CHAPTER 9: NOISE ELEMENT

Arcadia General Plan

Introduction

The City of Arcadia is exposed to several sources of noise, including traffic, sports events, commercial activity, concerts in the park, horse racing at Santa Anita Park, and periodic occurrences such as construction and aircraft overflights. Excessive noise levels can affect physical health, property values, and economic productivity. The control of noise is therefore essential to achieving community objectives.

Achieving Our Vision

Arcadia residents understand the relationship between noise and peaceful environments. As part of the visioning process that shaped this General Plan, community members expressed their desires to minimize adverse noise conditions in residential neighborhoods and in particular, to guard against intrusive noise where commercial districts interface with homes. The Guiding Principles, while not addressing noise directly, promote:

Balanced Growth and Development
The General Plan establishes a balance and mix of land uses that promote economic growth and maintain a high quality of life for

Arcadia residents. Our development decisions reflect Smart Growth principles and strategies that move us toward enhanced mobility, more efficient use of resources and infrastructure, and healthier lifestyles.

The Effects of Noise in the Suburban Environment

In recognition of the adverse health effects associated with excessive noise, the California Government Code, Section 65302(f) very specifically identifies the types of community noise to be addressed in the General Plan. The Noise Element addresses noise sources from:

- Highways and freeways
- Primary arterials and major local streets
- Passenger and freight on-line railroad operations and ground rapid transit systems
- Commercial, general aviation, heliport, and military airport operations, aircraft over-flights, and all other ground facilities and maintenance functions related to airport operations
- Local industrial plants
- Other stationary ground noise sources identified by the City as contributing to the community noise environment

Leaf blowers certainly make landscape maintenance easy, but they are a common source of community noise complaints.

The interfaces between commercial and residential districts and noise associated with roadways and Interstate 210 represent the focus of community noise concerns in Arcadia. Although train traffic, industrial businesses, and construction and landscaping activities, for example, also contribute to the ambient noise environment, these are usually more localized. The City monitors and regulates noise in recognition of the potentially adverse physical and psychological health affects related to excessive noise and because, as noted above, low ambient noise levels contribute to quality living environments.

Understanding Noise

Defining noise with a single unit of measure is difficult because noise consists of several components—pitch, loudness, and duration—and because noise includes subjective qualities. In the context of this Noise Element, the following terms are important to understand.

Ambient Noise. This refers to the combination of sounds you hear in the outdoor environment. Generally, one particular noise source is not distinguishable from another.

Intrusive Noise. This refers to noise, usually from a particular location or source, that interrupts an activity.

dB (decibel). The unit used to represent and measure the volume of a sound, equal to the logarithm of the ratio of the sound pressure of a standard sound (.0002 microbars).[1]

dBA. The A-weighted decibel is an adjusted measurement of sound that has been developed to describe the loudness of a sound or sound environment based on the sensitivity of the human ear.

CNEL (Community Noise Equivalent Level). A 24-hour energy equivalent level derived from a variety of single-source noise events, with weighting factors of five and 10 dBA applied to the evening (7:00 P.M. to 10:00 P.M.) and nighttime (10:00 P.M. to 7:00 A.M.) periods to allow for greater sensitivity to noise during these hours.[2]

Leq. This is a measurement that represents the time average sound level or equivalent continuous noise level.

The A-weighted sound pressure level, or dBA, is used to describe the sound environment based on the sensitivity of the human ear. At 60 dBA, noise can impair a person's ability to understand what someone else is saying, and sound levels over 40 to 45 dBA can disturb sleep. A person's likelihood of hearing loss strongly increases at prolonged exposure to sound levels over 85 dBA. Table N-1 lists common sources of noise and their approximate noise levels.

