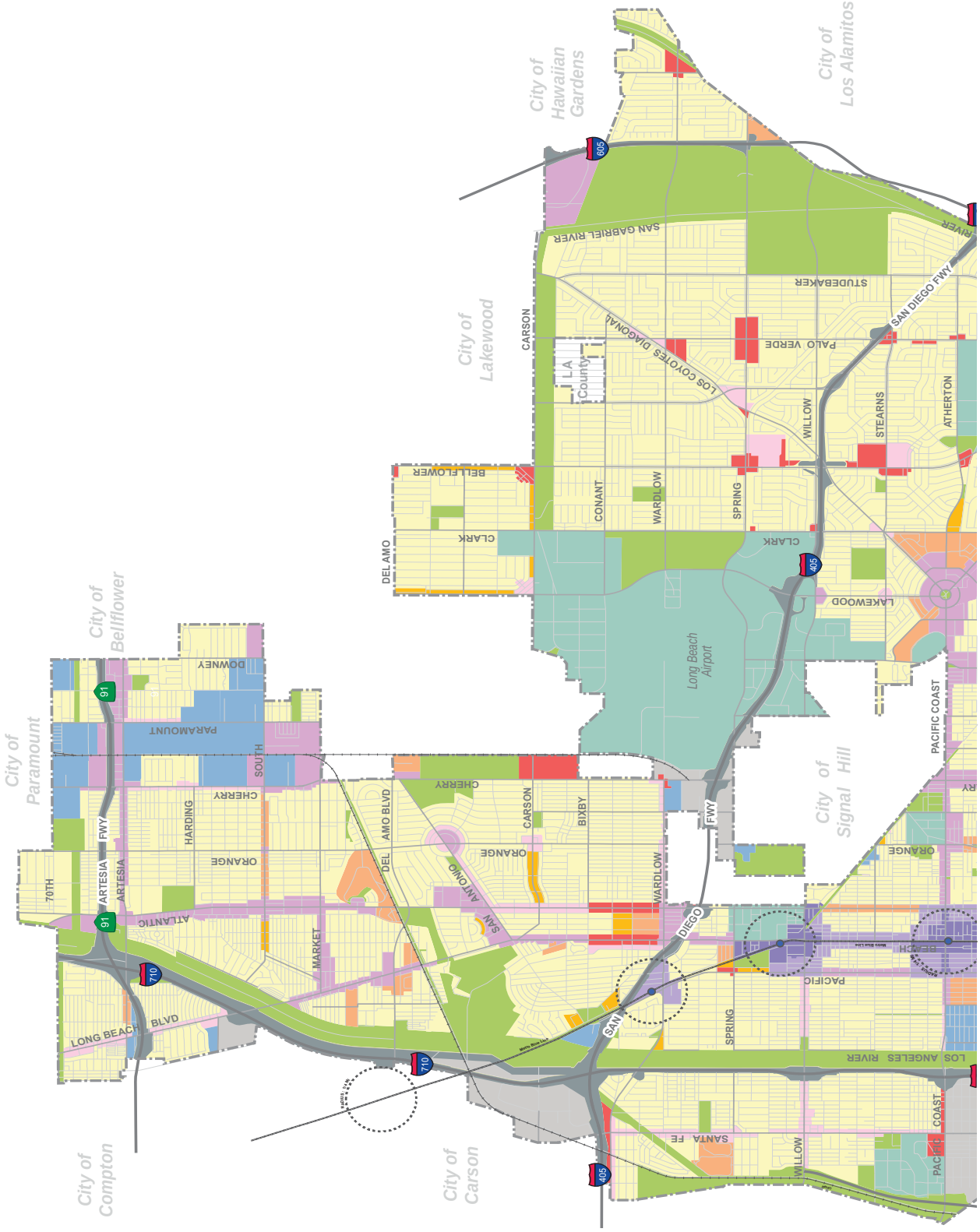


Figure N-2, Long Beach PlaceTypes-Northern (Land Use Element)

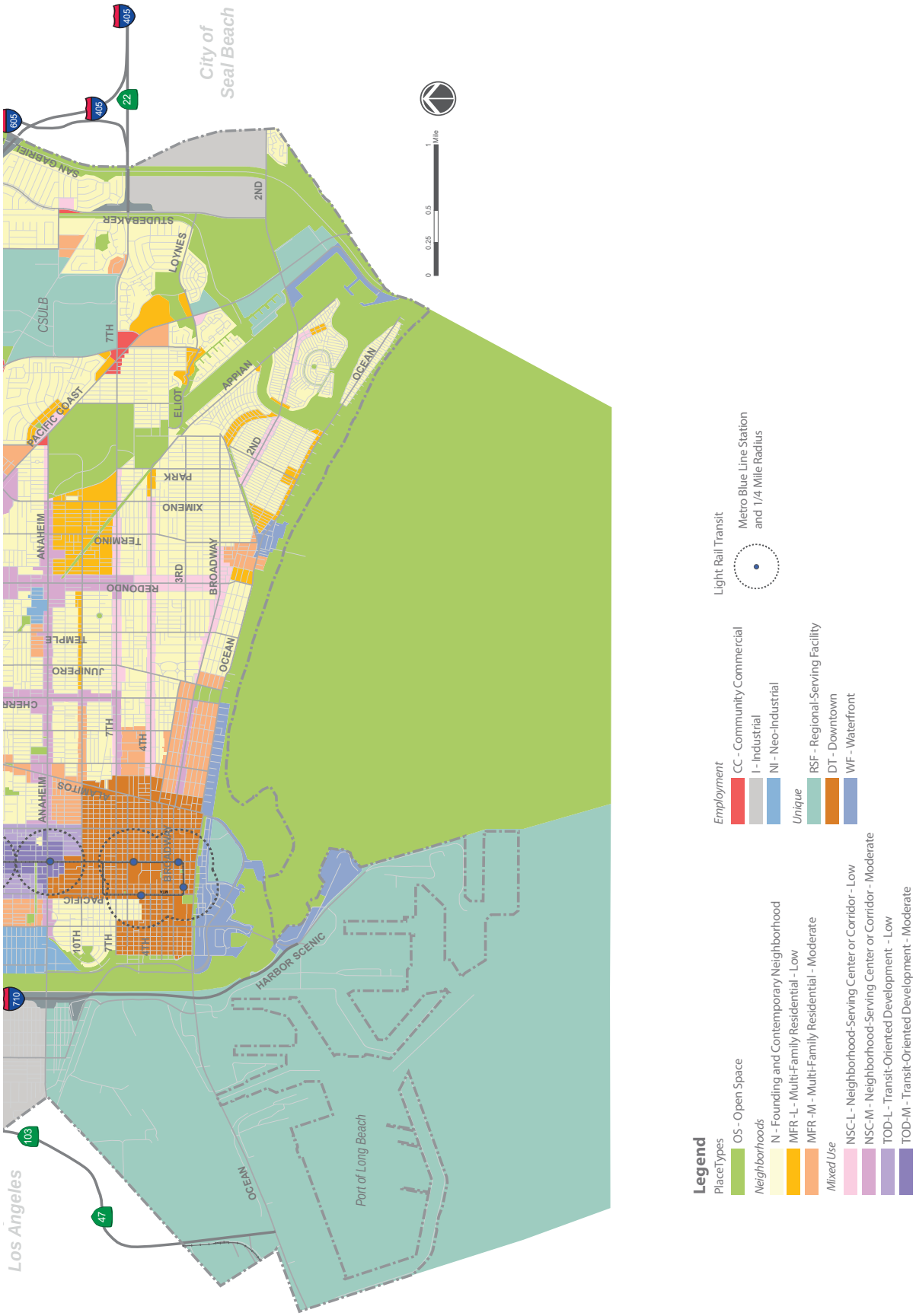


Figure N-3, Long Beach PlaceTypes-Southern (Land Use Element)

Strategy No. 2 Create a balance of business practices within dynamic, active, and engaging areas such as the Transit-Oriented Development – Low and Moderate, Downtown, and Waterfront PlaceType areas to promote activity while respecting adjacent sensitive uses.

- **Policy N 2-1:** Ensure that developments located in commercial or entertainment areas do not exceed stationary-source noise standards at the property line of proximate residential or commercial uses.
- **Policy N 2-2:** Require mitigation measures for new high noise-generating uses adjacent to noise sensitive uses.
- **Policy N 2-3:** Require that high noise-generating uses engage in responsible management and operation to control the activities of their patrons on-site and within reasonable and legally justifiable proximity to minimize noise impacts on adjacent residences.
- **Policy N 2-4:** Develop, update and apply best practices for restaurants, bars and retail establishments with evening activities to ensure compatibility such as limitations on hours, location of trash/recycling, policies for rooftop activities, and communications with neighboring residents and businesses.

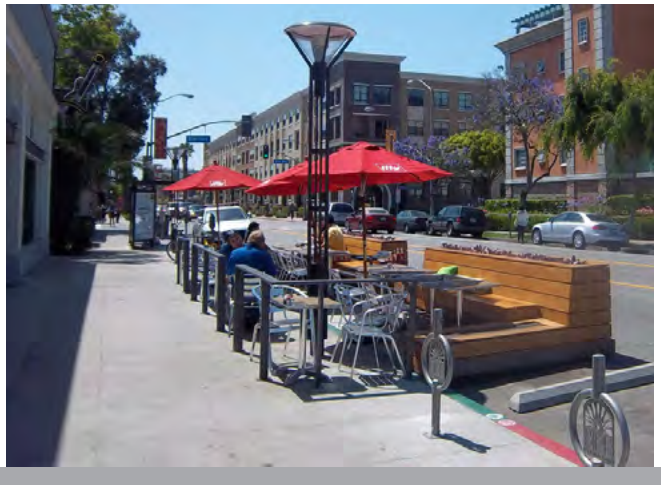
Strategy No. 3 Capitalize on urban design techniques and business operation strategies within business and employment center PlaceTypes (Community Commercial, Industrial, Neo-Industrial, Regional-Serving Facility, Port of Long Beach) to minimize noise impacts on surrounding adjacent uses.

- **Policy N 3-1:** Provide sufficient spatial separation between industrial uses and noise sensitive uses. Utilize mitigation measures where feasible to reduce the noise source, such as noise attenuation methods, interrupting the noise path, or insulating the receptor to minimize the exposure of noise sensitive uses to excessive industrial-related noise.
- **Policy N 3-2:** Ensure new industrial uses are in compliance with the City's Noise Ordinance.
- **Policy N 3-3:** Encourage industrial and commercial activities to restrict their receiving operations to daytime periods.
- **Policy N 3-4:** Enforce established hours and routes for delivery trucks and truck traffic.
- **Policy N 3-5:** Where noise sensitive uses are located adjacent to industrial uses, reduce noise impacts through the use of noise barriers, restriction of operating hours, and investment in noise cancelling technology.
- **Policy N 3-6:** Coordinate with the port to minimize noise generation resulting from port operations and encourage the use of the Port of Long Beach community grants program to fund off-site port-related noise mitigations.

Strategy No. 4 Protect and buffer noise sensitive areas and uses through effective building design and material selection.

- **Policy N 4-1:** Encourage developers to utilize noise absorbing building materials.
- **Policy N 4-2:** In mixed-use developments, locate and orient residential units away from noise sources associated with other uses on the site.
- **Policy N 4-3:** In mixed-use developments, locate residential balconies and windows away from the primary street and from other uses on the site.
- **Policy N 4-4:** In mixed-use developments, require techniques to prevent the transfer of noise and vibration to the residential uses on the site.
- **Policy N 4-5:** Encourage building design that incorporates varying and/or angled wall articulation to disperse noise.

Outdoor dining



- **Policy N 4-6:** Promote building design best practices such as staggering wall studs to minimize transmission of noise between rooms.
- **Policy N 4-7:** Consider use of decorative walls and/or dense landscaping to further buffer noise between uses.

Strategy No. 5 Implement best practices to reduce impacts of noise from industrial sources.

- **Policy N 5-1:** In observance of requirements imposed by the California Air Resources Board (CARB), limit the idling of heavy trucks during night time hours to less than five minutes.
- **Policy N 5-2:** Where feasible, require equipment enclosures for pumps and compressors that exceed Municipal Code noise standards.
- **Policy N 5-3:** Encourage conduction of high-noise or high-vibration activities in a set window of time during the day.
- **Policy N 5-4:** Industrial facility owners and/or operators should use equipment that generates lower noise and vibration levels, such as rubber-tired equipment rather than metal-tracked equipment.
- **Policy N 5-5:** Commercial delivery truck traffic should avoid residential areas whenever feasible.

Streets opened for biking for Beach Streets celebration

- **Policy N 5-6:** Site design should consider noise sensitive use locations and place noise sources away from these uses when feasible.
- **Policy N 5-7:** Encourage industrial operations to utilize on-site electrical sources to power equipment rather than diesel generators where feasible.

MOBILITY

Vehicle Noise

Long Beach has a multitude of sources of vehicle-related noise including automobiles, trucks, motorcycles, and buses.

Automobiles, Buses, and Trucks

Automobiles, buses, trucks, motorcycles and trains dominate transportation noise in the City. In addition to the ambient noise level created by freeway and corridor traffic, cars and trucks may also produce intermittent noise like honking and car alarms. Intermittent noise is also produced by public bus routes.

Vehicle Emissions

Vehicle noise emission standards are promulgated by the federal Environmental Protection Agency (Title 49, Code of Federal Regulations Parts 190 et seq.). The Federal Highway Administration (FHA) of the Department of Transportation has authority to enforce noise standards pertaining to licensed interstate vehicles with a gross weight of over 10,000 pounds, provided that the enforcement authority has been authorized "curbing" (i.e., police) authority. State and local jurisdictions may adopt the Environmental Protection Agency regulations without amendment in order to enforce the regulations. However many cities, such as Los Angeles, have not done so because noise emissions, as described previously and below, can be enforced locally as nuisance noise under other authorities.

The California Department of Motor Vehicles has jurisdiction over vehicle noise emissions within California. California Motor Vehicle Code Section 23130 establishes vehicle noise limits for moving vehicles, including interstate trucks that operate on streets, highways and freeways within the state, and regulates noise impacts on adjacent land uses. The provisions are enforced by the California Highway Patrol and local law enforcement agencies, such as city police.

Trucks tend to generate greater noise than cars. Certain types of trucks are prohibited by the State from traveling on certain State highways due to safety considerations. Freeways serve as the primary truck freight haul routes. Within the City, trucks are allowed to travel on streets except where prohibited by State regulations or by weight or height limits, such as on bridges, in tunnels and on some substandard streets. Because trucks can travel on most streets and highways in Long Beach, truck noise can impact all areas of the city. Areas especially impacted tend to be those that are located adjacent to industrial and warehouse sites. Truck traffic impacts, including noise, are such a problem near the Port of Long Beach and along the SR-91, I-605, I-710 and I-405 Freeways.

Freeway Noise

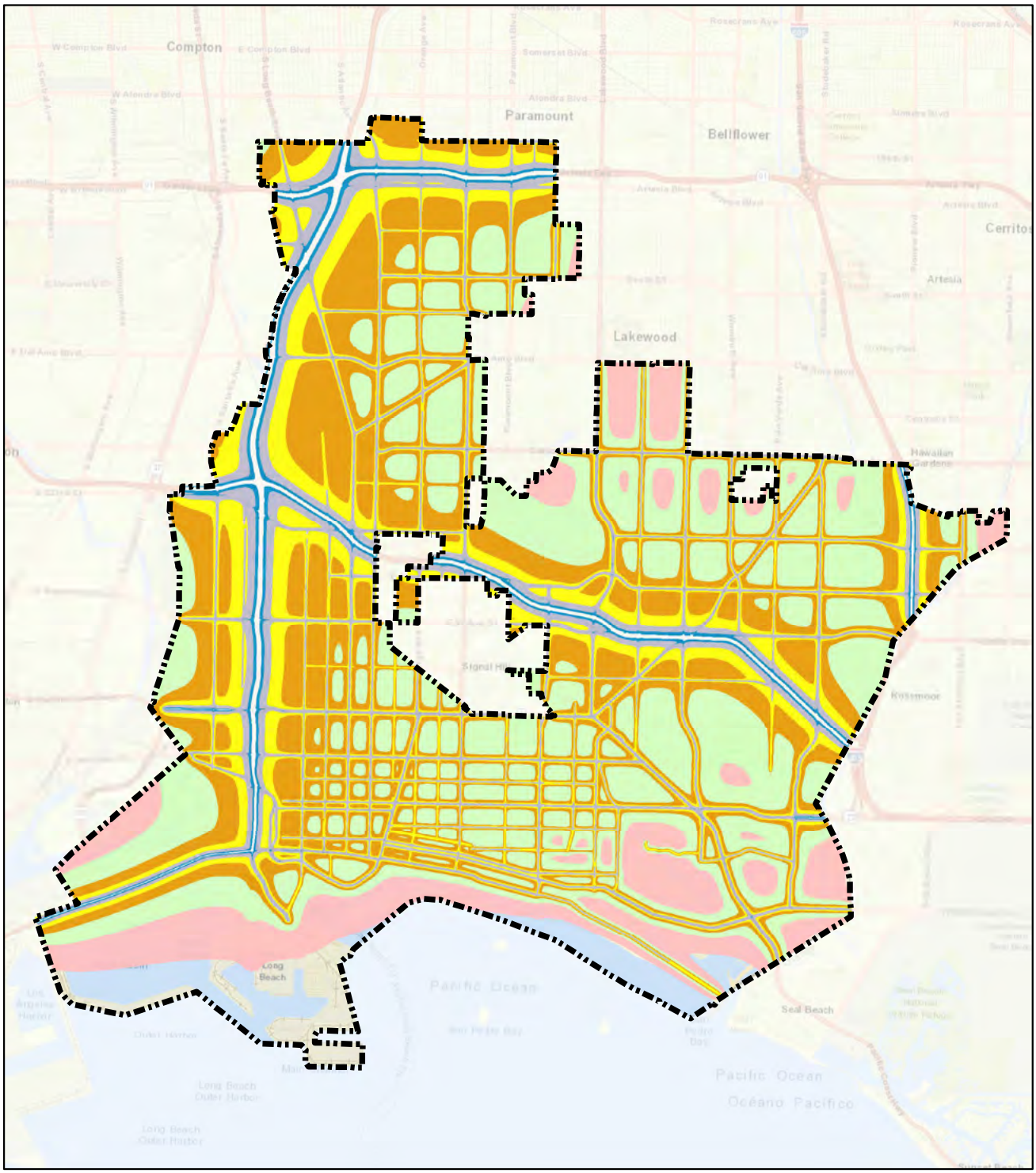
By the late 1960s, freeways were a major source of noise throughout the State. Entire communities were impacted, especially at night, by the steady hum or roar generated by fast moving traffic. In 1973-74 state and federal agencies, in response to the 1969 National Environmental Policy Act, adopted formal policies and criteria for construction of noise barriers to mitigate impacts. In California, the responsibility for freeway and highway noise management was assumed by the California Department of Transportation (Caltrans). As a part of the nationwide highway noise abatement effort, Caltrans instituted a noise management program to reduce impacts from existing and new freeways on residential, school and other noise sensitive uses.

