

chapter 14. **NOISE**



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# Chapter 14. Noise

## INTRODUCTION

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San Bernardino is affected by several different sources of noise, including automobile, rail, and air traffic, sports events, commercial and industrial activity, and periodic nuisances such as construction. Excessive levels of noise can damage our physical health, psychological stability, social cohesion, property values, and economic productivity. The control of noise, therefore, is an essential component in creating a safe, compatible, and productive environment.

### Purpose

The Noise Element provides policy guidance that addresses the generation, mitigation, avoidance, and the control of excessive noise. Specifically, this Element addresses the following issues:

- Land use;
- Transportation related noise generated from roadways, passenger and freight railroad operations, and air flights; and
- Spill over noise from activities such as construction, leaf blowers, and commercial/industrial operations.

### Relationship to Other Elements

The Noise Element is closely linked with the Land Use and Circulation Elements as well as the Development Code, which contains the City's noise standards. Together, these guidelines and standards provide for the citywide regulation of excessive noise.

It should be recognized that the City does not have the authority to regulate all sources of noise within the City and various other agencies may supercede City authority. A discussion of these agencies and their roles with respect to regulating noise is provided below. Furthermore, various types of project funding (e.g., State Highway projects, HUD



redevelopment, etc.) could be subject to standards that differ from the City's.

## 1. Federal Highway Administration

Several major transportation routes traverse the City of San Bernardino: State Routes 18, 30, 330, and 66, as well as Interstates 10 and 215. These routes are subject to federal funding and, as such, are under the purview of the Federal Highway Administration (FHWA), which has its own noise standards. These noise standards are based on  $L_{eq}$  and  $L_{10}$  values. The FHWA design noise levels are included in Table N-1, FHWA Design Noise Levels.

**Table N-1  
FHWA Design Noise Levels**

<i>Activity Category</i>	<i>Design Noise Levels <sup>1</sup></i>		<i>Description of Activity Category</i>
	<i><math>L_{eq}</math> (dBA)</i>	<i><math>L_{10}</math> (dBA)</i>	
A	57 (exterior)	60 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	70 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	75 (exterior)	Developed lands, properties, or activities not included in Categories A or B, above
D	---	---	Undeveloped lands.
E	52 (interior)	55 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

<sup>1</sup> Either  $L_{eq}$  or  $L_{10}$  (but not both) design noise levels may be used on a project.

## 2. U.S. Department of Housing and Urban Development

The Department of Housing and Urban Development (HUD) issues formal requirements related specifically to standards for exterior noise levels along with policies for approving HUD-supported or assisted housing projects in high noise areas. In general, these requirements established three zones. These include:

- 65 dBA  $L_{dn}$  or less - an acceptable zone where all projects could be approved,

- Exceeding 65 dBA  $L_{dn}$  but not exceeding 75 dBA  $L_{dn}$  - a normally unacceptable zone where mitigation measures would be required and each project would have to be individually evaluated for approval or denial. These measures must provide 5 dBA of attenuation above the attenuation provided by standard construction required in a 65 to 70 dBA  $L_{dn}$  area and 10 dBA of attenuation in a 70 to 75 dBA  $L_{dn}$  area, and
- Exceeding 75 dBA  $L_{dn}$  - an unacceptable zone in which projects would not, as a rule, be approved.

HUD's regulations do not include interior noise standards. Rather, a goal of 45 dBA  $L_{dn}$  is set forth and attenuation requirements are geared towards achieving that goal. HUD assumes that, using standard construction, any building will provide sufficient attenuation so that if the exterior level is 65 dBA  $L_{dn}$  or less, the interior level will be 45 dBA  $L_{dn}$  or less. It should be noted, however, that HUD regulations were created solely for residential development requiring government funding and are not related to the operation of other sensitive land uses such as schools or churches.

### 3. Federal Railroad Administration

The Environmental Protection Agency (EPA) is charged with the regulation of railroad noise under the Noise Control Act. No federal regulations specify absolute levels of acceptable noise that apply directly to railroad noise and compatible land uses along rail lines. While these regulations remain in full force, the EPA Office of Noise Abatement and Control was closed in 1982, leaving the enforcement of EPA regulations to the Federal Railroad Administration (FRA). Table N-2, Summary of EPA/FRA Railroad Noise Standards, summarizes the EPA railroad noise standards that set operating noise standards for railroad equipment and set noise limit standards for new equipment.