The State's *General Plan Guidelines* identify the following suggested targets for minimizing adverse community noise affects:

Health Objective	dBA Range
▪ Prevent hearing loss	75-80
▪ Prevent physiological effects (other than hearing loss)	65-75
▪ Prevent speech interference	50-60
▪ Address people's subjective preference for noise control	45-50
▪ Prevent sleep interruption	35-45

[1] Arcadia Municipal Code, Article 4, Chapter 6. Noise Regulations.
[2] *State of California General Plan Guidelines*, 2003.

TABLE N-1: TYPICAL NOISE LEVELS IN THE ENVIRONMENT

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Activity
Jet fly-over at 300 meters	120 dBA	
	115 dBA	Rock concert
	110 dBA	
Pile driver at 20 meters	100 dBA	
	95 dBA	Night club with live music
	90 dBA	
Large truck passing by at 15 meters	85 dBA	
	80 dBA	Noisy restaurant
	75 dBA	Garbage disposal at 1 meter (3 feet)
Gas lawn mower at 30 meters	70 dBA	Vacuum cleaner at 3 meters (10 feet)
Commercial/Urban area daytime	65 dBA	
Suburban expressway at 90 meters	60 dBA	
Suburban daytime	55 dBA	Active office environment
	50 dBA	
Urban area nighttime	45 dBA	Quiet office environment
	40 dBA	
	35 dBA	
Quiet rural areas	30 dBA	Library
	25 dBA	Quiet bedroom at night
Wilderness area	20 dBA	
	15 dBA	
	10 dBA	Quiet recording studio
	5 dBA	
	0 dBA	Threshold of human hearing

Noise Control

The City's Municipal Code contains regulations that limit the levels of stationary source noise. The broad aim is to maintain ambient noise at acceptable levels, with specific and separate standards established for residential, commercial, and industrial districts as follows:

Region	7:00 A.M. to 10:00 P.M.	10:00 P.M. to 7:00 A.M.
Residential Zone	55 dBA	50 dBA
Commercial Zone	65 dBA	60 dBA
Industrial Zone	70 dBA	70 dBA

Recognizing that construction noise, amplified sound, and noise from late-night commercial activities near residential neighborhoods represent the chief sources of intermittent loud noise and noise complaints, the noise ordinance addresses these sources specifically. Among other provisions, the ordinance states that "it shall be unlawful for any person to willfully make or continue, or cause to be made and continued, any loud, unnecessary and unusual noise which disturbs the peace or quiet of any neighborhood, or which causes discomfort or annoyance to residents of the area."

Title 24 of the California Health and Safety Code establishes an interior noise standard of 45 dBA for multiple residential unit and hotel/motel structures. Acoustical studies must be prepared for proposed multifamily residential developments and hotel/motels within the CNEL noise contours of 60 dBA or greater. The studies must demonstrate that the design of the building will reduce interior noise to 45 dBA CNEL or lower.

Noise Sources and Conditions in Arcadia

Transportation Noise – Baseline 2008

As is the case in many suburban communities, street and freeway traffic represent the dominant sources of noise in Arcadia. Interstate 210, which traverses the northern portion of the City, has abutting residential neighborhoods on both the north and south sides which historically have been exposed to noise levels exceeding 65 CNEL. The Los Angeles County Metropolitan Transportation Authority (Metro) began to address long-standing freeway noise issues in 2008-09 with the construction of substantial sound walls within portions of Arcadia (from the western boundary to Baldwin Avenue).[3] Sound walls are to be completed on both the north and south sides of the freeway from Santa Anita Avenue in Arcadia to Huntington Drive and California Avenue in Monrovia. Metro's funding, as of 2010, does not provide for sound walls between Baldwin and Santa Anita Avenues. Metro applies its adopted *Sound Wall Implementation Policy* and uses ranking criteria to prioritize sound wall programs throughout Los Angeles County. Funding for gap closure in Arcadia could occur as a result of Metro's periodic review of priorities and funding availability.