The program utilized noise barriers (sound walls) and/or building modification methods. Where sound walls alone cannot reduce interior sound to acceptable levels, buildings sometimes are modified by adding or improving air conditioning, acoustical glass and/or other noise insulation features.

Future traffic noise contours, consistent with Land Use Element and Mobility Element assumptions, have been modeled and are shown in Figure 4. Detailed traffic noise contour maps are provided in the appendix.

Strategy No. 6 Minimize vehicular traffic noise in residential areas and near noise sensitive land uses.

- **Policy N 6-1:** Ensure noise-compatible land uses along existing and future roadways, highways, and freeways.
- **Policy N 6-2:** Use the "Land Use Compatibility Matrix" and established Noise Standards or other measures that are acceptable to the City, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses, as defined by this chapter within a line-of-sight of freeways, major highways, or truck haul routes.
- **Policy N 6-3:** Continue to work with the California Department of Transportation (Caltrans) to install, maintain, and update freeway and highway rights-of-way buffers and sound walls.
- **Policy N 6-4:** Work toward understanding and reducing traffic noise in residential neighborhoods with a focus on analyzing the effects of traffic noise exposure throughout the City.
- **Policy N 6-5:** Maintain and enforce designated truck routes on specified arterial streets to minimize the negative impacts to noise sensitive uses throughout the City.
- **Policy N 6-6:** For future noise sensitive land uses proposed within the 65 dBA Ldn noise contours, a qualified acoustical consultant should conduct a noise analysis as part of the discretionary development review process to determine appropriate measures are implemented to meet the necessary exterior and interior noise standards.
- **Policy N 6-7:** Enforce regulations that address noise generated by motorcycles and support education efforts to create awareness and encourage compliance (such as posting signs along Ocean Boulevard).
- **Policy N 6-8:** Work with transit providers to evaluate and update fleet vehicle characteristics and operations to minimize noise.
- **Policy N 6-9:** Encourage site planning and building design measures that minimize the effects of traffic noise in residential zones.
- **Policy N 6-10:** Evaluate the tone and pitch of emergency vehicle sirens and truck backup sounds to promote the least impactful approach.
- **Policy N 6-11:** Support and promote the Air Quality Management District's (AQMD) program for retirement of older vehicles and replacement with newer, quieter, more fuel-efficient vehicles.



LEGEND

- Long Beach City Boundary
- Future 2040 Traffic Noise Contours
  - 55 dBA Ldn
  - 60 dBA Ldn
  - 65 dBA Ldn
  - 70 dBA Ldn
  - 75 dBA Ldn
  - 80 dBA Ldn
  - 85 dBA Ldn

0 0.75 1.5
MILES

SOURCE: Esri (2016); LSA (2/2019)

Figure N-4, Future Traffic Noise Contours (2040) Overview (Detailed maps available in Appendix)

Table N-5: Allowable Noise Exposure from Transportation Sources

Land Use		Ldn (dBA)	
PlaceType	**Uses**	**Interior[1,2]**	**Exterior[3]**
Open Space Open Space (OS)	Playgrounds, neighborhood parks	N/A	70
	Golf Courses, riding stables, water recreation, cemeteries	N/A	N/A
Neighborhoods Founding and Contemporary Neighborhood (N) Multi-Family Residential-Low (MRF-L) Multi-Family Residential-Moderate (MRF-M)	Single-family, duplex and multiple-family	45	65
	Mobile home park	N/A	65
Mixed-Use Neighborhood-Serving Center or Corridor – Low (NC-L) Neighborhood-Serving Center or Corridor – Low (NC-M) Transit-Oriented Development – Low (TOD-L) Transit-Oriented Development – Moderate (TOD-M)	Single-family	45	65
	Mobile home park	N/A	65
	Multiple-family, mixed-use	45	65[4]
	Transient lodging-motels, hotels	45	65
	Sports arenas, outdoor spectator sports	N/A	N/A
	Auditoriums, concert halls, amphitheaters	45	N/A
	Office buildings, business, commercial and professional	50	N/A
Employment Community Commercial (CC) Industrial (I) Neo-Industrial (NI)	Manufacturing, utilities, agriculture	N/A	N/A
	Office buildings, business, commercial and professional	50	N/A
Unique Regional Serving Facility RSF) Downtown (DT) Waterfront (WF)	Schools, nursing homes, day care facilities, hospitals, convalescent facilities, dormitories	45	65
	Government Facilities – offices, fire stations, community buildings	45	N/A
	Places of Worship, churches	45	N/A
	Libraries	45	N/A
	Multiple-family, mixed-use	45	65[4]
	Utilities	N/A	N/A
	Cemeteries	N/A	N/A

[1] Interior habitable environment excludes bathrooms, closets, and corridors.
[2] Interior noise standards shall be satisfied with windows in the closed position. Mechanical ventilation shall be provided per Uniform Building Code requirements.
[3] Exterior noise level standard to be applied at outdoor activity areas (e.g., private yards, private patio, or balcony of a multifamily residence). Where the location of an outdoor activity area is unknown or not applicable, the noise standard shall be applied inside the property line of the receiving land use.
[4] Within the NC-M, TOD-L, TOD-M, DT and WF PlaceType designations, exterior space standards apply only to common outdoor recreational areas.
Ldn = Day-Night Average Level
dBA = A-weighted decibels
N/A = Not Applicable

Strategy No. 7 Promote alternative forms of mobility to reduce noise generated from vehicular traffic.

- **Policy N 7-1:** Encourage the use of alternative transportation modes as stipulated in the Mobility Element (walking, bicycling, transit use, electric vehicles) to minimize traffic noise in the City.
- **Policy N 7-2:** Work with local and regional transit agencies and businesses to provide transportation services that reduce traffic and associated noise, as stipulated in the Mobility Element.
- **Policy N 7-3:** Evaluate private development proposals to ensure provisions for alternative modes of mobility, where feasible.
- **Policy N 7-4:** Factor alternatives modes of mobility as part of decisions affecting use and priority of public rights-of-way.

Strategy No. 8 Implement street design and maintenance practices to minimize vehicular noise impacts.

- **Policy N 8-1:** Employ noise mitigation practices, as necessary, when designing future streets and highways, and when improvements occur along existing road segments. Mitigation measures should emphasize the establishment of buffers or setbacks between the arterial roadways and adjoining noise sensitive areas.

Freeway interchange in Long Beach

- **Policy N 8-2:** Consider traffic calming design, such as "road diets," traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise.
- **Policy N 8-3:** Consider the noise impacts on adjacent residential uses associated with establishing stop signs or other traffic control or traffic calming devices.
- **Policy N 8-4:** Maintain roadways so that the paving is in good condition to reduce noise-generating cracks, bumps, and potholes and ensure steel plates are properly installed where needed.
- **Policy N 8-5:** Consider using roadway sound attenuation techniques for resurfacing projects that use "quiet" pavement or noise-reducing rubberized asphalt.

Rail

Noise from rail systems is localized, impacting immediately adjacent communities. This section addresses noise management relative to rail systems within the City. Currently, three main freight rail lines pass through the City that are operated by Burlington Northern Santa Fe Corporation (BNSF) Railway, Union Pacific Railroad Company (UPRR), and Pacific Harbor Line Incorporated (PHL). The rail lines run north-south through the west side of the City, through the northwest corner of the City, around the neighborhood of North Long Beach.

In addition to freight activities, the Metro Blue Line which serves as public transit, is part of the Metro Rail System that runs north-south from Los Angeles to Long Beach, traveling south via Long Beach Avenue, Willowbrook Avenue, and Long Beach Boulevard to its final destination at the Long Beach Transit Gallery. The Metro Blue Line operates daily, including all major holidays.

Railways in Long Beach serve the industrial sites located in the northwest and southwest sectors of the community and typically operate at 20-30 mph. The major source of noise in trains operating in Long Beach is the diesel locomotive. The propulsion system includes a diesel engine driving an electrical generator which in turn provides power to the wheels. The water-cooling system for the engine requires auxiliary equipment such as cooling fans which are an additional source of noise. The separate sources of noise are: the exhaust, engine, fans, and wheel-to-rail noise.

A unique source of noise in the locomotive is the horn which produces the highest sound levels, up to about 115 dBA. Another noise source in a train is the rolling stock or vehicles being pulled by the locomotive. The noise exposures produced by these vehicles is due primarily to the interaction between the wheels and the rails. This noise will be dependent on the type and condition of the railway and the suspension of the vehicle. Items such as welded track and hydraulic shock absorbers on the wheel assemblies can produce significant (5-10 dBA) noise reductions. Other types of surface tracked vehicles, such as those used for rapid transit system, will produce lower noise emissions. Some residential neighborhoods near active rail lines are impacted by noise from intermittent passing trains and associated rail and truck activities.

Strategy No. 9 Minimize train noise in residential areas and near noise sensitive land uses.

- **Policy N 9-1:** Encourage noise-compatible land uses and incorporate noise-reducing design features within transit-oriented, mixed-use development near rail corridors.
- **Policy N 9-2:** Encourage all active railroads within the City to schedule trains during daylight hours, when possible.
- **Policy N 9-3:** Encourage the rail operators, both freight and passenger, to minimize the level of noise produced by train movements and horn noise within the City by reducing the number of night time operations, improving vehicle system technology, and developing improved sound barriers where residences exist next to the track.
- **Policy N 9-4:** Work with rail operators to install and maintain noise mitigation features where operations adversely impact existing or planned residential and other noise sensitive land uses.
- **Policy N 9-5:** Require future rail projects under the City's control to analyze noise impacts and to identify and incorporate noise and vibration reducing features in the project design.
- **Policy N 9-6:** Work with Metro to ensure that the design and operation of the Blue Line tracks, crossings, and station area use approaches that will minimize noise impacts associated with train operations on the community.
- **Policy N 9-7:** Coordinate with affected agencies including California Public Utilities Commission, rail operators, and Federal Railroad Administration to evaluate potential locations for Quiet Zone improvements (reduced train horn areas) and implement recommended safety improvements to result in reduced need and frequency of train horn use.
- **Policy N 9-8:** Explore Port to Alameda Corridor "Quiet Zone" implementation.
- **Policy N 9-9:** Continue to assess new methods and apply appropriate technologies to reduce rail-related noise such as application of sound-deadening matting (as opposed to wood) leading to, from and between the rails where public roads cross tracks in residential areas.

Aircraft

The primary source of aircraft noise in Long Beach is from the Long Beach Airport, though other neighboring airports, including Los Angeles International, may also impact Long Beach residents. Operations at the Long Beach Airport include commercial air carriers, commuter flights, industrial planes, charter flights, and other general aviation as well as emergency and police helicopter activities. Management of aircraft and airport related noise impacts are within federal, state and/or local jurisdiction.

Federal regulations are through the Federal Aviation Administration (FAA). The Caltrans Aeronautics Program (CAP) administers the enforcement of federal airport regulations in the state of California. CAP sets noise guidelines for local airports. In addition, the state provides noise level guidelines for land uses surrounding airports and those within the airport land use plan with the main focus being interior noise level standards.

In addition to the CAP, State law (Public Utilities Code Section 21670 et seq.) requires creation of county Airport Land Use Commissions (ALUCs). The ALUCs advise local jurisdictions concerning coordination of airport and land use planning for adjacent geographic areas in order to achieve orderly expansion of airports, reduction of community exposure to excessive noise and elimination of safety hazards associated with airport operations. The ALUCs prepare and adopt Comprehensive Airport Land Use Plans (CLUPs). Local methods for regulation of noise impacts is through proactive land use planning. The primary regulating tool for airport compatibility is the City of Long Beach compatibility ordinance. Chapter 16.43 of the City of Long Beach Municipal Code was established in 1995 giving the City one of the strictest noise-controlled airports in the United States. In 1990, out of concern over the proliferation of local airport noise control regulations, Congress passed the Airport Noise and Capacity Act, giving noise control to the federal government and Federal Aviation Administration (FAA). However, the City was able to work with the federal government and the FAA to retain the Ordinance, as "grandfathered" under the legislation. The Ordinance includes many details including, but not limited to, number of flights restrictions, maximum allowed noise exposure levels, a monetary violation process, incentives for quieter operations, and pilot education programs.

Long Beach Airport runway

Federal Aviation Regulations, Part 150, "Airport Noise Compatibility Planning"

As a means of implementing the Aviation Safety and Noise Abatement Act, the FAA adopted Regulations on Airport Noise Compatibility Planning Programs. The FAA published noise and land use compatibility charts to be used for land use planning with respect to aircraft noise. An expanded version of this chart appears in Aviation Circular 150/5020-1 (dated August 5, 1983). These guidelines represent recommendations to local authorities for determining acceptability and permissibility of land uses. The guidelines recommend a maximum amount of noise exposure (in terms of the cumulative noise metric DNL) that might be considered acceptable or compatible to people in living and working areas. Residential land use is deemed acceptable for noise exposures up to 65 dB DNL. The FAA permits substitution of CNEL for DNL in California.

Helicopter Operations

Helicopter noise, unlike that of fixed-wing aircraft, is associated with the sound generated by rotor blades slapping against wind currents, not by the aircraft engine. Improvements in rotor systems is the primary means of reducing noise generated by helicopters. Even with noise suppression improvements, helicopter flight at 500 feet creates an audible sound that is especially noticeable at night. National "Fly Neighborly" guidelines are implemented voluntarily by most pilots, thereby reducing noise impacts, especially in the vicinity of residential neighborhoods and noise sensitive uses.

Strategy No. 10 While the operations of airports and airport related uses are noisy by nature, the adverse effects of aircraft-related noise should be minimized.

- **Policy N 10-1:** Ensure that new development can be made compatible with the noise environment by using noise/land use compatibility standards and the airport noise contour maps as guides for future planning and development decisions.
- **Policy N 10-2:** When making land use decisions, give careful consideration to the type and density of land use and its cumulative impacts so that appropriate decisions are made for the airport, its context, and its environment. Specific consideration should be given for all development within two miles of an airport.
- **Policy N 10-3:** Support efforts of the Federal Aviation Administration (FAA) and other responsible agencies to require the development of quieter aircraft.
- **Policy N 10-4:** Utilize information provided by the Long Beach Airport Quarterly Environmental Reports, specifically noise contours, to advise land owners of special noise considerations associated with their development.
- **Policy N 10-5:** Continue to work with the FAA, airport staff and aircraft operators to ensure that future operations are in compliance with the City's noise goals, where possible.
- **Policy N 10-6:** Require private heliports/helistops to comply with the City noise ordinances and Federal Aviation Administration standards.
- **Policy N 10-7:** Work with interest groups to reduce helicopter noise impacts and direct helicopter operators to perform any training exercises over non-populated portions of the City, not over residential areas.
- **Policy N 10-8:** Continue open communications with citizens through continued outreach. Continued use of WebTrak or a similar system will allow the ability for residents to give feedback to the City on noise impacts experienced such that further meaningful communication can continue with Federal and airport staff.
- **Policy N 10-9:** Continue to evaluate potential noise impacts and compatibility through analysis and mitigation required by the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA).

Watercraft

Watercraft operation noise is a concern for noise sensitive uses located near the City's coast and waterways. Watercraft noise levels vary greatly depending on the size of the engines and noise levels are magnified when improper muffling occurs. The Long Beach Marine Department has the responsibility to regulate noise levels on the City's coast and waterways. Typically, watercraft are divided into two general categories: personal watercraft and boats. Personal watercraft typically refer to non-motorized vessels such as kayaks and paddle boats as well as motorized vessels such as sea-doos and jet skis. Boats are typically divided into three sub-categories: man-powered boats such as gondolas; sailboats which are wind-propelled; and motor boats. The motor boat category ranges from small fishing and ski boats to cruise liners and tug boats. In areas of low speed, boat noise is generally not a concern, with the use of proper mufflers.

Strategy No. 11 Minimize watercraft noise level impacts to residential areas and in other locations near noise sensitive uses, where possible.

- **Policy N 11-1:** Continue to require the Long Beach Marine Department to enforce the noise requirements of the California Harbors and Navigation Code.

Watercraft in Rainbow Harbor

- **Policy N 11-2:** Enforce speed limits near the coastline and on the existing water channels.
- **Policy N 11-3:** Continue communications with the Marine Department on responding to and documenting noise complaints.
- **Policy N 11-4:** Ensure that boat owners receive information on proper noise management practices, especially those leasing City slips or with City-registered docks. Strategies include informational signage and education.

CONSTRUCTION

Construction activities are a necessary and on-going source of noise throughout all parts of the City. The duration of construction noise ranges from a few hours to multiple months. Construction activities are regulated by the City's Municipal Code, which limits typical construction activities to the daytime hours, except under special circumstances. The type of construction equipment and duration of activities greatly affect the amount of noise and vibration created. Activities include hauling materials, site preparation, grading, building erection, and other specialized construction activities.

Construction of city hall

Strategy No. 12 Minimize construction noise and vibration levels in residential areas and in other locations near noise sensitive uses, where possible.

- **Policy N 12-1:** Reduce construction, maintenance, and nuisance noise at the source, when possible, to reduce noise conflicts.
- **Policy N 12-2:** Continue to limit the allowable hours for construction activities and maintenance operations near sensitive uses.
- **Policy N 12-3:** As part of the City's Municipal Code, establish noise levels standards based on PlaceType and time of day, to which construction noise shall conform.
- **Policy N 12-4:** Encourage off-site fabrication to reduce needed onsite construction activities and corresponding noise levels and duration.
- **Policy N 12-5:** Require that all construction activities incorporate best business practices, such as:
  - Schedule high-noise and vibration-producing activities to a shorter window of time during the day outside early morning hours to minimize disruption to sensitive uses.
  - Grading and construction contractors should use equipment that generates lower noise and vibration levels, such as rubber-tired equipment rather than metal-tracked equipment.
  - Construction haul truck and materials delivery traffic should avoid residential areas whenever feasible.
  - The construction contractor should place noise- and vibration-generating construction equipment and locate construction staging areas away from sensitive uses whenever feasible.
  - The construction contractor should use on-site electrical sources to power equipment rather than diesel generators, where feasible.

- All residential units located within 500 ft of a construction site should be sent a notice regarding the construction schedule. A sign legible at a distance of 50 ft should also be posted at the construction site. All notices and the signs should indicate the dates and durations of construction activities, as well as provide a telephone number for a "noise disturbance coordinator."
- A "noise disturbance coordinator" should be established by the project developer. The disturbance coordinator should be responsible for responding to any local complaints about construction noise. The disturbance coordinator should determine the cause of the noise complaint (e.g., starting too early, bad muffler) and should be required to implement reasonable measures to reduce noise levels.

» **Policy N 12-6:** Continue to provide information bulletins dispersing information on municipal code requirements and recommended best practices.

» **Policy N 12-7:** Work together with the AQMD to encourage the retirement of older construction equipment in favor of newer, quieter, and less polluting equipment.