**Table N-2  
Summary of EPA/FRA Railroad Noise Standards**

<i>Noise Sources</i>	<i>Operating Conditions</i>	<i>Noise Metric<sup>1,2</sup></i>	<i>Measured Distance (feet)</i>	<i>Standard (dBA)</i>
Non-Switcher Locomotives built on or before 12/31/79	Stationary	L <sub>max</sub> (Slow)	100	73
	Idle Stationary	L <sub>max</sub> (Slow)	100	93
	Non-Idle Moving	L <sub>max</sub> (Fast)	100	95
Switcher Locomotives plus Non-Switcher Locomotives built after 12/31/79	Stationary	L <sub>max</sub> (Slow)	100	70
	Idle Stationary	L <sub>max</sub> (Slow)	100	87
	Non-Idle Moving	L <sub>max</sub> (Fast)	100	90
Rail Cars	Speed ≤ 45 mph	L <sub>max</sub> (Fast)	100	88
	Speed > 45 mph	L <sub>max</sub> (Fast)	100	93
	Coupling	Adj. Avg. Max.	50	92

<sup>1</sup> Slow and fast exponential-time-weighting is used.

<sup>2</sup> Note that these values are in terms of the L<sub>max</sub>, and can be considerably greater than the Leq typically used in the measurement of obtrusive noise.

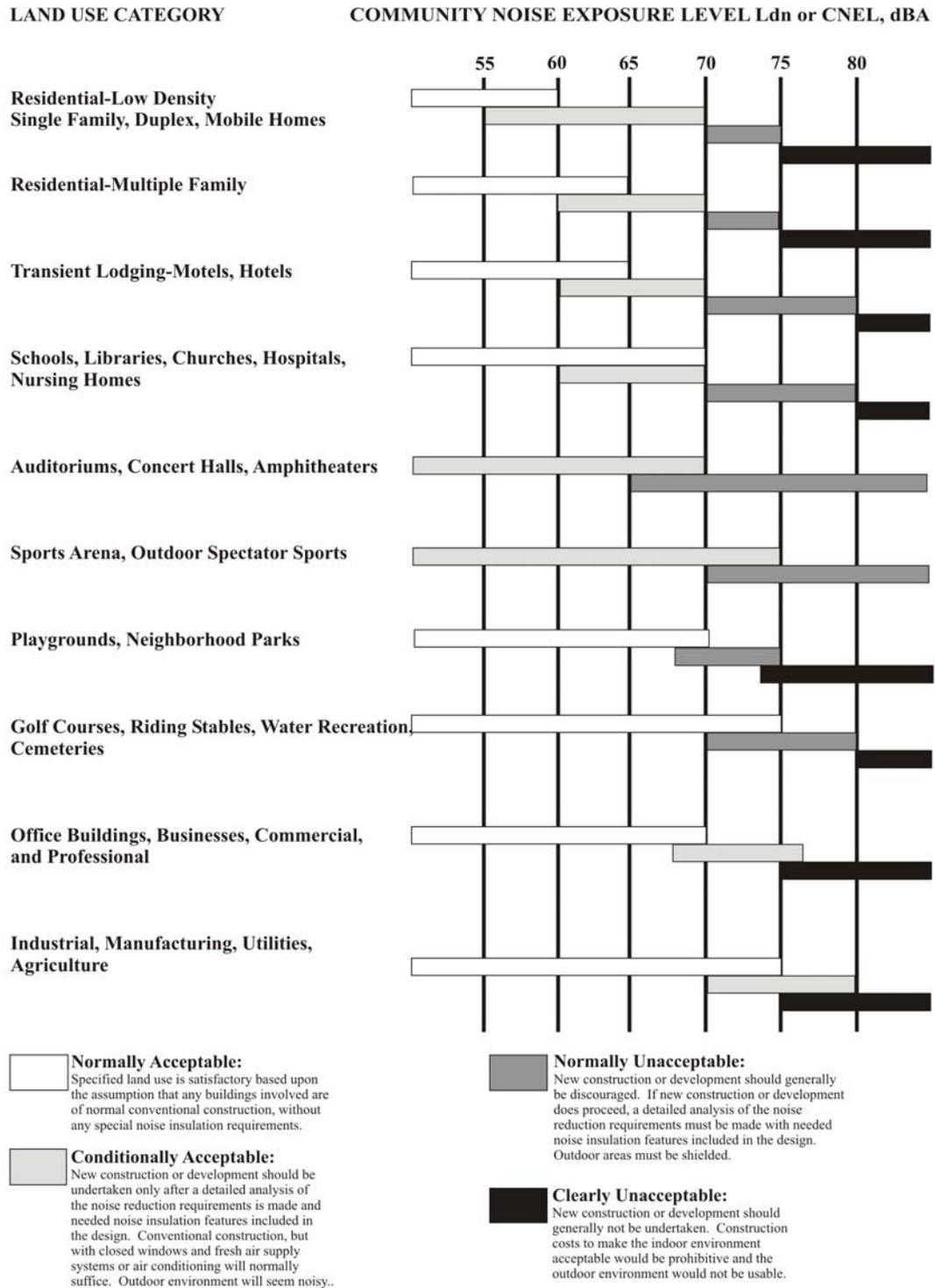
Source: United States Environmental Protection Agency Railroad Noise Emission Standard (40 Code of Federal Regulations Part 201).