Traffic along major roadways—Baldwin Avenue, Santa Anita Avenue, Foothill Boulevard, Huntington Drive, Duarte Road, Las Tunas Drive, and Live Oak Avenue—and at major intersections impacts the residential neighborhoods in the immediate vicinity.

[3] In 1989, SB 45 transferred the responsibility for sound wall construction from Caltrans to regional transportation planning agencies, which in Los Angeles County is Metro. Thus, Metro oversees the I-210 sound wall construction project.

With the planned opening of Metro Gold Line light rail service into and through Arcadia, train noise will represent a reintroduced noise source. Freight and passenger trains once traveled along rail routes through the City, but they ceased in 1994. Light rail commuter trains will use the same route as the prior trains, but they do not create comparable noise levels to the heavier diesel locomotives and long trains of the past. With the crossing of Santa Anita Avenue to be grade separated, the need to sound train horns in Arcadia will be minimized. Nonetheless, residents and businesses will find themselves readjusting to the presence of train noise.

Aircraft overflights represent another transportation-related noise source. Aircraft using El Monte Airport, located approximately one and one-quarter mile south of Live Oak Avenue, occasionally fly at low levels over Arcadia.

In July 2008, 24-hour noise measurements were taken to establish baseline noise conditions at key locations in the City: near I-210, along South Santa Anita Avenue, near Santa Anita Park (to document noise associated with race track operations), and near railroad lines where Gold Line service will occur.[4] In addition to the 24-hour noise measurements, 13 sites around Arcadia were chosen for short-term measurements. (The measurements were obtained prior to completion of sound wall construction.) With regard to the transportation noise sources, the measurements revealed:

As part of the process to assess citywide ambient noise conditions in 2008, readings were taken in the backyards of homes.

- **I-210:** In the residential neighborhoods north of I-210, noise levels associated with freeway traffic (behind an approximately 15-foot high wall) measured 67.0 dBA CNEL, with hourly noise levels ranging from 57.6 to 63.0 dBA Leq. Noise levels are generally constant and dependant on traffic conditions. The highest noise levels generally occur between 5:00 A.M. and 6:00 P.M.

- **Railroad Right-of-way:** At Newcastle Park near the railroad tracks on Colorado Boulevard, noise levels were measured at 60.0 dBA CNEL, with hourly noise levels ranging from 49.7 to 60.9 dBA Leq. The main contribution of noise in the area was mainly traffic noise on Colorado Boulevard. At the time measurements were made, Gold Line service had not begun.

- **South Santa Anita Avenue at Longden Avenue:** Noise levels measured within a residential neighborhood adjacent to South Santa Anita Avenue measured 68.1 dBA CNEL, with hourly noise levels ranging from 53.8 to 66.1 dBA Leq. Noise levels were generally constant and dependent on traffic conditions. The highest noise levels generally occur during the daytime rush hours between 6:00 A.M. and 9:00 A.M.

[4] For complete information regarding noise measurement locations and measurement results, readers are referred to the report *City of Arcadia Existing Noise Level Measurements* dated August 13, 2008 and on file with Development Services Department, Planning Division.

Noise monitoring results from the short-term measurements indicated that generally, areas adjacent to I-210 and Foothill Boulevard, Campus Avenue, Duarte Road, Michillinda Avenue, and Huntington Drive experience the highest noise levels. The lowest noise levels occur along local streets in residential neighborhoods, averaging 51.9 dBA Leq. The highest recorded level was 69.9 dBA Leq at Foothill Boulevard at Oakdale Lane, attributed to vehicle traffic on Foothill Boulevard.

Figure N-1 indicates ambient CNEL noise levels reflective of the noise measurements for baseline year 2008, largely attributable to transportation sources.

The State regulates noise generated by individual vehicles; thus, the City cannot establish noise limits for cars and trucks. However, the Police Department enforces State vehicle code standards. State law prohibits vehicles from using any sound amplification system that can be heard from 50 feet away from a vehicle. State law also requires the use of adequate mufflers to prevent excessive or unusual noise.