SPECIAL EVENTS

Long Beach provides a desirable setting for special events of many forms. These events include, but are not limited to, community festivals, runs/walks, citywide holiday celebrations, Long Beach Grand Prix, Long Beach Marathon, Long Beach Lesbian and Gay Pride Parade and Celebration, Jazz Festival, film production, and events hosted at the Queen Mary. Special events contribute to the economic vitality of the City and attract tourism, however, with residents living in close proximity to these events, ensuring managed frequency and intensity of the noise from these events is a priority for the City. Long Beach strives for an informed, balanced approach to managing the needs of these events while continuing to prioritize the wellbeing of residents.

Special event in Long Beach

Strategy No. 13 Balance the needs of special events while prioritizing the well-being of residents.

- **Policy N 13-1:** Ensure consistency and clear communication between the various City departments involved in noise. Strategies may include posting an online calendar of special events and providing information bulletins.
- **Policy N 13-2:** Provide a efficient and standardized process for Special Events permitting in order to increase predictability for residents and applicants.
- **Policy N 13-3:** Implement and enforce procedures related to noise level requirements for large special events.
- **Policy N 13-4:** Communicate regularly with residents about the special events that may impact them through appropriate channels to increase transparency and timely information.
- **Policy N 13-5:** Consider geographic distribution of special events throughout the City by managing frequency and intensity of events.
- **Policy N 13-6:** Stay up-to-date with sound mitigation technology for special events.

ENVIRONMENTAL JUSTICE AND SOCIAL EQUITY

Environmental justice and social equity, as they relate to sound, are important aspects of planning for a healthy noise environment for all residents of Long Beach. Creating a more equitable distribution of noise is one of the three primary goals of this Noise Element. Environmental justice ensures equitable treatment and enforcement of environmental laws, regulations, and policies as they may disproportionately affect marginalized groups. It also emphasizes meaningful participation from affected groups.

Strategy No. 14 Ensure meaningful participation in the public process by all members of the community, especially historically excluded or marginalized groups.

- **Policy N 14-1:** Ensure that affected residents have the opportunity to participate in decisions that impact their health.
- **Policy N 14-2:** Facilitate the involvement of residents, businesses, and organizations in all aspects of the planning process.
- **Policy N 14-3:** Utilize culturally appropriate approaches to public participation and involvement.

Sound wall to protect residential neighborhood from noise

- **Policy N 14-4:** Identify those areas of the City most vulnerable to environmental hazards through CalEnviroScreen, the Environmental Justice Screening Model (EJSM) or other model. This information will inform where noise impacts would occur in addition to other environmental hazards.

Strategy No. 15 Reduce the disproportionate environmental noise burdens affecting low-income and minority populations.

- **Policy N 15-1:** Require that proposals for new sensitive land uses are located adequate distances from freeways and major roadways based on an analysis of physical and meteorological conditions at the project site.
- **Policy N 15-2:** Require that proposals for new sensitive land uses incorporate adequate setbacks, barriers, landscaping, or other measures as necessary to minimize noise impacts.
- **Policy N 15-3:** Provide adequate buffers between schools and industrial facilities and transportation corridors.
- **Policy N 15-4:** Require that zoning regulations provide adequate separation and buffering of residential and industrial uses.
- **Policy N 15-5:** Ensure that low-income and minority populations understand the effect of projects with noise impacts.
- **Policy N 15-6:** Engage communities early in the decision-making process when considering land use or other actions that have the potential to have high noise or vibration-generating impacts.
- **Policy N 15-7:** Support traffic and highway techniques and technologies that reduce noise impacts of vehicular traffic through traffic calming, noise barriers, pavement design and other measures.

NOISE MANAGEMENT

Long Beach makes a continual effort to regulate noise and create buffers from sources of noise to surrounding noise sensitive uses and land uses. Enforcement of regulations is ongoing, and efforts are made to inform the public through a variety of means, such as through information bulletins. A variety of tools are applied to manage noise including:

- Zoning (locating land uses appropriately)
- Noise Ordinance
- Development review (project design considerations)
- Building and Housing Codes
- California Environmental Quality Act/ National Environmental Protection Act
- Consistency with adopted plans
- City noise procedures/management
- Interagency coordination
- Enforcement and remedies

Methods to reduce noise are typically divided into measures addressing construction activities and measures addressing project design and operation. For construction activities, potential methods to reduce noise include equipment mufflers; quieter models of air compressors; locating stationary noise-generating equipment farther from noise sensitive uses; no unnecessary idling of internal combustion equipment; routing construction-related traffic away from noise sensitive uses; hours of loading/ unloading; noticing for construction activities; establishing a construction liaison to respond to noise complaints and provide corrections; providing temporary noise barriers or blankets; and site-specific vibration mitigation.

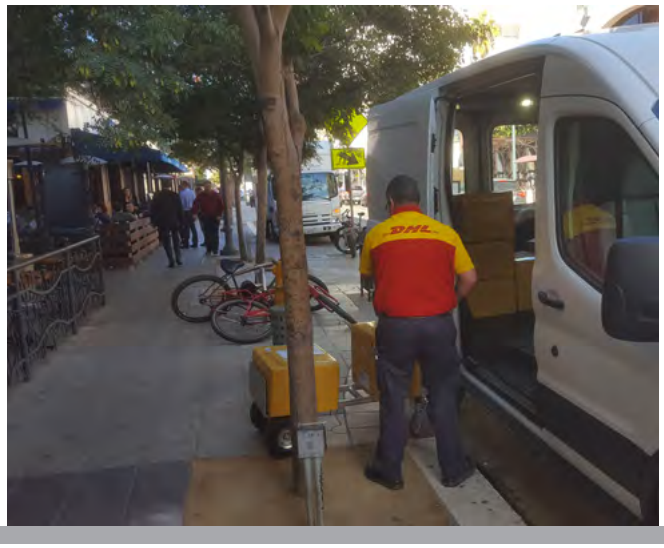
For project design and operation, potential noise reduction measures include appropriate site planning (for example, locating shared residential spaces behind buildings to reduce noise exposure); mechanical ventilation in residential areas in higher noise areas to allow for closed windows if desired; installation of sound-rated windows and construction methods; strategic placement of loading/ unloading areas; placement of HVAC in mechanical rooms whenever possible; and provision of localized noise barriers or rooftop parapets around mechanical equipment.

City resources are integral to supporting the regulation and management of noise, complemented by responsive coordination regarding noise issues and ongoing community education. Continuing to improve procedures and keeping abreast of changing needs and technologies are important considerations for the management of noise.

Strategy No. 16 Continue to actively enhance the regulation and management of noise to improve procedures and minimize noise impacts.

- **Policy N 16-1:** Create a one-stop shop for noise concerns of all types to streamline processes, obtain information and report complaints.
- **Policy N 16-2:** Explore implementation of a noise reporting app in collaboration with existing platforms such as Go Long Beach.
- **Policy N 16-3:** Develop a framework for improved inter-agency coordination such as with the Federal Rail Administration, Federal Highway Administration, Federal Aviation Administration, and California Department of Motor Vehicles.
- **Policy N 16-4:** Compile best noise mitigation practices for key industries (such as special events, bars/entertainment, industrial and commercial uses, and construction practices).

Noise from delivery trucks can be classified as a nuisance noise



- **Policy N 16-5:** Update the Noise Ordinance to carry out the Noise Element and periodically update based on community input and advances in technology and best practices.
- **Policy N 16-6:** Regularly evaluate and update strategies for management of nuisance noise such as:
  - Updating leaf blower requirements to encourage use of electric leaf blowers versus gas-powered machines.
  - Enhancing methods for managing animal noise (such as from dogs and birds).
  - Improving communications and enforcement for house parties and other neighborhood disturbances.
  - Support business owners by providing information on useful tools and best practices and clarifying requirements.
- **Policy N 16-7:** Evaluate the development of a mitigation program to provide sound-attenuating improvements (such as updated windows) to older buildings and residences using funds from noise fines, grants or other sources.
- **Policy N 16-8:** Allocate adequate resources for enforcement of City noise regulations.
- **Policy N 16-9:** Improve communications regarding noise regulations and processes through City website features, information bulletins, and reporting procedures.

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Administration + Implementation

Maintaining the Noise Element

6

"I have been impressed with the urgency of doing. Knowing is not enough; we must apply. Being willing is not enough; we must do."

Leonardo da Vinci
Italian Artist, Scientist, and Inventor

6

Administration + Implementation

Maintaining the Noise Element

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ADMINISTRATION

The Noise Element provides the highest level of noise guidance on a citywide basis. It provides guidance that will be implemented through the Municipal Code, zoning, project consistency with the General Plan, development review process and interagency coordination. The Noise Element further implements the PlaceType approach established in the Land Use Element and interrelates with policies found in the broader Long Beach General Plan, especially those established in the Mobility Element, Housing Element, Urban Design Element and Open Space Element.

State law allows amendments to the General Plan. Amendments may be periodically initiated by the Director of Development Services, the Planning Commission, or City Council. State mandated elements, including the Noise Element, can only be amended four times per calendar year. However, more than one change may be considered at each of these four opportunities. General Plan Amendments are adopted by resolution and approved immediately upon adoption of the resolution.

IMPLEMENTATION

To effectively implement the goals, strategies and policies of the Noise Element, implementing measures must be reflective of local needs and carried out as an integrated program of complementary and mutually reinforcing actions. Measures should be specific enough to implement the goals of the General Plan, while maintaining adaptability to allow flexibility in implementation throughout the timeline of the General Plan.

The City is committed to regularly reviewing progress toward implementing the goals, policies and implementation measures of the Noise Element. Since many of the factors and issues that the Element addresses change from time to time, a review and progress report that is prepared every two to three years will help ensure the City is moving forward to achieve the Noise Plan's vision and bold moves. This review will describe the status of each specific implementation strategy outlined. The review will also take into account the availability of new implementation tools and feedback from monitoring activities.

Noise Element policies are implemented through a variety of implementation tools including:

- Zoning (location of land uses, especially near noise sensitive uses)
- Noise Ordinance
- Development Review (project design)
- Building and Housing Codes
- California Environmental Quality Act/National Environmental Protection Act
- Consistency with the General Plan for zoning, specific plans, capital improvement projects and other actions
- City Noise Procedures/Management
- Interagency Coordination
- Enforcement and Remedies
- Periodic Progress Reports

Table N-6 summarizes Noise Element strategies and related policies from Chapter 5 (Noise Plan) and identifies responsible departments and the time frames to complete implementation strategies.

- Responsible Department(s). The lead City department which has primary responsibility for completion of a program will be listed. If any additional departments or external agencies are involved in a critical or supporting role, they are also listed.
- Time Frame. A time frame for existing and proposed (new) strategies and programs will be identified. Many strategies operate on an ongoing basis and are indicated as such. The timelines presented may not occur as indicated due to unforeseen events, evolving priorities, or changes in funding or City operations:
  - Short-term = 0-5 years
  - Mid-term = 5-10 years
  - Long-term = 10-20 years
  - Ongoing = May require short-, mid-, and long-term actions

Table N-6: Implementation Matrix

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
Strategy No. 1: Apply site planning and other design strategies to reduce noise impacts, especially within the Founding and Contemporary Neighborhoods, Multifamily Residential—Low and Moderate, and Neighborhood-Serving Centers and Corridors – Low and Moderate PlaceTypes.					
N 1-1	Integrate noise considerations into the land use planning process in order to prevent new land use noise conflicts. **Responsible Department**: Development Services				●
N 1-2	Require noise attenuation measures to be incorporated into all development and redevelopment of noise sensitive uses, including residential, health care facilities, schools, libraries, senior facilities, and churches in close proximity to existing or known planned rail lines. **Responsible Department**: Development Services				●
N 1-3	Ensure development and redevelopment is considerate of the natural topography of a site in order to reduce noise impacts. **Responsible Department**: Development Services				●
N 1-4	Encourage developers or landowners to incorporate noise reduction features in the site planning process. **Responsible Department**: Development Services				●
N 1-5	Incorporate urban design strategies such as courtyards, paseos, alleys, plazas and open space areas to provide a buffer to noise sensitive uses. **Responsible Department**: Development Services				●
N 1-6	Ensure that project site planning, design, and function minimize the potential adverse impacts of noise. **Responsible Department**: Development Services				●
N 1-7	Encourage educational facilities to locate playgrounds, sports fields, and other outdoor activity areas away from residential areas. **Responsible Department**: Development Services				●
N 1-8	Require new development to provide facilities which support the use of alternative transportation modes, including, walking, bicycling, carpooling and, transit. **Responsible Department**: Development Services				●
N 1-9	Utilize noise barriers after all practical design-related noise measures have been integrated into the project. In instances where sound walls are necessary, they should be incorporated into the architectural and site character of the development and pedestrian access should be integrated. **Responsible Department**: Development Services **Supporting Department**: Public Works				●
Strategy No. 2: Create a balance of business practices within dynamic, active, and engaging areas such as the Transit-Oriented Development – Low and Moderate, Downtown, and Waterfront PlaceType areas to promote activity while respecting adjacent sensitive uses.					
N 2-1	Ensure that developments located in commercial or entertainment areas do not exceed stationary-source noise standards at the property line of proximate residential or commercial uses. **Responsible Department**: Development Services				●
N 2-2	Require mitigation measures for new high noise-generating uses adjacent to noise sensitive uses. **Responsible Department**: Development Services				●
N 2-3	Require that high noise-generating uses engage in responsible management and operation to control the activities of their patrons on-site and within reasonable and legally justifiable proximity to minimize noise impacts on adjacent residences. **Responsible Department**: Development Services **Supporting Departments**: Police, Health and Human Services				●

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
N 2-4	Develop, update and apply best practices for restaurants, bars and retail establishments with evening activities to ensure compatibility such as limitations on hours, location of trash/recycling, policies for rooftop activities, and communications with neighboring residents and businesses. **Responsible Department**: Development Services **Supporting Departments**: Police, Health and Human Services	●			●
Strategy No. 3: Capitalize on urban design techniques and business operation strategies within business and employment center PlaceTypes (Community Commercial, Industrial, Neo-Industrial, Regional-Serving Facility, Port of Long Beach) to minimize noise impacts on surrounding adjacent uses.					
N 3-1	Provide sufficient spatial separation between industrial uses and noise sensitive uses. Utilize mitigation measures where feasible to reduce the noise source, such as noise attenuation methods, interrupting the noise path, or insulating the receptor to minimize the exposure of noise sensitive uses to excessive industrial-related noise. **Responsible Department**: Development Services				●
N 3-2	Ensure new industrial uses are in compliance with the City's Noise Ordinance. **Responsible Department**: Development Services				●
N 3-3	Encourage industrial and commercial activities to restrict their receiving operations to daytime periods. **Responsible Department**: Development Services				●
N 3-4	Enforce established hours and routes for delivery trucks and truck traffic. **Responsible Department**: Police				●
N 3-5	Where noise sensitive uses are located adjacent to industrial uses, reduce noise impacts through the use of noise barriers, restriction of operating hours, and investment in noise cancelling technology. **Responsible Department**: Development Services				●
N 3-6	Coordinate with the port to minimize noise generation resulting from port operations and encourage the use of the Port of Long Beach community grants program to fund off-site port-related noise mitigations. **Responsible Department**: Development Services **Supporting Department**: Harbor Department				●
Strategy No. 4: Protext and buffer noise sensitive areas and uses through effective building design and material selection.					
N 4-1	Encourage developers to utilize noise absorbing building materials. **Responsible Department**: Development Services				●
N 4-2	In mixed-use developments, locate and orient residential units away from noise sources associated with other uses on the site. **Responsible Department**: Development Services				●
N 4-3	In mixed-use developments, locate residential balconies and windows away from the primary street and from other uses on the site. **Responsible Department**: Development Services				●
N 4-4	In mixed-use developments, require techniques to prevent the transfer of noise and vibration to the residential uses on the site. **Responsible Department**: Development Services				●
N 4-5	Encourage building design that incorporates varying and/or angled wall articulation to disperse noise. **Responsible Department**: Development Services				●
N 4-6	Promote building design best practices such as staggering wall studs to minimize transmission of noise between rooms. **Responsible Department**: Development Services				●

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
N 4-7	Consider use of decorative walls and/or dense landscaping to further buffer noise between uses. **Responsible Department**: Development Services				●
Strategy No. 5: Implement best practices to reduce impacts of noise from industrial sources					
N 5-1	In observance of requirements imposed by the California Air Resources Board (CARB), limit the idling of heavy trucks during night time hours to less than five minutes. **Responsible Department**: Development Services **Supporting Department**: Public Works				●
N 5-2	Where feasible, require equipment enclosures for pumps and compressors that exceed Municipal Code noise standards. **Responsible Department**: Development Services				●
N 5-3	Encourage conduction of high-noise or high-vibration activities in a set window of time during the day. **Responsible Department**: Development Services				●
N 5-4	Industrial facility owners and/or operators should use equipment that generates lower noise and vibration levels, such as rubber-tired equipment rather than metal-tracked equipment. **Responsible Department**: Development Services				●
N 5-5	Commercial delivery truck traffic should avoid residential areas whenever feasible. **Responsible Department**: Development Services				●
N 5-6	Site design should consider noise sensitive use locations and place noise sources away from these uses when feasible. **Responsible Department**: Development Services				●
N 5-7	Encourage industrial operations to utilize on-site electrical sources to power equipment rather than diesel generators where feasible. **Responsible Department**: Development Services				●
Strategy No. 6: Minimize vehicular traffic noise in residential areas and near noise sensitive land uses.					
N 6-1	Ensure noise-compatible land uses along existing and future roadways, highways, and freeways. **Responsible Department**: Development Services				●
N 6-2	Use the "Land Use Compatibility Matrix" and established Noise Standards or other measures that are acceptable to the City, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses, as defined by this chapter within a line-of-sight of freeways, major highways, or truck haul routes. **Responsible Department**: Development Services				●
N 6-3	Continue to work with the California Department of Transportation (Caltrans) to install, maintain, and update freeway and highway rights-of-way buffers and sound walls. **Responsible Department**: Public Works **Outside Agency**: Caltrans				●
N 6-4	Work toward understanding and reducing traffic noise in residential neighborhoods with a focus on analyzing the effects of traffic noise exposure throughout the City. **Responsible Department**: Public Works				●
N 6-5	Maintain and enforce designated truck routes on specified arterial streets to minimize the negative impacts to noise sensitive uses throughout the City. **Responsible Department**: Public Works **Supporting Department**: Police		●		●
N 6-6	For future noise sensitive land uses proposed within the 65 dBA CNEL noise contours, a qualified acoustical consultant shall conduct a noise analysis to determine appropriate measures are implemented to meet the necessary exterior and interior noise standards. **Responsible Department**: Development Services				●