#### 4. California Department of Health Services

The California Department of Health Services (DHS) Office of Noise Control studied the correlation of noise levels and their effects on various land uses. As a result, the DHS established four categories for judging the severity of noise intrusion on specified land uses.

Figure N-1, Land Use Compatibility for Community Noise Exposure, presents a land use compatibility chart for community noise prepared by the California Office of Noise Control. It identifies “normally acceptable,” “conditionally acceptable,” “normally unacceptable,” and “clearly unacceptable” exterior 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 in the design. By comparison, a “normally acceptable” designation indicates that standard construction can occur with no special noise reduction requirements.

**Figure N-1 Land Use Compatibility for Community Noise Exposure**





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Table N-3, State of California Interior and Exterior Noise Standards, includes the State interior and exterior noise standards for varying land uses. It is important to note that the exterior noise levels are to be attained in “habitable” exterior areas and need not encompass the entirety of a property.

**Table N-3  
State of California Interior and Exterior Noise Standards**

<i>Land Use</i>		<i>CNEL (dBA)</i>	
<i>Categories</i>	<i>Uses</i>	<i>Interior</i> <sup>1</sup>	<i>Exterior</i> <sup>2</sup>
Residential	Single and multi-family, duplex	45 <sup>3</sup>	65
	Mobile homes	----	65 <sup>4</sup>
Commercial	Hotel, motel, transient housing	45	---
	Commercial retail, bank, restaurant	55	---
	Office building, research and development, professional offices	50	---
	Amphitheater, concert hall, auditorium, movie theater	45	---
	Gymnasium (Multipurpose)	50	---
	Sports Club	55	---
	Manufacturing, warehousing, wholesale, utilities	65	---
	Movie Theaters	45	---
Institutional/ Public	Hospital, school classrooms/playgrounds	45	65
	Church, library	45	---
Open Space	Parks	---	65

<sup>1</sup> Indoor environment excluding: bathrooms, kitchens, toilets, closets, and corridors

<sup>2</sup> Outdoor environment limited to:

- Private yard of single-family dwellings
- Multi-family private patios or balconies accessed from within the dwelling (Balconies 6 feet deep or less are exempt)
- Mobile home parks
- Park picnic areas
- School playgrounds
- Hospital patios

<sup>3</sup> Noise level requirement with closed windows, mechanical ventilation or other means of natural ventilation shall be provided as per Chapter 12, Section 1205 of the Uniform Building Code.

<sup>4</sup> Exterior noise levels should be such that interior noise levels will not exceed 45 dBA CNEL.

## 5. City of San Bernardino Noise Ordinance

The City of San Bernardino Noise Ordinance (Section 19.20.030.15 of the Development Code) specifies the maximum acceptable levels of noise for residential uses in the City. These standards indicate that exterior noise



levels at residential locations should not exceed a CNEL of 65 dB while interior levels shall not exceed an annual CNEL of 45 dB in any habitable room. Chapter 12, Airport Overlay District, of the Development Code provides additional noise standards related to the flight operations of the San Bernardino International Airport and Trade Center within the 65 dB noise contours.

## Definitions

The following is a list of commonly used terms and abbreviations that may be found within this element or when discussing the topic of noise. It is important to become familiar with the definitions listed in order to better understand the importance of the Noise Element within the City of San Bernardino General Plan.