Stationary Source Noise

Stationary noise generators in Arcadia include Santa Anita Park (during racing seasons), industrial businesses with outdoor operations, and commercial businesses that have outdoor entertainment, late-night activities, and extensive truck traffic. The impacts of these uses are localized. Other stationary noise sources include everyday activities such as construction and gardening equipment. Stationary noises can be as disruptive as background traffic noise.

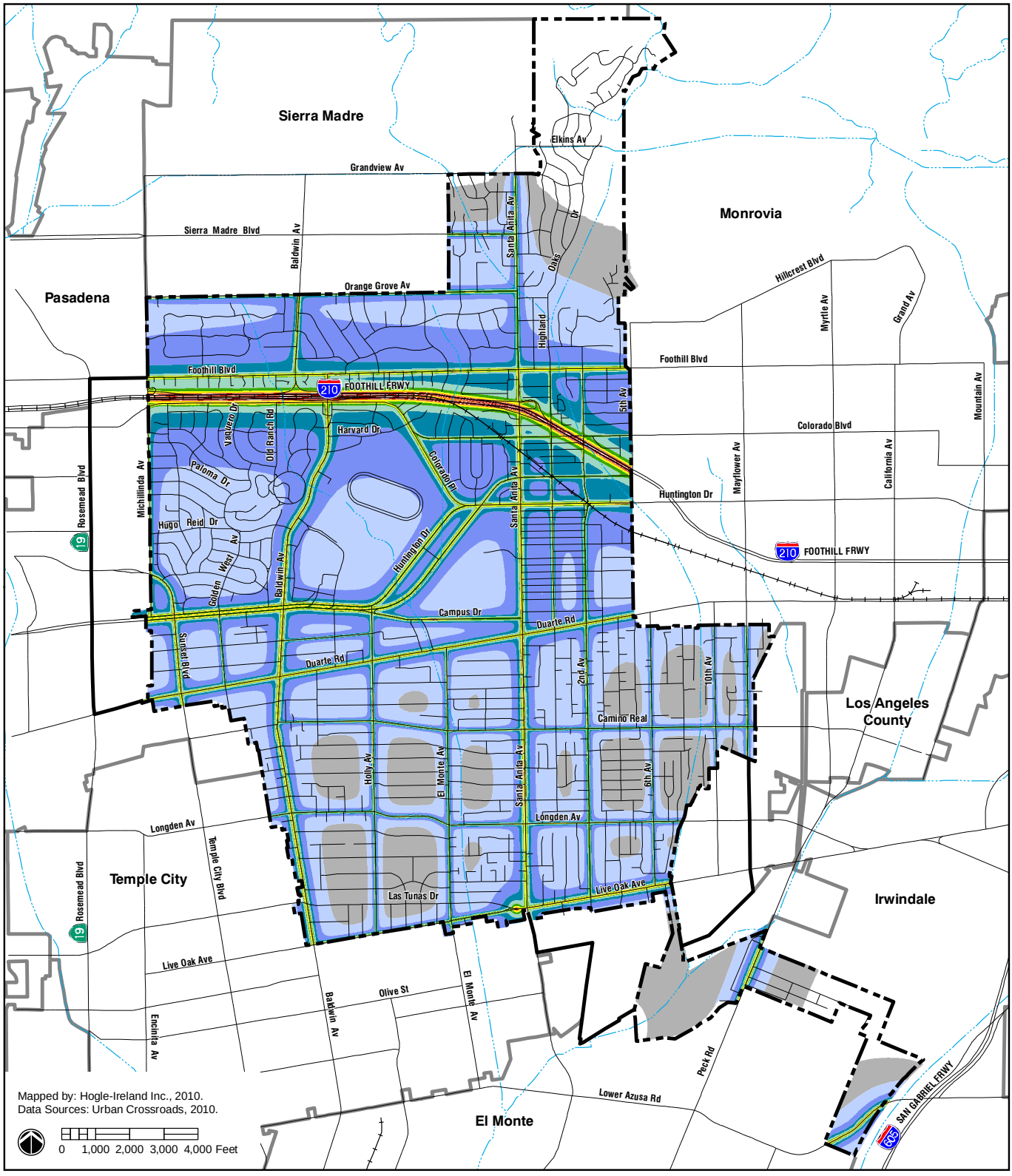
Noise studies performed in 2006 in the vicinity of Santa Anita Park while races were occurring indicated that the sounds of loudspeakers and other non-traffic related noise sources do not result in particularly loud nuisance noise within surrounding neighborhoods,[5] although the immediately adjacent residents do hear the loudspeakers.