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
N 6-7	Enforce regulations that address noise generated by motorcycles and support education efforts to create awareness and encourage compliance (such as posting signs along Ocean Boulevard). **Responsible Department**: Police **Supporting Department**: City Manager				●
N 6-8	Work with transit providers to evaluate and update fleet vehicle characteristics and operations to minimize noise. **Responsible Department**: Public Works **Supporting Department**: Long Beach Transit				●
N 6-9	Encourage site planning and building design measures that minimize the effects of traffic noise in residential zones. **Responsible Department**: Development Services				●
N 6-10	Evaluate the tone and pitch of emergency vehicle sirens and truck backup sounds to promote the least impactful approach. **Responsible Department**: Development Services **Supporting Departments**: Police, Fire	●			●
N 6-11	Supoprt and promote the Air Quality Management District's (AQMD) program for retirement of older vehicles and replacement with newer, quieter, more fuel-efficient vehicles. **Responsible Department**: City Manager	●			●
Strategy No. 7: Promote alternative forms of mobility to reduce noise generated from vehicular traffic.					
N 7-1	Encourage the use of alternative transportation modes as stipulated in the Mobility Element (walking, bicycling, transit use, electric vehicles) to minimize traffic noise in the City. **Responsible Department**: Development Services **Supporting Department**: Public Works				●
N 7-2	Work with local and regional transit agencies and businesses to provide transportation services that reduce traffic and associated noise as stipulated in the Mobility Element. **Responsible Department**: Development Services **Supporting Department**: Public Works				●
N 7-3	Evaluate private development proposals to ensure provisions for alternative modes of mobility where feasible. **Responsible Department**: Development Services				●
N 7-4	Factor alternatives modes of mobility as part of decisions affecting use and priority of public rights-of-way. **Responsible Department**: Public Works **Supporting Department**: Development Services				●
Strategy No. 8: Implement street design and maintenance practices to minimize vehicular noise impacts.					
N 8-1	Employ noise mitigation practices, as necessary, when designing future streets and highways, and when improvements occur along existing road segments. Mitigation measures should emphasize the establishment of buffers or setbacks between the arterial roadways and adjoining noise sensitive areas. **Responsible Department**: Development Services **Supporting Department**: Public Works				●
N 8-2	Consider traffic calming design, such as "road diets," traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise. **Responsible Department**: Public Works **Supporting Department**: Development Services				●
N 8-3	Consider the noise impacts on adjacent residential uses associated with establishing stop signs or other traffic control or traffic calming devices. **Responsible Department**: Public Works **Supporting Department**: Development Services				●

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
N 8-4	Maintain roadways so that the paving is in good condition to reduce noise-generating cracks, bumps, and potholes and ensure steel plates are properly installed where needed. **Responsible Department**: Public Works **Supporting Department**: Development Services				●
N 8-5	Consider using roadway sound attenuation techniques for resurfacing projects that use "quiet" pavement or noise-reducing rubberized asphalt. **Responsible Department**: Public Works **Supporting Department**: Development Services				●
Strategy No. 9: Minimize train noise in residential areas and near noise sensitive land uses.					
N 9-1	Encourage noise-compatible land uses and incorporate noise-reducing design features within transit-oriented, mixed-use development near rail corridors. **Responsible Department**: Development Services				●
N 9-2	Encourage all active railroads within the City to schedule trains during daylight hours when possible. **Responsible Department**: Public Works				●
N 9-3	Encourage the rail operators, both freight and passenger, to minimize the level of noise produced by train movements and horn noise within the City by reducing the number of night time operations, improving vehicle system technology, and developing improved sound barriers where residences exist next to the track. **Responsible Department**: Public Works **Supporting Department**: Development Services				●
N 9-4	Work with rail operators to install and maintain noise mitigation features where operations adversely impact existing or planned residential and other noise sensitive land uses. **Responsible Department**: Development Services **Supporting Department**: Public Works				●
N 9-5	Require future rail projects under the City's control to analyze noise impacts and to identify and incorporate noise and vibration reducing features in the project design. **Responsible Department**: Public Works				●
N 9-6	Work with Metro to provide that the design and operation of the Blue Line tracks, crossings, and station area use approaches that will minimize noise impacts associated with train operations on the community. **Responsible Department**: Public Works **Supporting Department**: Development Services	●			●
N 9-7	Coordinate with affected agencies including California Public Utilities Commission, rail operators, and Federal Railroad Administration to evaluate potential locations for Quiet Zone improvements (reduced train horn areas) and implement recommended safety improvements to result in reduced need and frequency of train horn use. **Responsible Department**: Public Works		●		
N 9-8	Explore Port to Alameda Corridor "Quiet Zone" implementation. **Responsible Department**: Public Works **Supporting Department**: Harbor		●		
N 9-9	Continue to assess new methods and apply appropriate technologies to reduce rail-related noise such as application of sound-deadening matting (as opposed to wood) leading to, from and between the rails where public roads cross tracks in residential areas. **Responsible Department**: Public Works		●		
Strategy No. 10: While the operations of airports and airport related uses are noisy by nature, the adverse effects of aircraft-related noise should be minimized.					
N 10-1	Ensure that new development can be made compatible with the noise environment by using noise/land use compatibility standards and the airport noise contour maps as guides to future planning and development decisions. **Responsible Department**: Development Services **Supporting Department**: Long Beach Airport				●

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
N 10-2	When making land use decisions, give careful consideration to the type and density of land use and its cumulative impacts so that appropriate decisions are made for the airport, its context, and its environment. Specific consideration should be given for all development within two miles of an airport. **Responsible Department**: Development Services				●
N 10-3	Support efforts of the Federal Aviation Administration (FAA) and other responsible agencies to require the development of quieter aircraft. **Responsible Department**: Long Beach Airport				●
N 10-4	Utilize information provided by the Long Beach Airport Quarterly Environmental Reports, specifically noise contours, to advise land owners of special noise considerations associated with their development. **Responsible Department**: Long Beach Airport				●
N 10-5	Continue to work with the FAA, airport staff and aircraft operators to ensure that future operations are in compliance with the City's noise goals, where possible. **Responsible Department**: Long Beach Airport				●
N 10-6	Require private heliports/helistops to comply with the City noise ordinances and Federal Aviation Administration standards. **Responsible Department**: Long Beach Airport **Supporting Department**: Police				●
N 10-7	Work with interest groups to reduce helicopter noise impacts and direct helicopter operators to perform any training exercises over non-populated portions of the City, not over residential areas. **Responsible Department**: Long Beach Airport **Supporting Department**: City Manager				●
N 10-8	Continue open communications with citizens through continued outreach. Continued use of WebTrak or a similar system will allow the ability for residents to give feedback to the City on noise impacts experienced such that further meaningful communication can continue with Federal and airport staff. **Supporting Department**: Long Beach Airport				●
N 10-9	Continue to evaluate potential noise impacts and compatibility through analysis and mitigation required by the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). **Responsible Department**: Development Services				●
Strategy No. 11: Minimize watercraft noise level impacts to residential areas and in other locations near noise sensitive uses, where possible.					
N 11-1	Continue to require the Long Beach Marine Department to enforce the noise requirements within the California Harbors and Navigation Code. **Responsible Department**: Parks, Recreation and Marine **Supporting Department**: Harbor				●
N 11-2	Enforce speed limits near the coastline and on the existing water channels. **Responsible Department**: Parks, Recreation and Marine **Supporting Department**: Harbor				●
N 11-3	Continue communications with the Marine Department on responding to and documenting noise complaints. **Responsible Department**: Health and Human Services **Supporting Departments**: Parks, Recreation and Marine, Harbor				●
N 11-4	Ensure that boat owners receive information on proper noise management practices, especially those leasing City slips or with City-registered docks. Strategies include informational signage and education. **Responsible Department**: Parks, Recreation and Marine	●			●

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
Strategy No. 12: Minimize construction noise and vibration levels in residential areas and in other locations near noise sensitive uses where possible.					
N 12-1	Reduce construction, maintenance, and nuisance noise at the source, when possible, to reduce noise conflicts. **Responsible Department**: Development Services				●
N 12-2	Continue to limit the allowable hours for construction activities and maintenance operations near sensitive uses. **Responsible Department**: Development Services				●
N 12-3	As part of the City's Municipal Code, establish noise levels standards based on PlaceType and time of day, to which construction noise shall conform. **Responsible Department**: Development Services	●			●
N 12-4	Encourage off-site fabrication to reduce needed onsite construction activities and corresponding noise levels and duration. **Responsible Department**: Development Services				●
N 12-5	Require that all construction activities incorporate best business practices, such as: • Schedule high-noise and vibration-producing activities to a shorter window of time during the day outside early morning hours to minimize disruption to sensitive uses. • Grading and construction contractors should use equipment that generates lower noise and vibration levels, such as rubber-tired equipment rather than metal-tracked equipment. • Construction haul truck and materials delivery traffic should avoid residential areas whenever feasible. • The construction contractor should place noise- and vibration-generating construction equipment and locate construction staging areas away from sensitive uses whenever feasible. • All residential units located within 500 ft of a construction site should be sent a notice regarding the construction schedule. A sign legible at a distance of 50 ft should also be posted at the construction site. All notices and the signs should indicate the dates and durations of construction activities, as well as provide a telephone number for a "noise disturbance coordinator." • A "noise disturbance coordinator" should be established by the project developer. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator should determine the cause of the noise complaint (e.g., starting too early, bad muffler) and shall be required to implement reasonable measures to reduce noise levels. **Responsible Department**: Development Services				●
N 12-6	Continue to provide information bulletins dispersing information on municipal code requirements and recommended best practices. **Responsible Department**: Health and Human Services **Supporting Departments**: Development Services, City Manager				●
N 12-7	Work together with the AQMD to encourage the retirement of older construction equipment in favor of newer, quieter, and less polluting equipment. **Responsible Department**: City Manager **Supporting Department**: Development Services	●			●
Strategy No. 13: Balance the needs of special events while prioritizing the well-being of residents.					
N 13-1	Ensure consistency and clear communication between the various City departments involved in noise. Strategies may include posting an online calendar of special events and providing information bulletins. **Responsible Department**: City Manager **Supporting Department**: Health and Human Services	●			●
N 13-2	Provide a efficient and standardized process for special events permitting in order to increase predictability for residents and applicants. **Responsible Department**: City Manager				●

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
N 13-3	Implement and enforce procedures related to noise level requirements for large special events. **Responsible Department**: City Manager **Supporting Departments**: Health and Human Services, Police				●
N 13-4	Communicate regularly with residents about the special events that may impact them through appropriate channels to increase transparency and timely information. **Responsible Department**: City Manager				●
N 13-5	Consider geographic distribution of special events throughout the City by managing frequency and intensity of events. **Responsible Department**: City Manager				●
N 13-6	Stay up-to-date with sound mitigation technology for special events. **Responsible Department**: City Manager **Supporting Department**: Health and Human Services				●
Strategy No. 14: Ensure meaningful participation in the public process by all members of the community, especially historically excluded or marginalized groups.					
N 14-1	Ensure that affected residents have the opportunity to participate in decisions that impact their health. **Responsible Department**: Development Services **Supporting Departments**: City Manager, Health and Human Services				●
N 14-2	Facilitate the involvement of residents, businesses, and organizations in all aspects of the planning process. **Responsible Department**: Development Services **Supporting Departments**: City Manager, Health and Human Services				●
N 14-3	Utilize culturally appropriate approaches to public participation and involvement. **Responsible Department**: Development Services **Supporting Departments**: City Manager, Health and Human Services				●
N 14-4	Identify those areas of the City most vulnerable to environmental hazards through CalEnviroScreen, the Environmental Justice Screening Model (EJSM) or other model. This information will inform where noise impacts would occur in addtion to other environmental hazards. **Responsible Department**: Development Services **Supporting Department**: Health and Human Services				●
Strategy No. 15: Reduce the disproportionate environmental noise burdens affecting low-income and minority populations.					
N 15-1	Require that proposals for new sensitive land uses are located adequate distances from freeways and major roadways based on an analysis of physical and meteorological conditions at the project site. **Responsible Department**: Development Services				●
N 15-2	Require that proposals for new sensitive land uses incorporate adequate setbacks, barriers, landscaping, or other measures as necessary to minimize noise impacts. **Responsible Department**: Development Services				●
N 15-3	Provide adequate buffers between schools and industrial facilities and transportation corridors. **Responsible Department**: Development Services				●
N 15-4	Require that zoning regulations provide adequate separation and buffering of residential and industrial uses. **Responsible Department**: Development Services				●
N 15-5	Ensure that low-income and minority populations understand the effect of projects with noise impacts. **Responsible Department**: Development Services **Supporting Department**: Public Works				●
N 15-6	Engage communities early in the decision-making process when considering land use or other actions that have the potential to have high noise or vibration-generating impacts. **Responsible Department**: Development Services **Supporting Department**: Public Works				●

Policy Number	Implementation Strategies	Time Frames			
		Short-term	Mid-term	Long-term	Ongoing
N 15-7	Support traffic and highway techniques and technologies that reduce noise impacts of vehicular traffic through traffic calming, noise barriers, pavement design and other measures. **Responsible Department**: Public Works **Supporting Department**: Development Services				●
Strategy No. 16: Continue to actively enhance the regulation and management of noise to improve procedures and minimize noise impacts.					
N 16-1	Create a one-stop shop for noise concerns of all types to streamline processes, obtain information and report complaints. **Responsible Department**: Health and Human Services **Supporting Departments**: City Manager, Police, Development Services				●
N 16-2	Explore implementation of a noise reporting app in collaboration with existing platforms such as Go Long Beach. **Responsible Department**: Health and Human Services **Supporting Departments**: City Manager				●
N 16-3	Develop a framework for improved inter-agency coordination such as with the Federal Rail Administration, Federal Highway Administration, Federal Aviation Administration, and California Department of Motor Vehicles. **Responsible Department**: Public Works **Supporting Department**: Development Services				●
N 16-4	Compile best noise mitigation practices for key industries (such as special events, bars/entertainment, industrial and commercial uses, and construction practices). **Responsible Department**: City Manager **Supporting Department**: Development Services	●			
N 16-5	Update the Noise Ordinance to carry out the Noise Element and periodically update based on community input and updates in technology and best practices. **Responsible Department**: Development Services	●			●
N 16-6	Regularly evaluate and update strategies for management of nuisance noise such as: • Updating leaf blower requirements to encourage use of electric leaf blowers versus gas-powered machines. • Enhancing methods for managing animal noise (such as from dogs and birds). • Improving communications and enforcement for house parties and other neighborhood disturbances. • Support business owners by providing information on useful tools and best practices and clarifying requirements. **Responsible Department**: Development Services **Supporting Departments**: Health and Human Services, Police				●
N 16-7	Evaluate the development of a mitigation program to provide sound-attenuating improvements (such as updated windows) to older buildings and residences using funds from noise fines, grants or other sources. **Responsible Department**: Development Services **Supporting Department**: Health and Human Services		●		
N 16-8	Allocate adequate resources for enforcement of City noise regulations. **Responsible Department**: Health and Human Services **Supporting Department**: Police				●
N 16-9	Improve communications regarding noise regulations and processes through City website features, information bulletins, and reporting procedures. **Responsible Department**: Health and Human Services **Supporting Departments**: City Manager, Development Services	●			●

Appendix

7

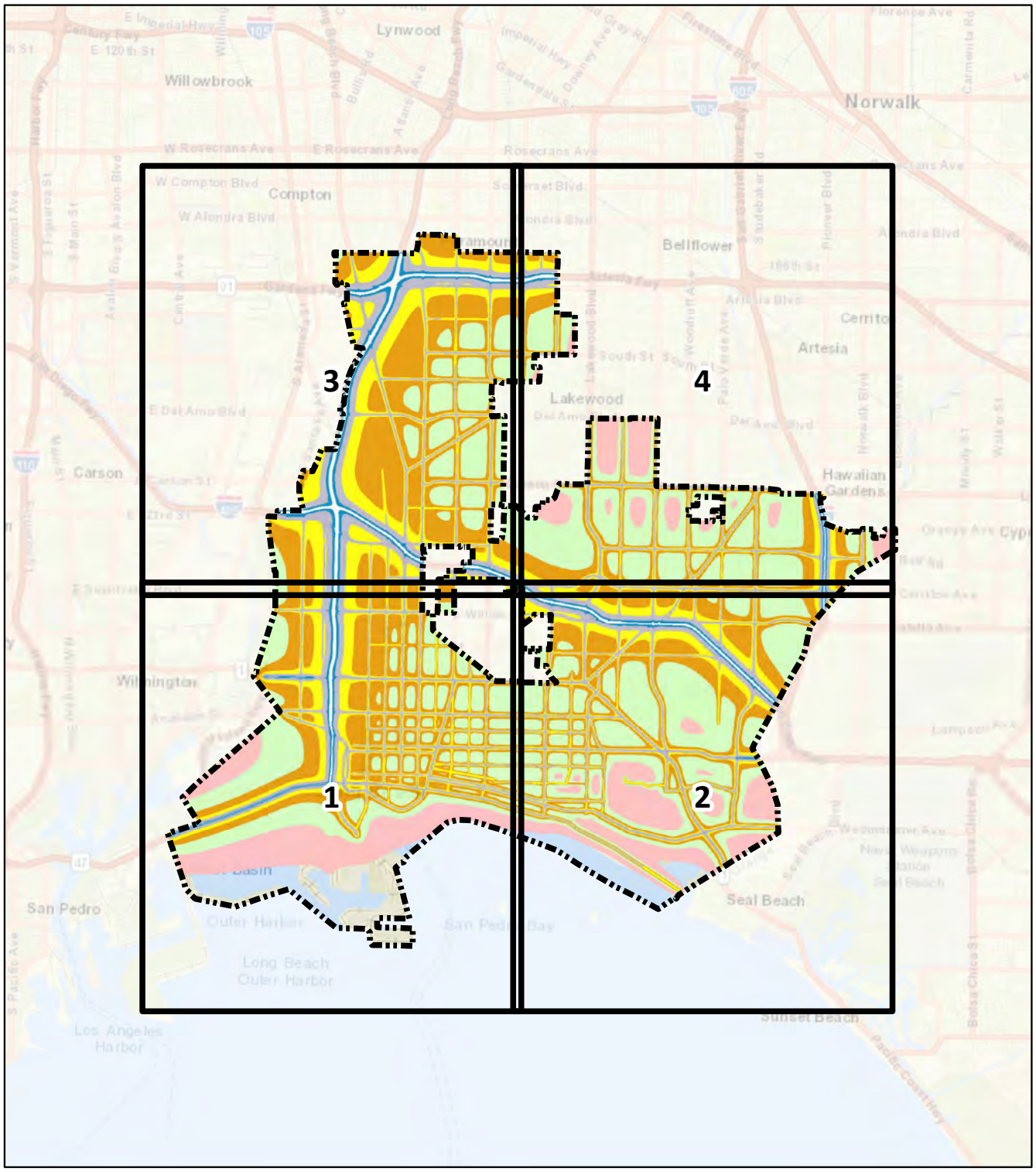
"Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody."