- ◆ **Ambient Noise** – The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
- ◆ **Intrusive Noise** – That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency and time of occurrence, and tonal or informational content as well as the prevailing noise level.
- ◆ **dB (Decibel)** – The unit of measure that denotes the ratio between two quantities that are proportional to power; the number of decibels corresponding to the ratio of the two amounts of power is based on a logarithmic scale.
- ◆ **dBA (A-weighted decibel)** – The A-weighted decibel scale discriminates against upper and lower frequencies in a manner approximating the sensitivity of the human ear. The scale is based on a reference pressure level of 20 micropascals (zero dBA). The scale ranges from zero for the average least perceptible sound to about 130 for the average pain level.
- ◆ **L<sub>50</sub>** – The A-weighted sound level that is exceeded 50% of the sample time. Alternatively, the A-weighted sound level that is exceeded 30 minutes in a 60-minute period (similarly, L<sub>10</sub>, L<sub>25</sub>, etc.). These values are typically used to demonstrate compliance with noise restrictions included in the City noise ordinance.
- ◆ **L<sub>eq</sub> (Equivalent Energy Level)** – The average acoustic energy content of noise during the time it lasts. The L<sub>eq</sub> of a time-varying

noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure, no matter what time of day they occur.

- ◆ **L<sub>dn</sub> (Day-Night Average Level)** – The average equivalent A-weighted sound level during a 24-hour day, obtained after the addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m. Note: CNEL and L<sub>dn</sub> represent daily levels of noise exposure averaged on an annual or daily basis, while Leq represents the equivalent energy noise exposure for a shorter time period, typically one hour.
- ◆ **CNEL (Community Noise Equivalent Level)** – The average equivalent A-weighted sound level during a 24-hour day, obtained after the addition of five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.
- ◆ **Noise Contours** – Lines drawn around a noise source indicating equal levels of noise exposure. CNEL and L<sub>dn</sub> are the metrics used in this document to describe annoyance due to noise and to establish land use planning criteria for noise.
- ◆ **Vibration** – Another community annoyance related to noise is vibration. As with noise, vibration can be described by both its amplitude and frequency. Amplitude may be characterized by displacement, velocity, and/or acceleration. Typically, particle velocity (measured in inches or millimeters per second) and/or acceleration (measured in gravities) are used to describe vibration.

Vibration can be felt outdoors, but the perceived intensity of vibration impacts are much greater indoors, due to the shaking of the structure. Some of the most common sources of vibration come from trains and/or transit vehicles, construction equipment, airplanes, and large vehicles. Several land uses are especially sensitive to vibration, and therefore have a lower vibration threshold. These uses include, but are not limited to, concert halls, hospitals, libraries, vibration-sensitive research operations, residential areas, schools, and offices.



## ACHIEVING THE VISION

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As San Bernardino has developed and expanded its boundaries over time, there are numerous areas of the City that are impacted by noise. For instance, many residences are located near industrial areas or adjacent to busy streets or rail lines. The Citizens of San Bernardino are concerned about the effects of noise on their health and serenity and of the need to provide the range of uses needed to maintain a high quality of life.

There are several techniques to deal with noise impacts: applying noise attenuation techniques, limiting certain kinds of development near noise-producing land uses, implementing design and building techniques in site layouts and construction, and setting and enforcing standards for noise-producing land uses.

The Noise Element is responsive to our Vision because it represents our stated desires to:

- ◆ Manage and mitigate the impacts from truck traffic to decrease congestion and noise pollution;
- ◆ Locate future residential uses and other sensitive receptors away from existing noise sources; and
- ◆ Develop and employ measures to decrease the impacts associated with air and rail operations on sensitive receptors such as residences and schools.

## GOALS AND POLICIES

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The following presents the goals and policies for noise related issues in the City of San Bernardino planning area.

### Land Use Planning and Design

As San Bernardino grows, the increases in population, employment, and tourist activity may generate more traffic and attract additional noise producing uses. Additionally, some undeveloped and underdeveloped areas are designated for land uses that may be noise-sensitive and are located in proximity to roadways, railroads, and transit facilities. As a result, land use compatibility in relation to noise is an important consideration in the planning and design process.