Establishment of Gold Line light rail service to Arcadia will include appropriate noise and vibration mitigation.

Anticipated Future Noise Conditions

Over the life of this General Plan, the key change that will affect the local noise environment will be establishment of Gold Line light rail service to the Downtown station. Train motion along the tracks and the sounding of train horns for approaches to at-grade street crossings will create new noise sources. Based on Metro's projections for service frequency and types of engines and train cars used, noise mitigation will be required at select locations in Arcadia, as identified schematically in Figure N-2.

[5] *Draft Environmental Impact Report, Santa Anita Park Specific Plan.* City of Arcadia. October 23, 2006.



2008 Baseline Noise Conditions

- 45 db
- 50 db
- 55 db
- 60 db
- 65 db
- 70 db
- 75 db
- 80 db
- 85 db

Base Map Features

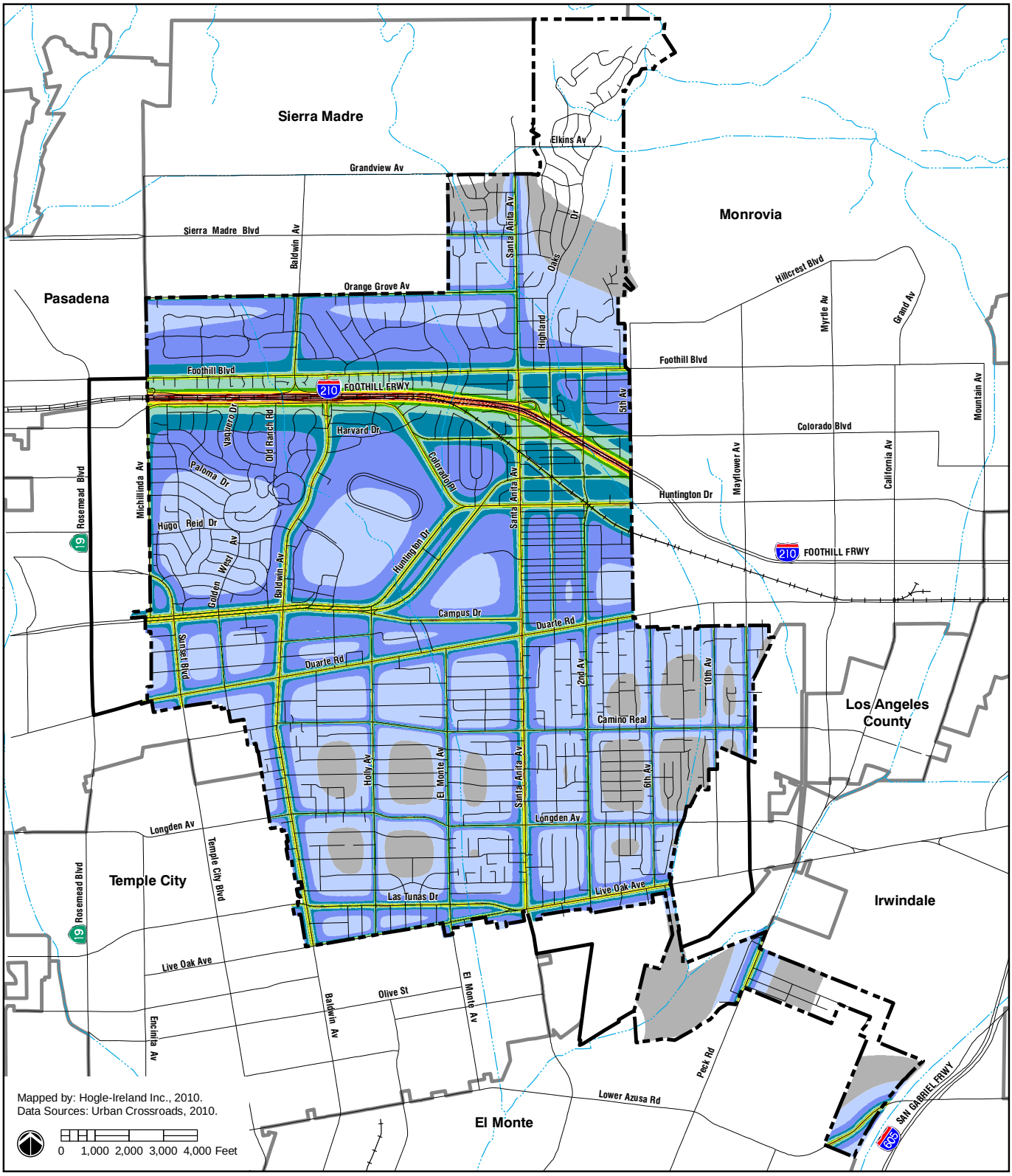
- City Boundary
- Sphere of Influence
- Freeway
- Local Road
- Railroad
- Water Feature