Jane Jacobs
Urbanist, Author - The Death and Life of Great American Cities

7

Appendix

Future Traffic Noise Contours (2040) 63



LEGEND

- Long Beach City Boundary
- Future 2040 Traffic Noise Contours
  - 55 dBA Ldn
  - 60 dBA Ldn
  - 65 dBA Ldn
  - 70 dBA Ldn
  - 75 dBA Ldn
  - 80 dBA Ldn
  - 85 dBA Ldn

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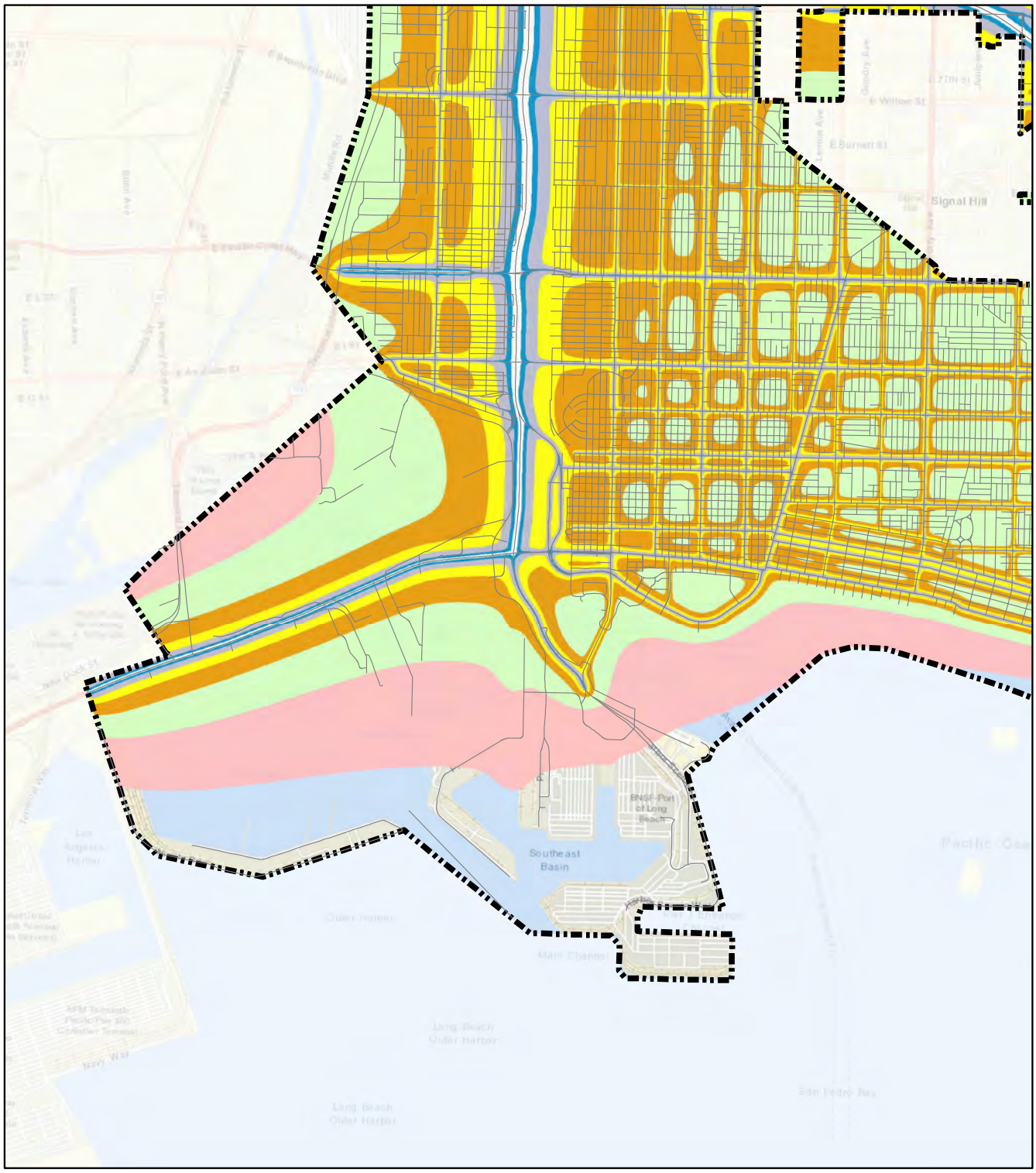

LEGEND

Long Beach City Boundary

Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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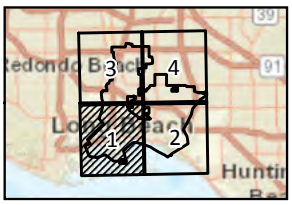

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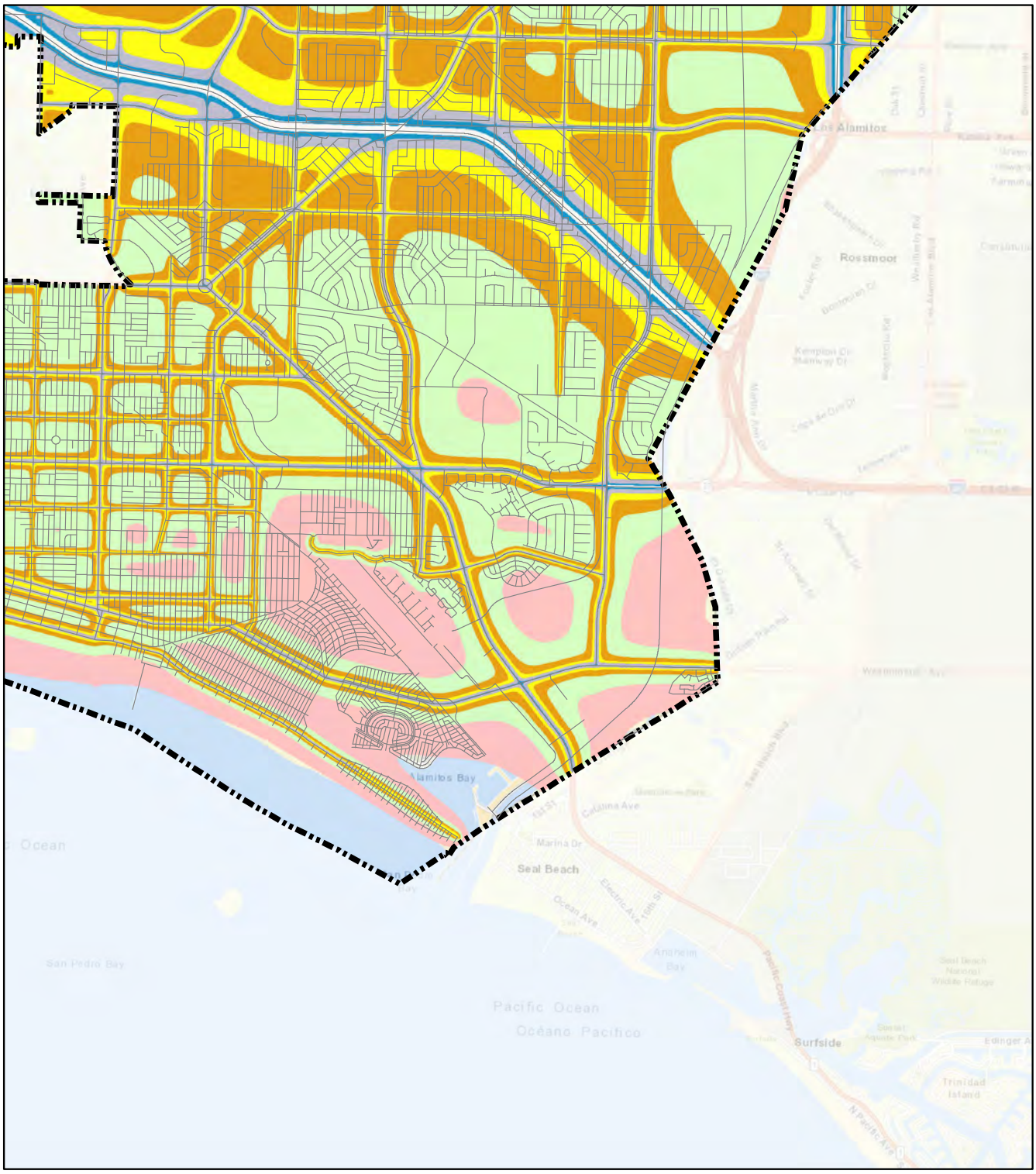

LEGEND

Long Beach City Boundary

Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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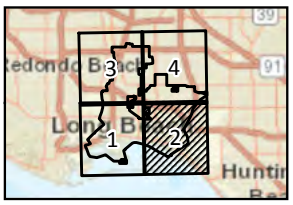

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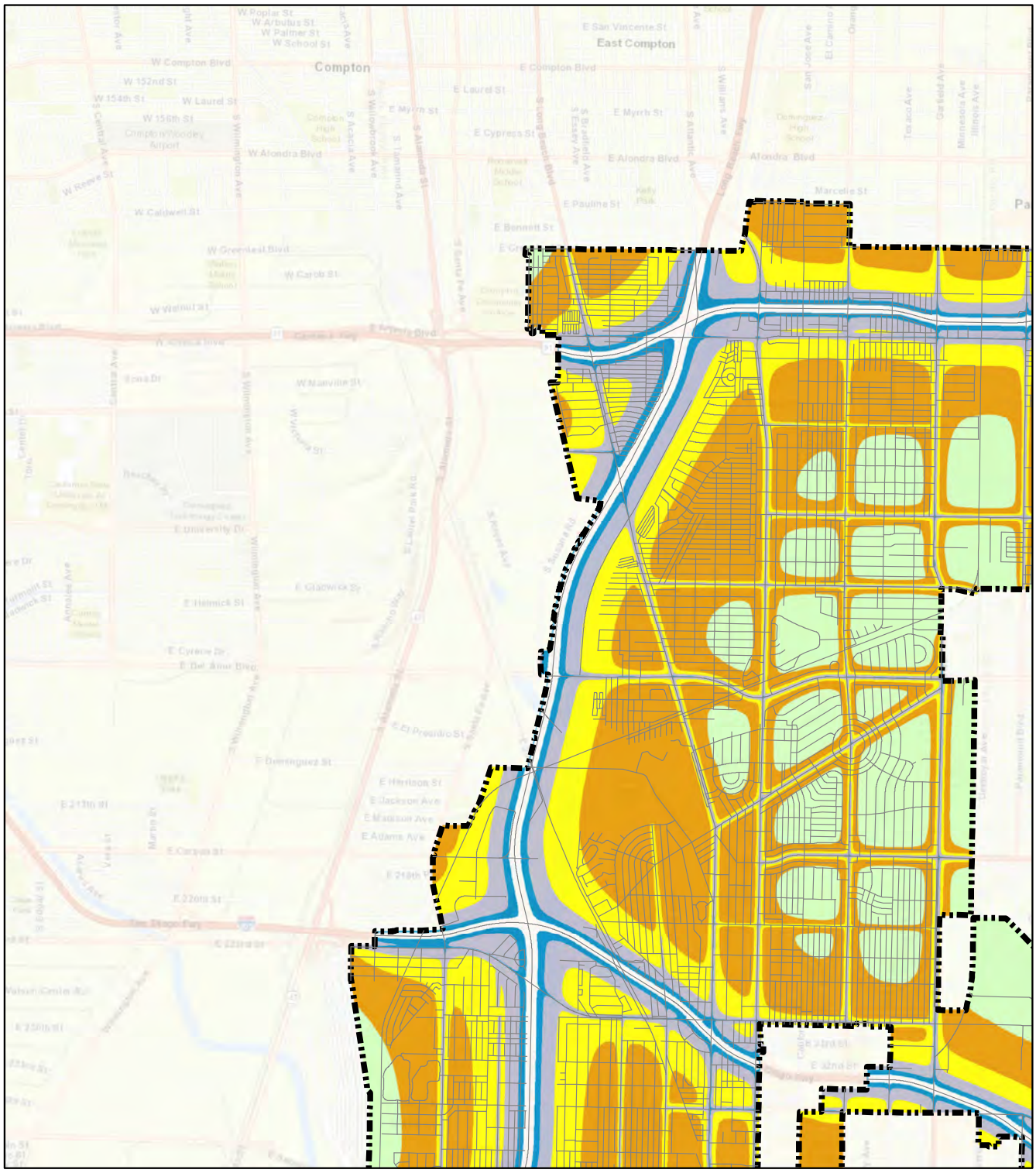

LEGEND

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Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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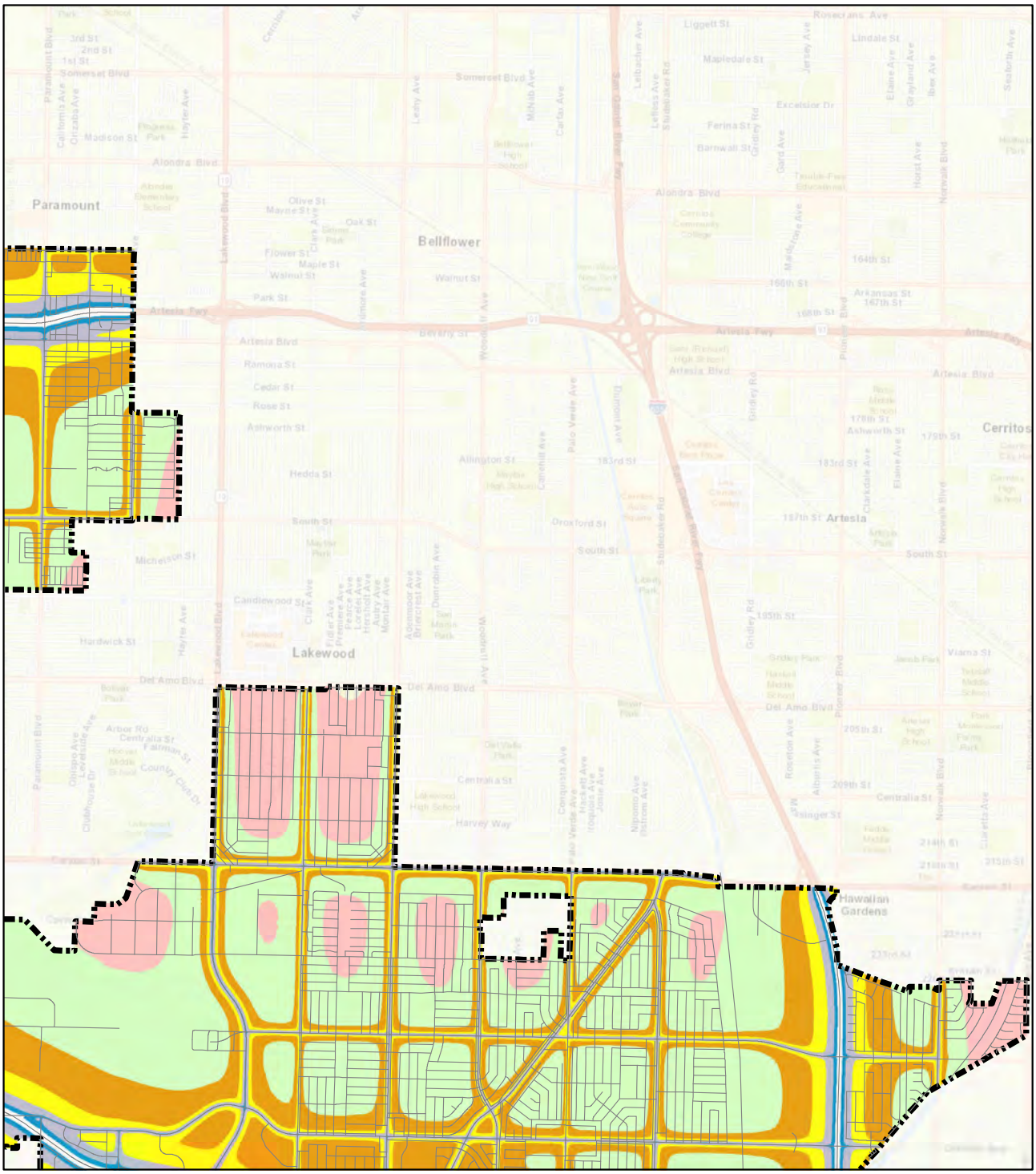

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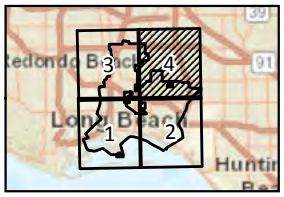

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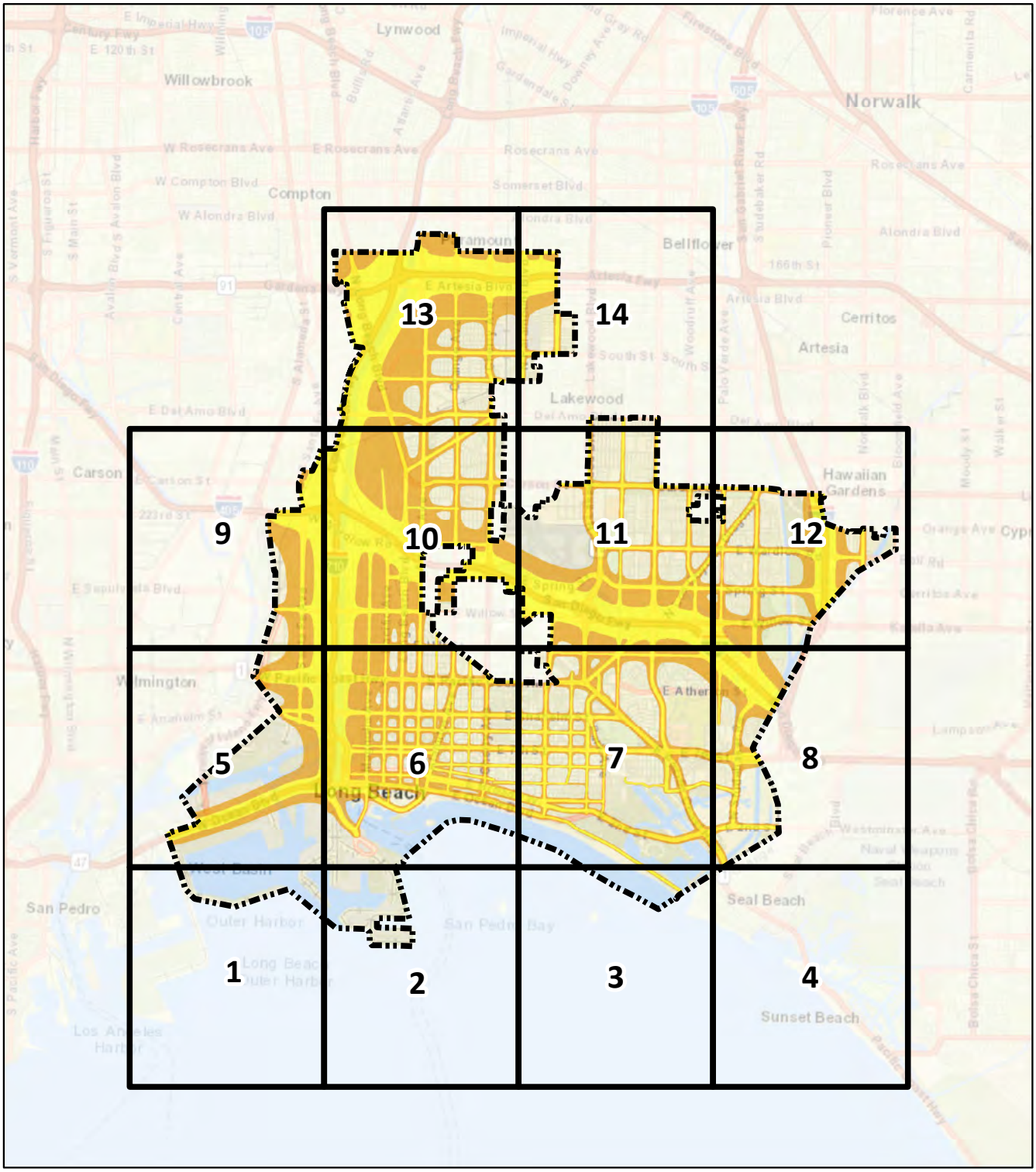

LEGEND

Long Beach City Boundary

Future 2040 Traffic Noise Contours

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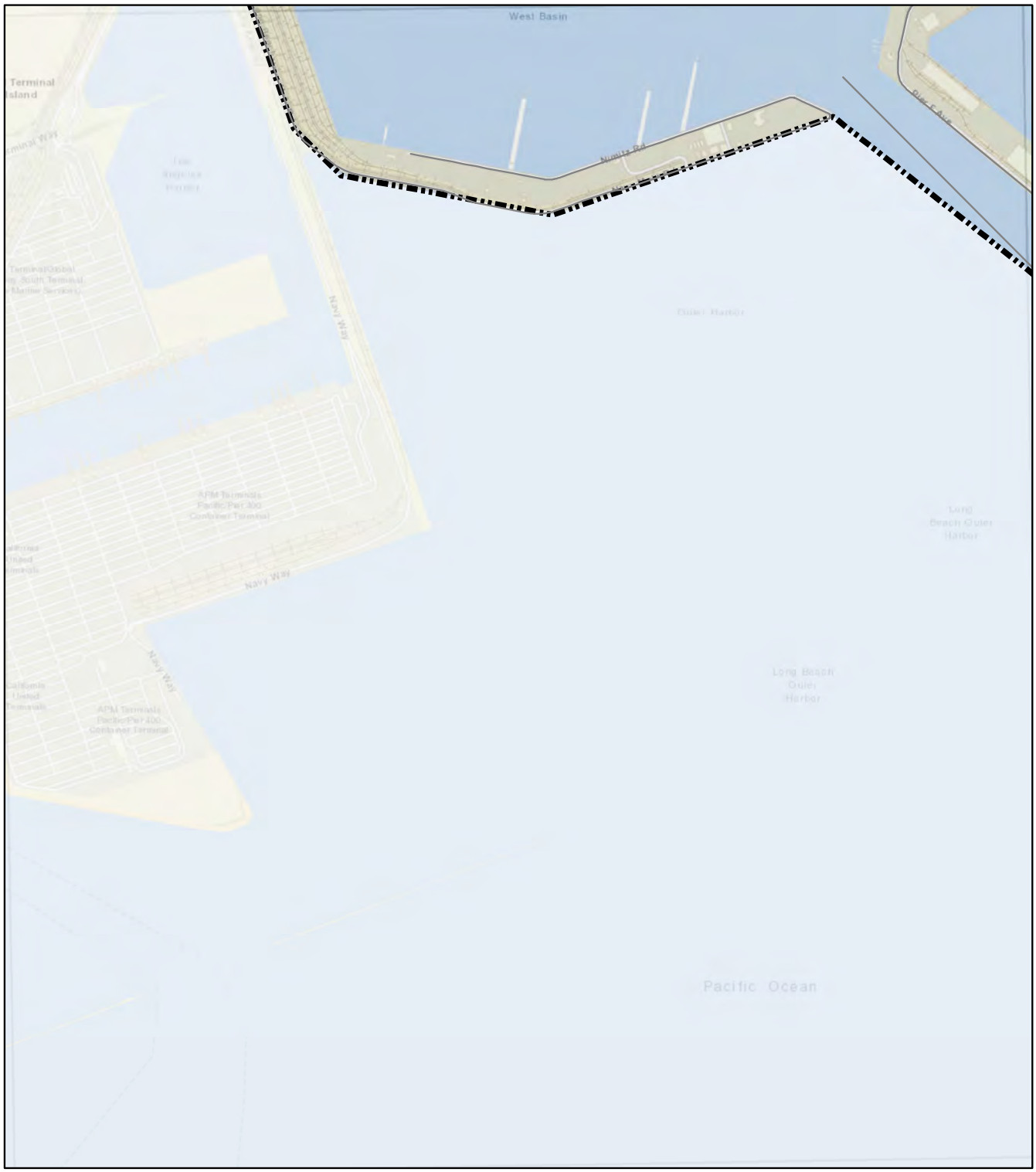

LEGEND

Long Beach City Boundary

Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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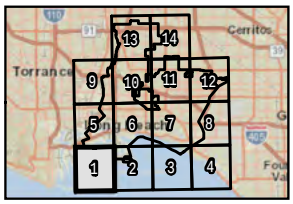

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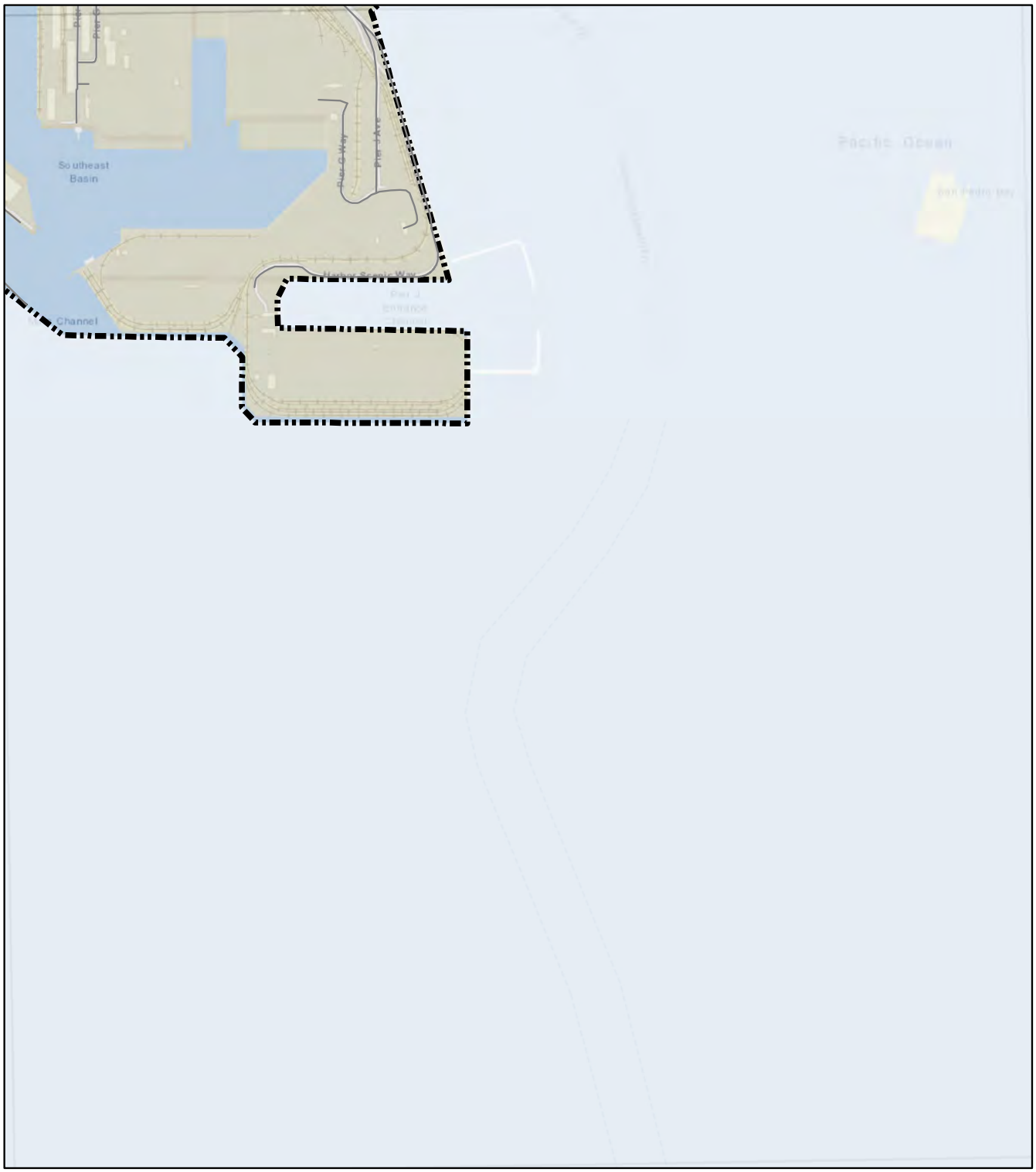

LEGEND

Long Beach City Boundary

Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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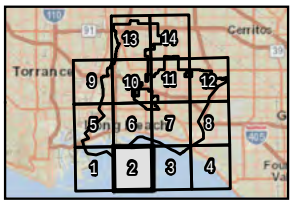

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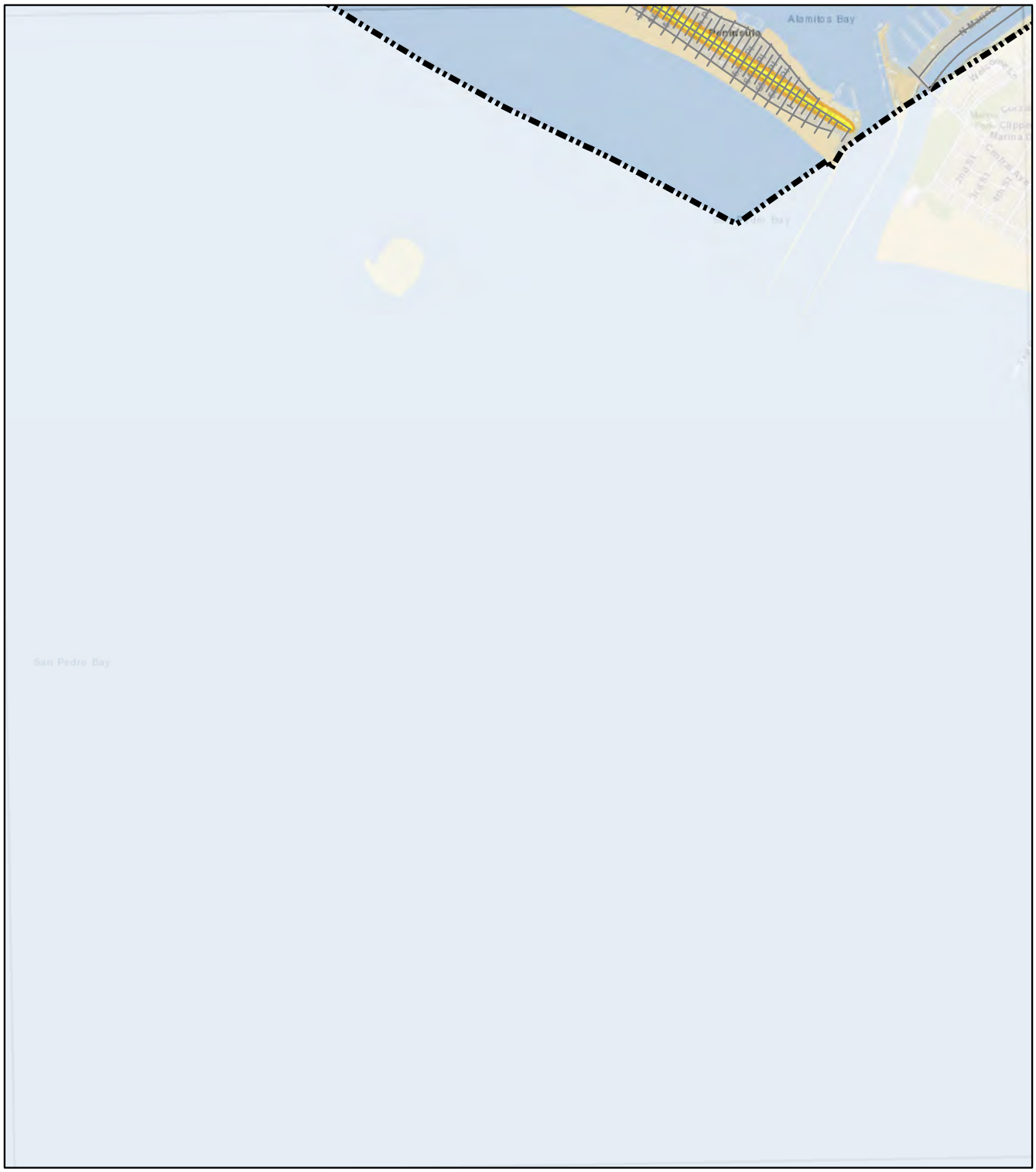

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Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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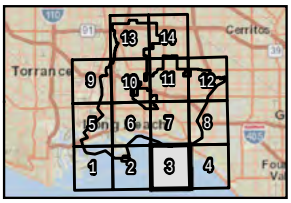

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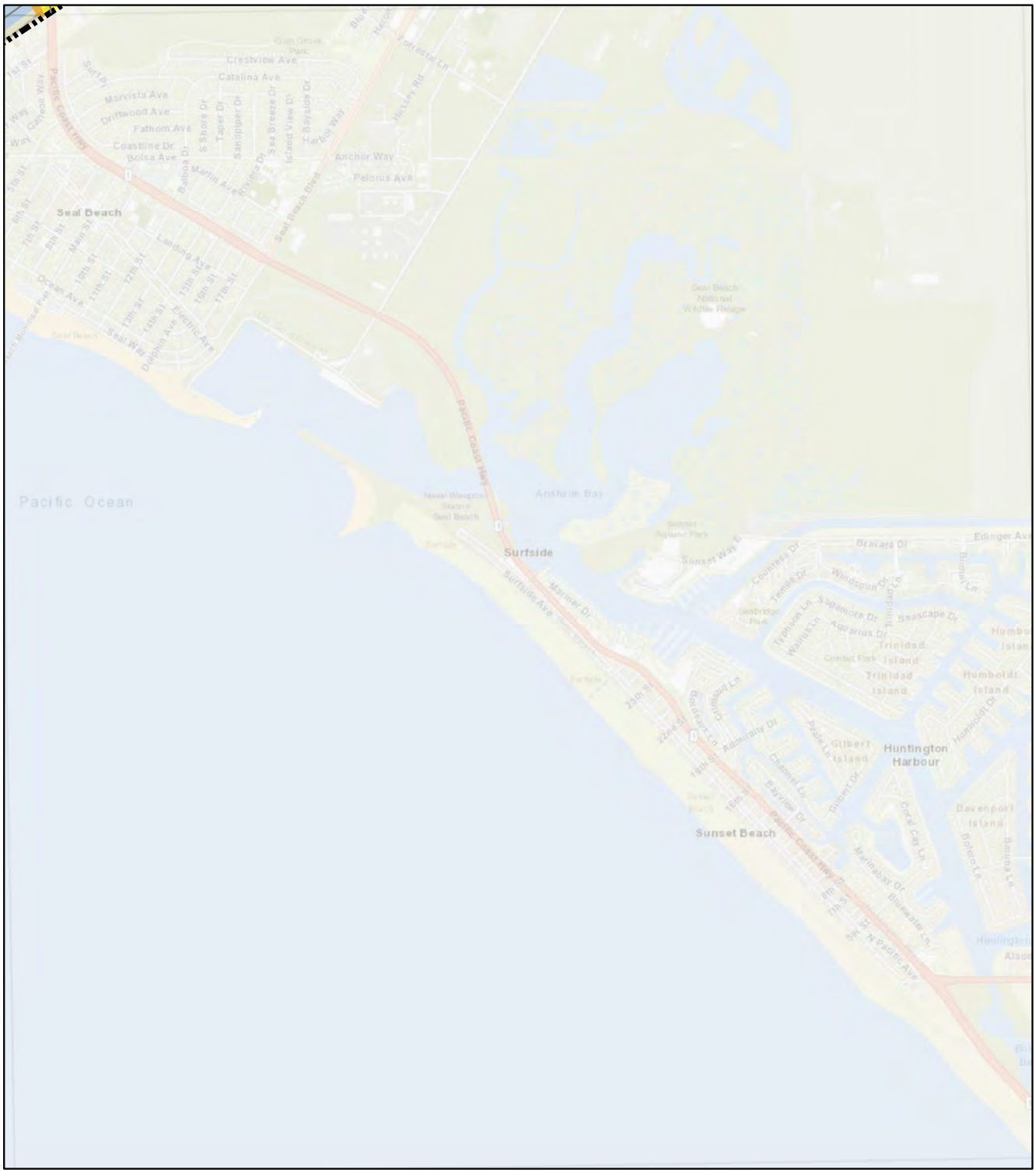

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Long Beach City Boundary

Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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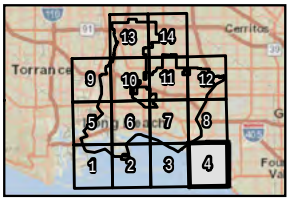

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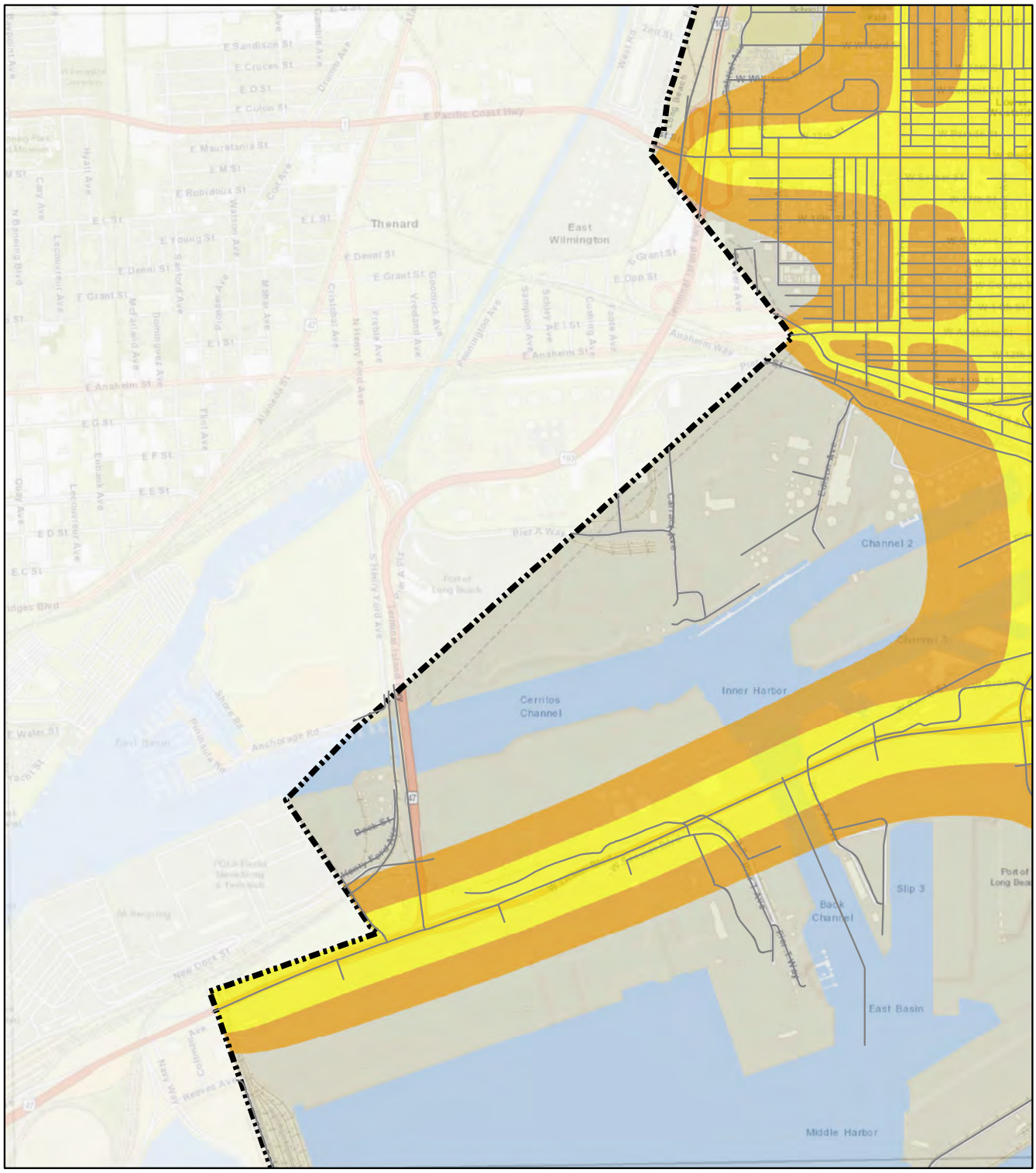