FIGURE N-1: 2008 BASELINE NOISE CONDITIONS

FIGURE N-2: TRAIN NOISE MITIGATION AREAS

The features required include sound walls to shield residences west of Santa Anita Avenue and generally east of Fifth Avenue. Because the train tracks will be elevated over Santa Anita Avenue, this configuration will reduce train horn noise since the trains are only required to use horns when approaching at-grade crossings. As Metro prepares detailed design plans for the Gold Line, the City anticipates that noise-reduction strategies will evolve along the train route, and the City's commitment is to make sure Metro incorporates measures to achieve the noise/land use compatibility criteria established in this element.

With regard to roadway noise, Figure N-3 identifies the noise contours associated with projected 2035 roadway traffic volumes. The noise analysis conducted for the General Plan determined that although traffic levels along key streets will increase over the long term, the associated traffic noise increases along the routes illustrated in Figure N-3 will be less than 1.5 dBA CNEL. Given that the industry standard for assessing whether noise increases are generally perceptible to most people is 3.0 dBA CNEL, future roadway noise in Arcadia will not create any new conditions of concern.



Future Noise Contours

- 45 db
- 50 db
- 55 db
- 60 db
- 65 db
- 70 db
- 75 db
- 80 db
- 85 db

Base Map Features

- City Boundary
- Sphere of Influence
- Freeway
- Local Road
- Railroad
- Water Feature

FIGURE N-3: FUTURE NOISE CONTOURS

Achieving Noise/Land Use Compatibility

Land Use Siting Guidelines

Historically, Arcadia has used a very traditional and practical approach to protecting residential neighborhoods and noise-sensitive receptors such as schools and the Methodist Hospital from potentially harmful noise sources. Large-scale industrial businesses generally are clustered in a district at the southeast end of the City. Commercial uses largely occur along major roadway corridors, and the regional shopping center and race track property are separated from surrounding residential neighborhoods by expanses of parking lots. Land use planning decisions have been and will continue to be guided by the Noise/Land Use Compatibility Criteria set forth in Figure N-4. The more detailed criteria set forth in Table N-2 will be used on a project-specific basis.