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Long Beach City Boundary

Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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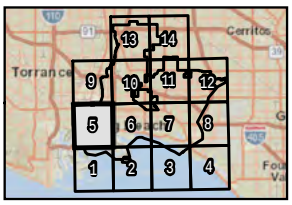

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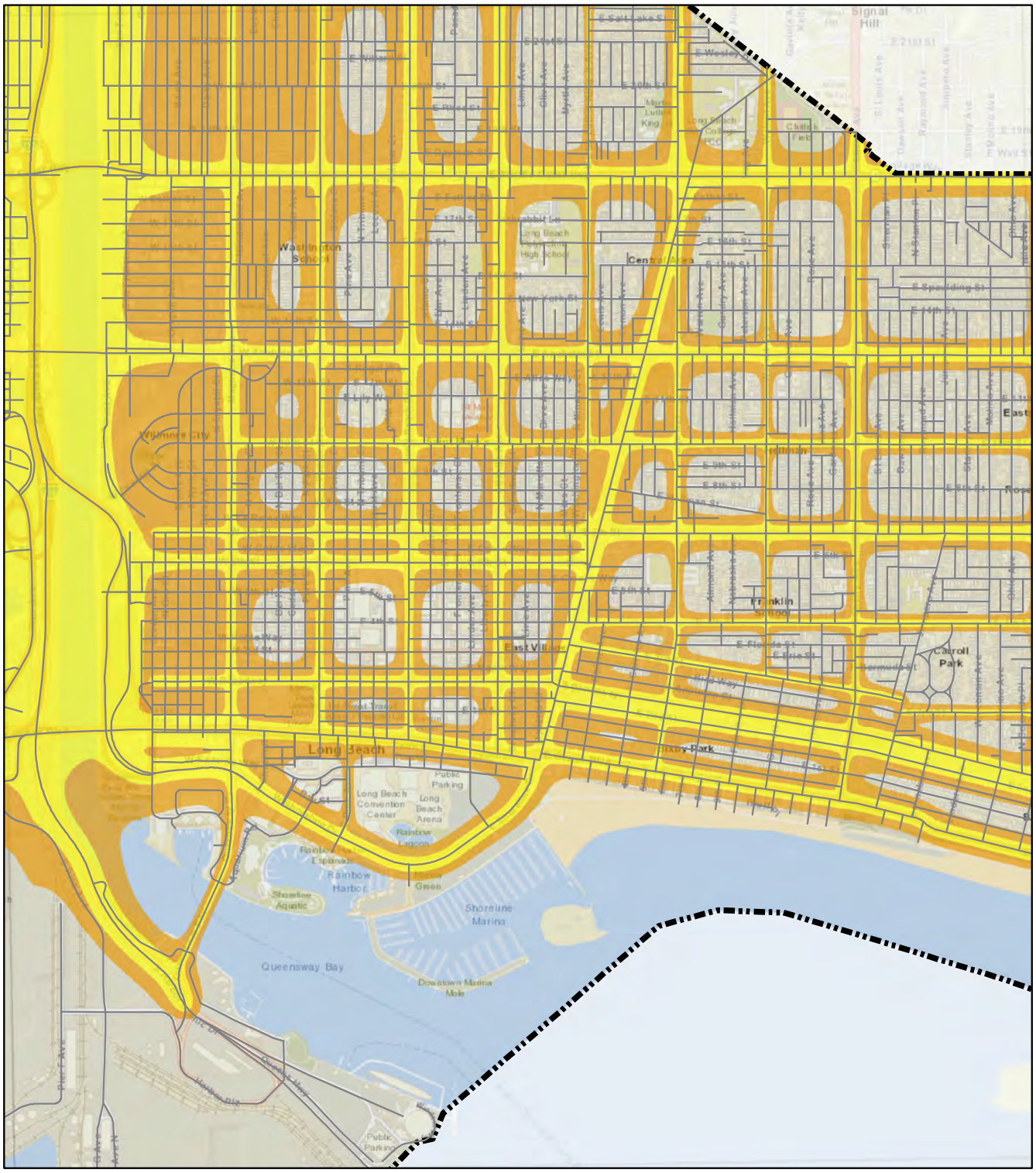

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Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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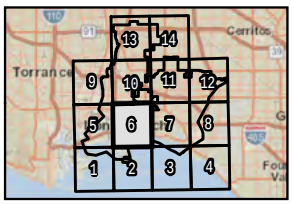

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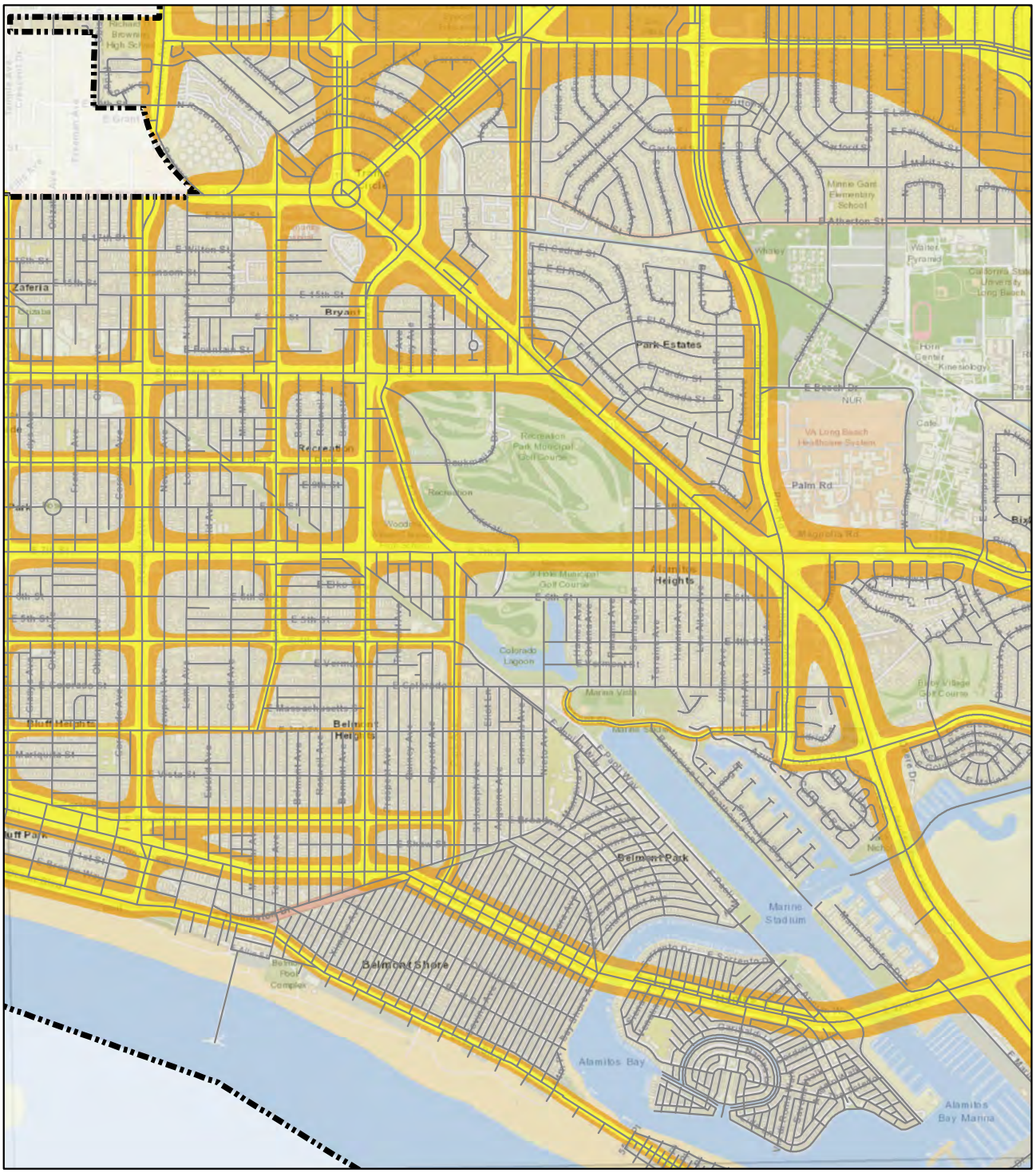

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Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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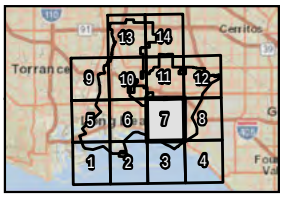

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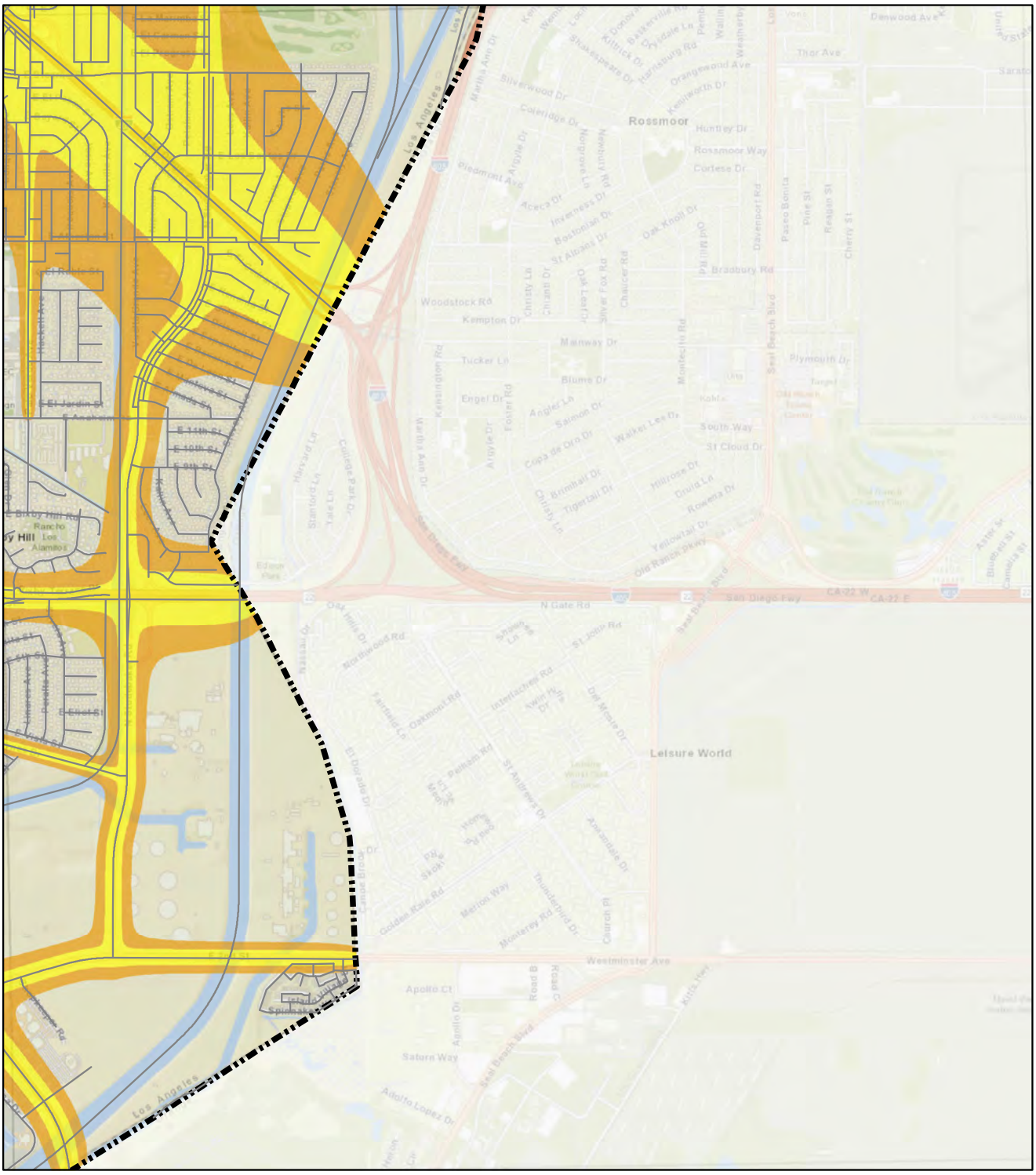

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Long Beach City Boundary

Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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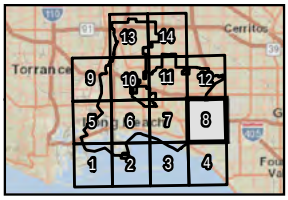

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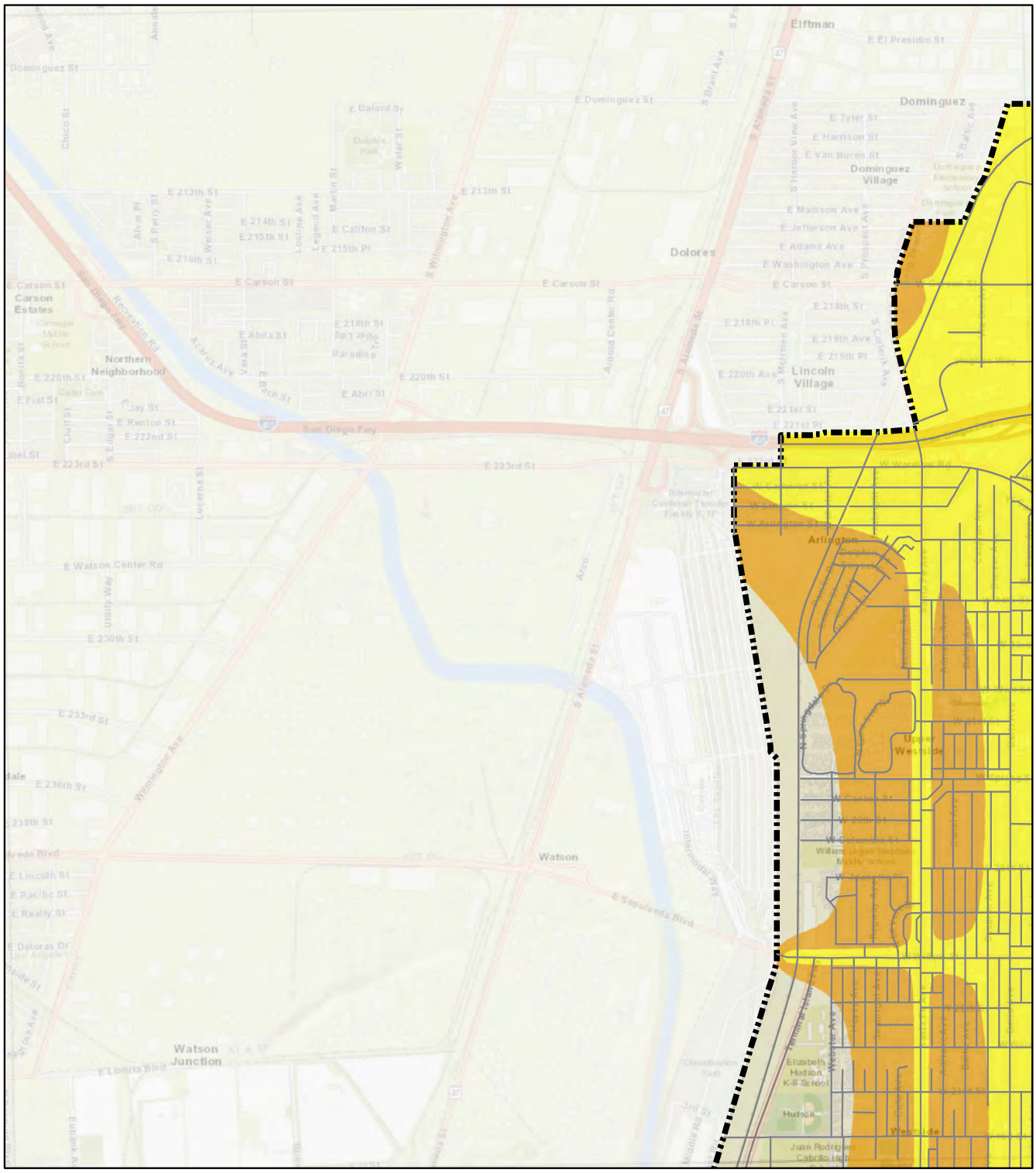

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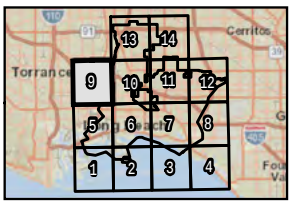

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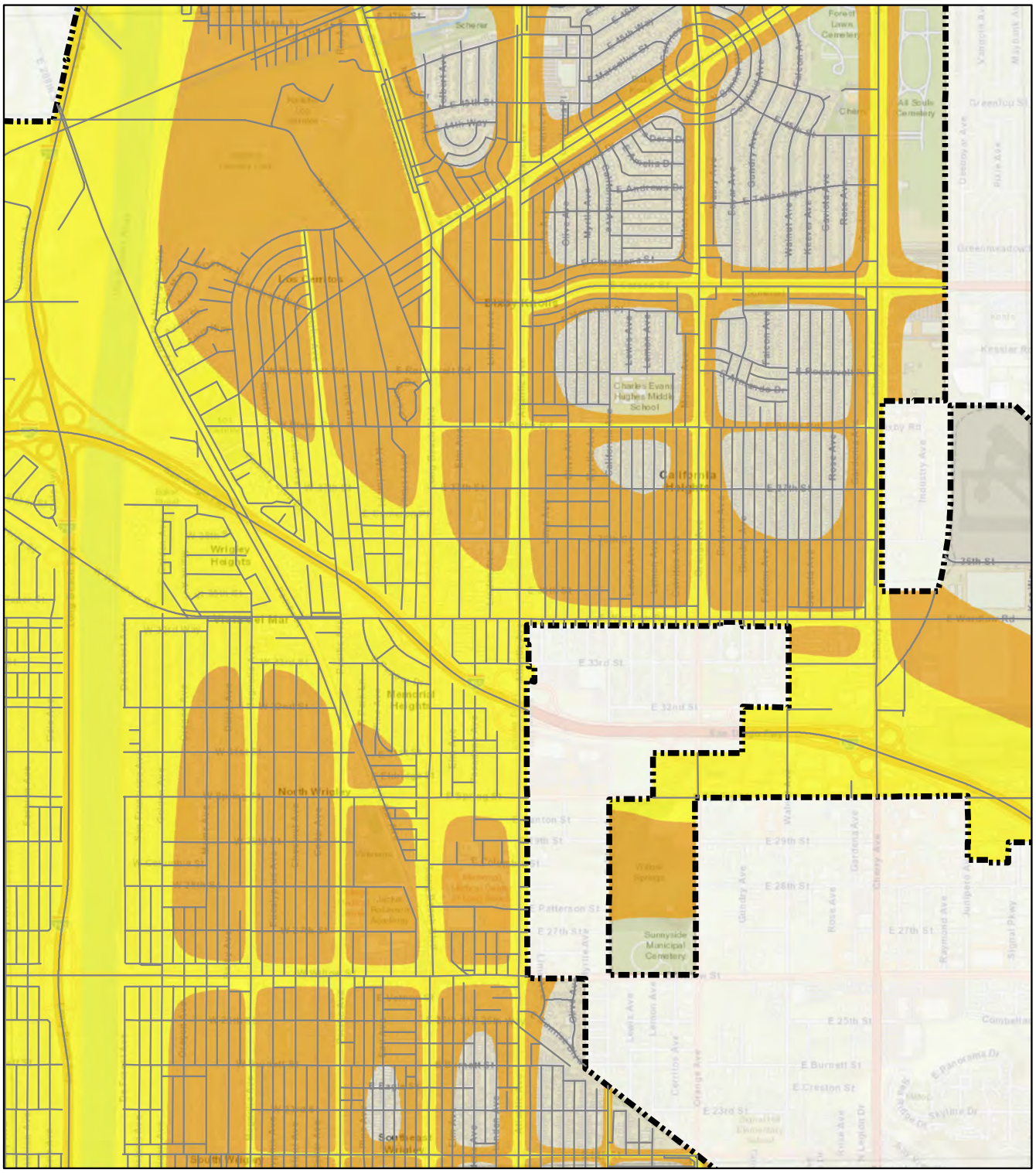

LEGEND

Long Beach City Boundary

Long Beach City Centerlines

Future 2040 Traffic Noise Contours

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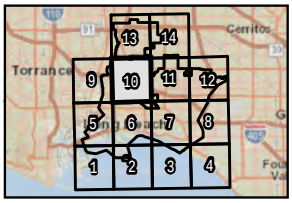

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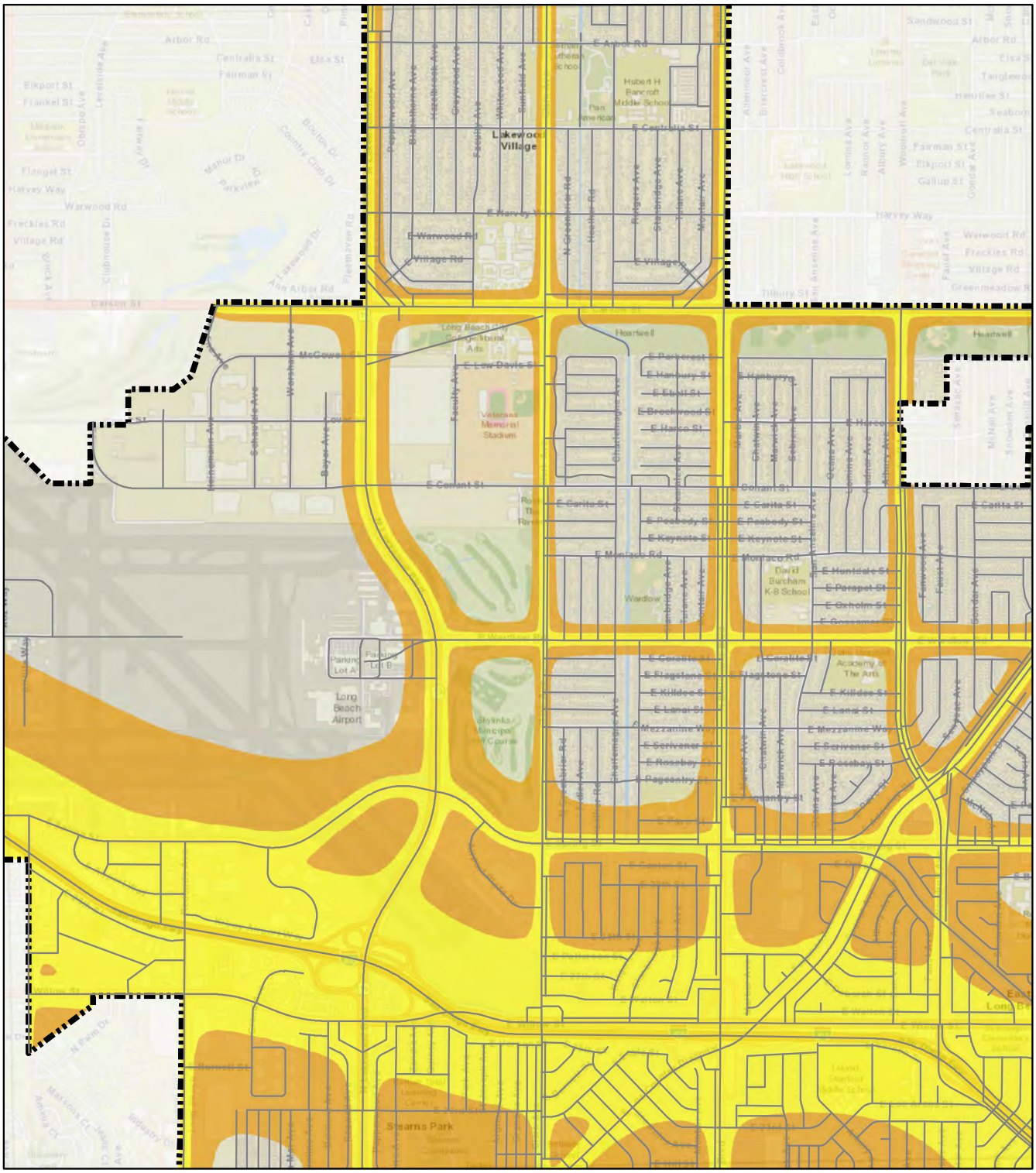

LEGEND

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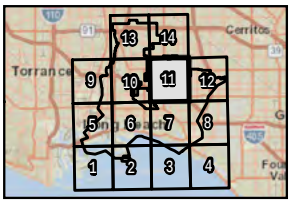

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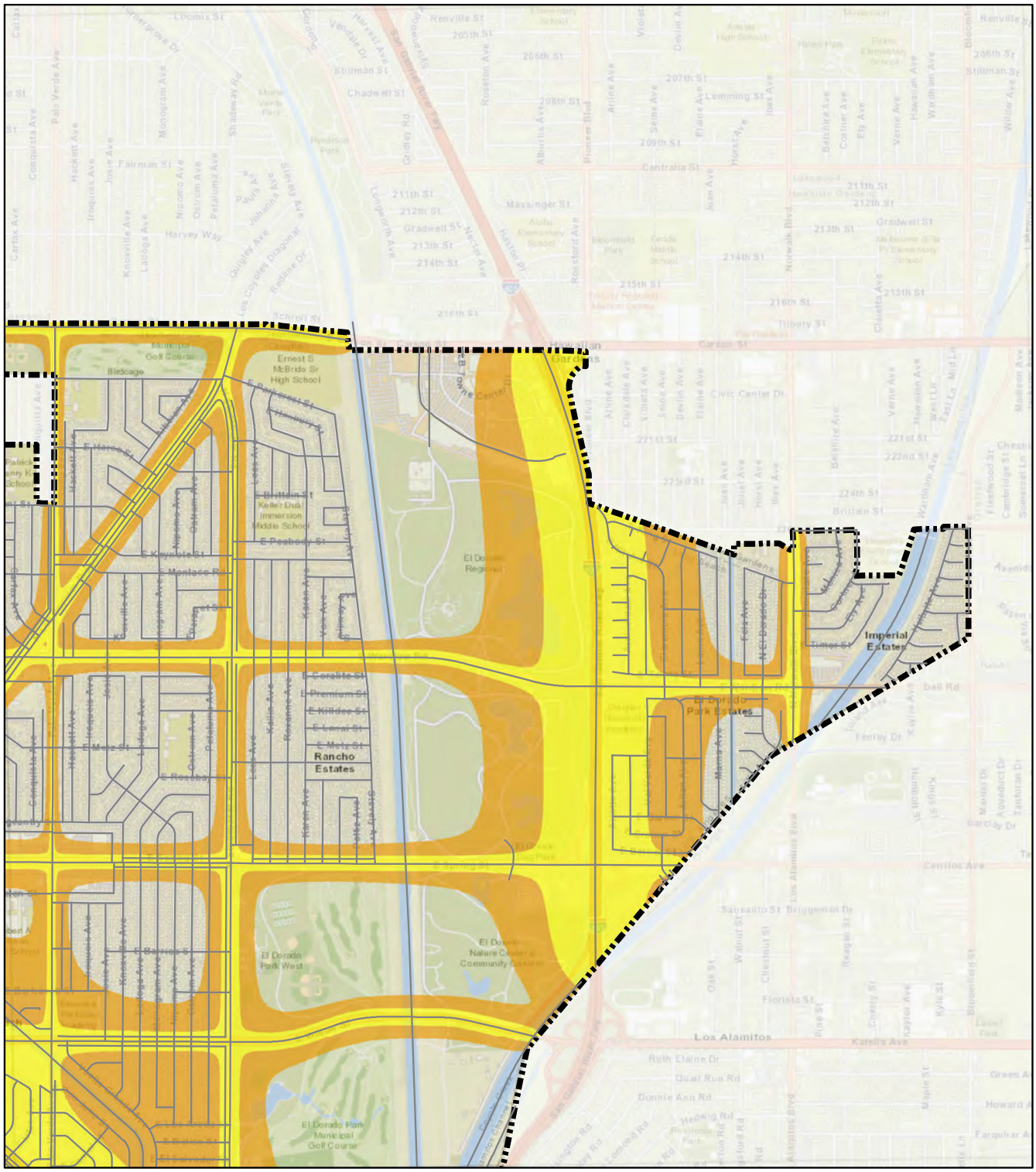

LEGEND

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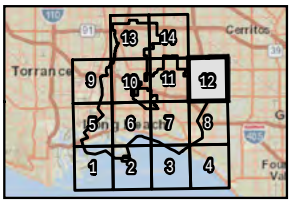

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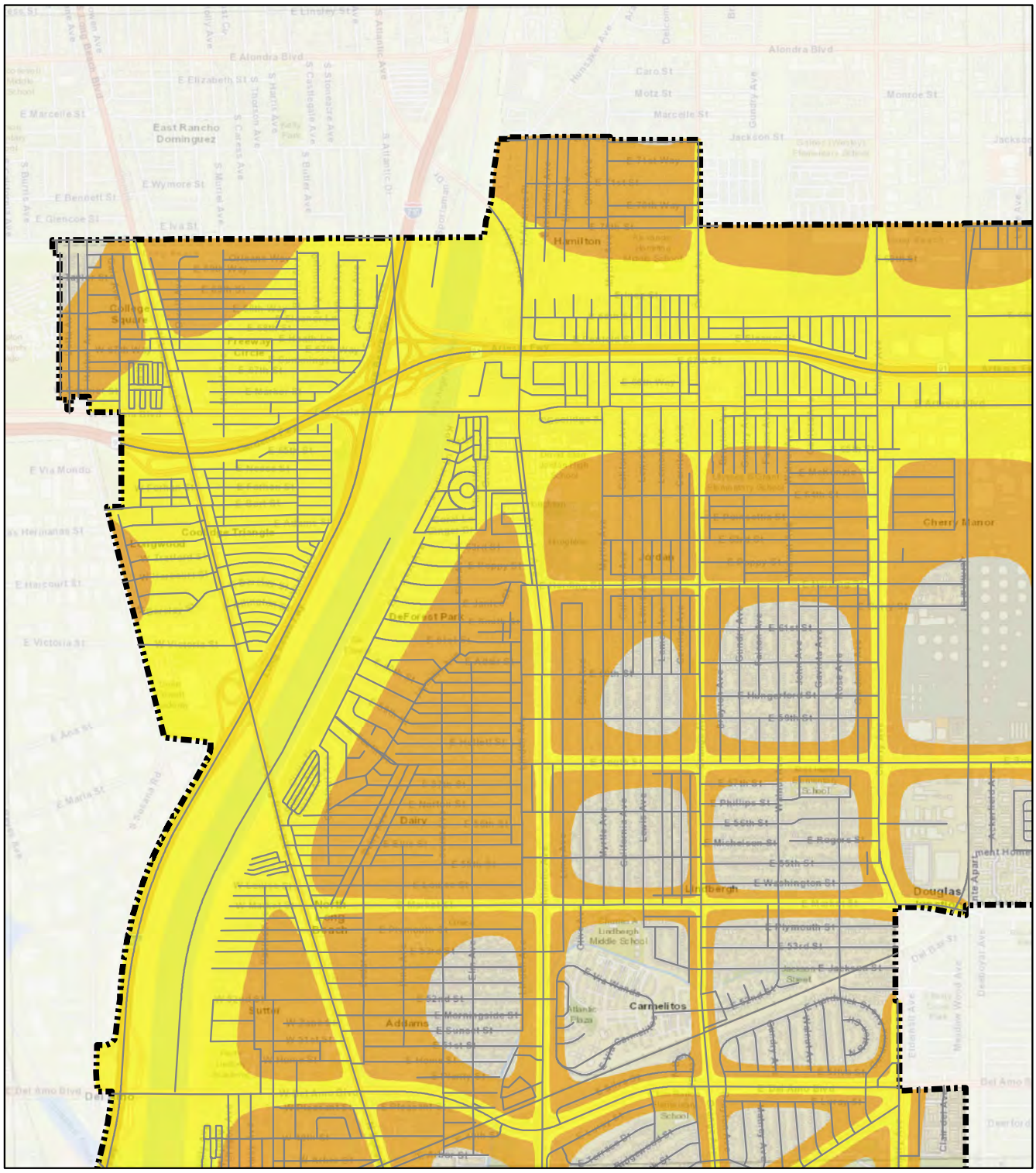

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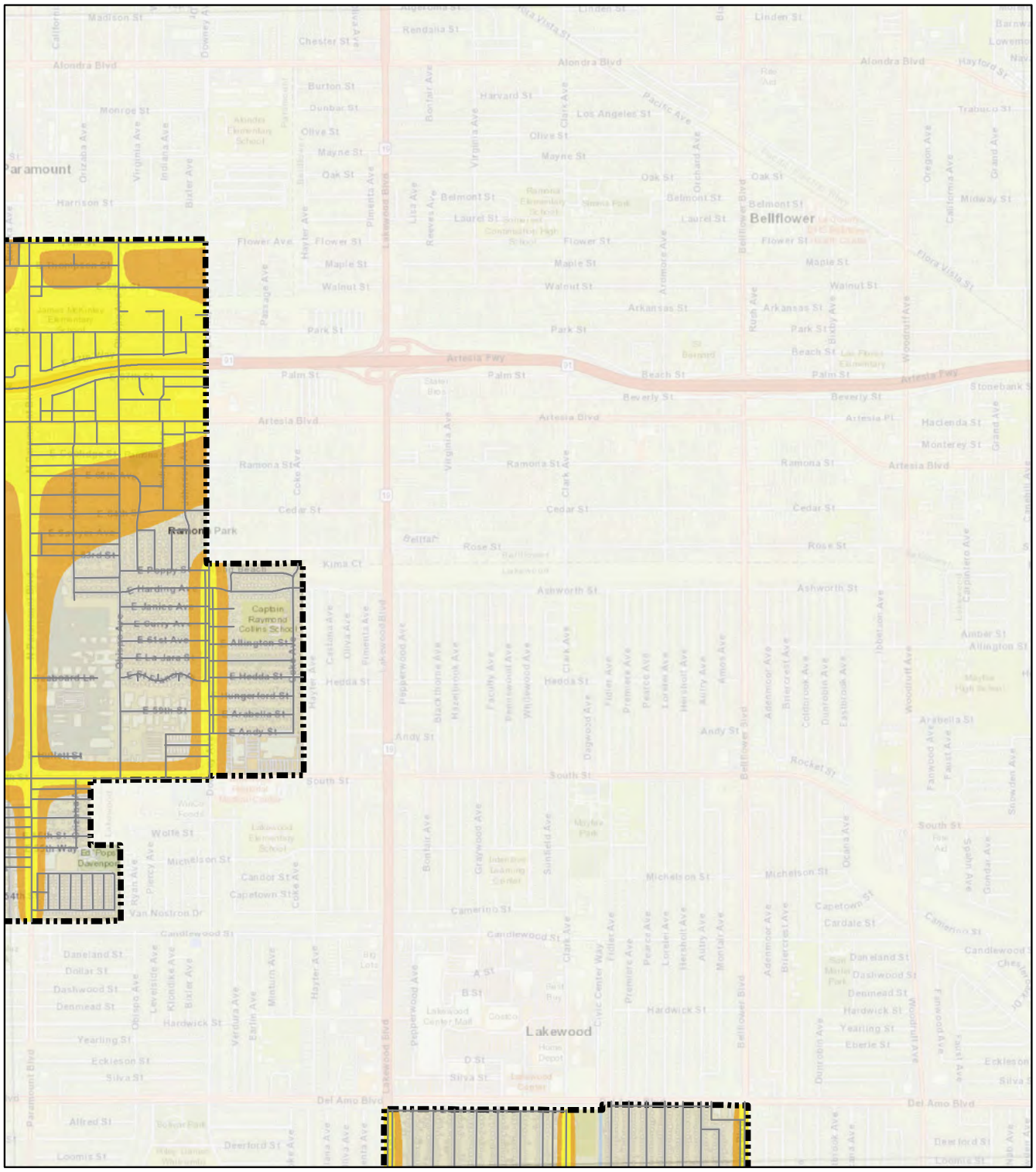

LEGEND

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Long Beach Development Services
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Long Beach, CA 90802

Visit us at **www.lbds.info**

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