TABLE N-2: INTERIOR/EXTERIOR NOISE STANDARDS

Land Use	Maximum Exterior Noise Level	Maximum Interior Noise Level
Residential: Rural, Single-Family, and Multifamily	65 dBA CNEL	45 dBA CNEL
Schools		
Classroom	70 dBA CNEL	45 dBA Leq
Playground	70 dBA CNEL	–
Libraries	–	45 dBA
Hospitals/Convalescent Facilities		
Sleeping Areas	65 dBA CNEL	45 dBA CNEL
Living Areas	–	50 dBA CNEL
Reception, Office	–	50 dBA Leq
Hotels/Motels		
Sleeping Areas	–	45 dBA CNEL
Reception, Office	–	50 dBA Leq
Places of Worship	65 dBA CNEL	45 dBA Leq
Open Space/Recreation		
Wildlife Habitat	60 dBA CNEL	–
Passive Recreation Areas	65 dBA CNEL	–
Active Recreation Areas	70 dBA CNEL	–
Commercial and Business Park		
Office	–	55 dBA Leq
Restaurant, Retail, Service	–	65 dBA Leq
Warehousing/Industrial	–	70 dBA Leq

FIGURE N-4: NOISE/LAND USE COMPATIBILITY GUIDELINES

Land Use Category	Community Noise Equivalent Level (CNEL), dB						
	55	60	65	70	75	80	85
Estate Residential, Very Low Density Residential, Low Density Residential (1)							
Medium Density Residential							
High Density Residential, Mixed Use, Downtown Mixed Use							
Commercial, Regional Commercial, Horse Racing							
Commercial/Light Industrial							
Public/Institutional							
Open Space - Outdoor Recreation							
Open Space - Resource Protection							

Note:
(1) Areas along the I-210 corridor may be exempted, provided mitigation is provided to meet State Health and Safety Code requirements for interior noise levels.

NORMALLY ACCEPTABLE	*CONDITIONALLY ACCEPTABLE*	*NORMALLY UNACCEPTABLE*	*CLEARLY UNACCEPTABLE*
Specified land use is satisfactory, assuming buildings are of conventional construction, without any special noise insulation requirements.	New development should be undertaken only after analysis of noise reduction requirements is made and needed insulation features are incorporated into design.	New construction or development generally is discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and incorporated into project design.	New construction or development is discouraged.

Within mixed-use development districts in Downtown and along Live Oak Avenue, higher ambient noise levels—relative to a strictly low-density residential neighborhood—are generally acceptable due to residents' expectations for a livelier environment. The Noise/Land Use Compatibility Criteria allow for higher ambient (CNEL) noise levels for residential development within areas designated High Density Residential, Mixed Use, and Downtown Mixed Use. However, where mixed-use is allowed in Arcadia, and where residential neighborhoods directly interface with commercial development, such as in the neighborhoods south of Downtown and surrounding First Avenue, careful review of site design and operational characteristics of individual commercial uses will allow the City to address any site-specific noise concerns through design and operational conditions applied to individual projects.

Use of the Noise Ordinance

As described above, the City uses the Noise Ordinance to preserve acceptable community ambient noise levels. The City's approach involves regulating land use activities by either: 1) controlling nuisance noise at its source, and/or 2) integrating noise buffering techniques into new development projects to protect adjacent noise-sensitive uses such as schools, churches, and Methodist Hospital. Noise ordinance regulations address nuisance noise issues, including construction noise and noise from landscape equipment, through limitations on the hours these activities can occur. For on-site noises associated with specific land use or activities, project-specific development and operational conditions are applied at the time project approvals are given. Such conditions may require, for example, use of boundary walls or building orientation to shield potential noise sources (like loading or trash pick-up operations), location of parking lots, or limitation on hours of operation. These approaches will continue to be used.

Goals and Policies

The City's goals and policies regarding noise are to minimize adverse noise impacts on residents and people who come to Arcadia for work and entertainment, and to preserve a quality noise environment for City residents. Arcadia will maintain a peaceful environment by identifying noise impacts and mitigating noise problems through application of noise/land use compatibility criteria and acoustical treatments.

Transportation is the dominant source of noise in the City. However, the City has limited ability to abate vehicle-generated noise. The City, through the Police Department, can enforce the State's established noise limits for vehicles by citing noise offenders whose engines, exhaust, or music systems create noise beyond defined limits. With regard to freeway noise, the City will continue to work within the construct of Caltrans' programs (as implemented by Metro) to have freeway sound walls completed. New technology in transportation infrastructure will be explored to attenuate sound.

GOAL N-1: Effective incorporation of noise considerations into land use planning decisions

Policy N-1.1: Consider noise impacts as part of the development review process relative to residential and other noise-sensitive land uses.

Policy N-1.2: Ensure that acceptable noise levels are maintained near schools, hospitals, and other sensitive areas in accordance with the Noise/Land Use Compatibility Guidelines in Figure N-4, Table N-2 Interior/Exterior Noise Standards, and the City's noise ordinance.

Policy N-1.3: New commercial and industrial developments located adjacent to residential areas and identified noise-sensitive uses shall demonstrate reduction of potential noise impacts on neighboring sensitive uses to acceptable levels.

Policy N-1.4: Discourage new development of residential or other noise-sensitive uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels that comply with Noise/Land Use Compatibility Guidelines in Figure N-4 and Table N-2 Interior/Exterior Noise Standards.

Policy N-1.5: Require that proposed projects that have the potential to result in noise impacts include an acoustical analysis and appropriate mitigation to achieve the interior and exterior noise standards indicated in Table N-2 Interior/Exterior Noise Standards.

GOAL N-2: Reduced noise impacts from transportation sources

Policy N-2-1: Enforce State Motor Vehicle Code noise standards for cars, trucks, and motorcycles, and coordinate enforcement with the California Highway Patrol and County of Los Angeles Sheriff's Department.

Policy N-2-2: Continue to work with and lobby Metro to fund gap closure of the I-210 sound walls between Baldwin and Santa Anita Avenues.

Policy N-2-3: Consider using roadway sound attenuation techniques for resurfacing projects that use "quiet" pavement or noise-reducing rubberized asphalt.

Policy N-2-4: Consider the noise impacts on adjacent residential uses associated with establishing stop signs or other traffic control or traffic calming devices.

Policy N-2-5: Enforce truck routes established in the Circulation and Infrastructure Element and the Municipal Code.

Policy N-2-6: Work with Metro to provide that the design and operation of the Gold Line tracks, crossings, and station area use approaches that will minimize noise impacts associated with train operations on the community. In particular, construct the Santa Anita Avenue crossing as a grade-separated crossing.

GOAL N-3: Limited intrusion of point-source noise within residential neighborhoods and on noise-sensitive uses

Policy N-3-1: Enforce the noise ordinance to protect residents and noise-sensitive uses from excessive noise levels associated with stationary sources.

Policy N-3-2: Encourage industrial and commercial activities to restrict their receiving operations to daytime periods, and condition such operations for new development projects.

Policy N-3-3: Explore requiring the use of noise suppression devices and techniques on all exterior noise sources (construction operations, pumps, fans, leaf blowers) to lower exterior noise to levels that are compatible with adjacent land uses.

Policy N-3-4: Require any new mixed use structures to be designed to minimize the transfer of noise and vibration from commercial or industrial to residential and other noise-sensitive uses.

Policy N-3-5: Require noise created by new non-transportation noise sources to be mitigated so as not to exceed acceptable interior and

exterior noise level standards identified in this Noise Element.

Policy N-3-6: Provide appropriate funding to monitor noise levels and investigate noise complaints.

Policy N-3-7: Educate the community at large about the importance of maintaining a healthy noise environment, and identify ways residents can assist in noise abatement efforts.