To identify potential mitigation to address noise abatement strategies, noise evaluations should be conducted when a proposed project places sensitive land uses and major noise generators within close proximity to each other. The City currently uses the project review process to identify potential noise issues and works with developers or landowners to apply site planning and other strategies to reduce noise impacts. A developer, for example, could take advantage of the natural shape and contours of a site to arrange buildings and other uses in a manner that would reduce, and possibly eliminate, noise impacts. Examples of other site and architectural techniques could include:

- ◆ Increasing the distance between noise source and receiver.
- ◆ Placing non-noise sensitive land uses such as parking lots, maintenance facilities and utility areas between the noise source and receiver.
- ◆ Using non-noise sensitive structures such as garages to shield noise-sensitive areas.
- ◆ Orienting buildings to shield outdoor spaces from a noise source.
- ◆ Locating bedrooms in residential developments on the side of the house facing away from major roads.



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**Goal 14.1** Ensure that residents are protected from excessive noise through careful land planning.

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***Policies:***

- 14.1.1 Minimize, reduce, or prohibit, as may be required, the new development of housing, health care facilities, schools, libraries, religious facilities, and other noise sensitive uses in areas where existing or future noise levels exceed an Ldn of 65 dB(A) exterior and an Ldn of 45 dB(A) interior if the noise cannot be reduced to these levels. (LU-1)
- 14.1.2 Require that automobile and truck access to commercial properties abutting residential parcels be located at the maximum practical distance from the residential parcel. (LU-1)
- 14.1.3 Require that all parking for commercial uses abutting residential areas be enclosed within a structure, buffered by walls, and/or limited hours of operation. (LU-1)
- 14.1.4 Prohibit the development of new or expansion of existing industrial, commercial, or other uses that generate noise impacts on housing, schools, health care facilities or other sensitive uses above a Ldn of 65 dB(A). (LU-1)

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## **Transportation Related Noise Sources**

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San Bernardino has long been a hub of transportation and includes several major highways (such as State Routes 18, 30, 330, and 66, as well as Interstates 10 and 215), major arterials, railways, and the San Bernardino International Airport and Trade Center. These transportation facilities, while important components to mobility and economic vitality, are the major contributors of noise in San Bernardino. Cost effective strategies to reduce their influence on the community noise environment are an essential part of the Noise Element.

Local government has little direct control of some of the transportation related noise at the source. These levels are set by state and federal agencies. However, the City does have some control over transportation noise that exceeds State and/or federal standards through the enforcement of the Municipal Code.

The most effective method the City has to mitigate transportation noise is through the application of noise barriers and site design review. The effect of a noise barrier is critically dependent on the distance between the noise source and the receiver. A noise barrier effect occurs when the barrier penetrates the “line of sight” between the source and receiver: the greater the penetration or height of the barrier, the greater the noise reduction. Additional attenuation can be achieved depending upon the source of transportation related noise.

## 1. Roadways

Roadways are a significant source of noise in the City. Sound emanates from vehicle engines and from the tires rolling over the pavement. One way the City can control vehicle noise is through speed reduction. A change of just 5 miles per hour can change the resultant noise by approximately one to two dBA. The difference in noise associated with a reduction of 10 miles per hour reduction could be roughly equivalent to reducing the traffic volume by one-half.

The City also has some control over traffic-generated noise through weight limitations and the designation of truck routes. Medium trucks, (i.e., those with a gross vehicle weight between 5 and 13.25 tons) produce as much acoustical energy as approximately 5 to 16 automobiles depending on the speed, with slower speeds demonstrating greater differential. Similarly, heavy trucks (i.e., those with a gross vehicle weight in excess of 13.25 tons) produce as much acoustical energy as 10 to 60 automobiles.

The City can further reduce traffic-generated noise by ensuring that street paving is maintained and bumps and dips are eliminated. Poor paving causes vehicles to bounce and this bouncing exacerbates the noise due to the rattling of the vehicle. Noise contours for the City’s roadways and freeways are presented in Figure N-2, *Future Roadway Noise Contours*.

## 2. Aircraft

The San Bernardino International Airport (SBIA) accommodates cargo, airlines, and general aviation with the capacity to provide regional air traffic for domestic and international service, both commercial and cargo along with the necessary support facilities for major and smaller airlines.

Airport operations generate noise nuisances that could negatively impact nearby residences and businesses. The number of people exposed to airport noise should be minimized by limiting the development of sensitive land uses, such as residences, hospitals, and schools, within

### Airport Noise Contours

As of the writing of this General Plan, the Airport Master Plan and the Comprehensive Land Use Plan (CLUP) for SBIA were in the process of being prepared. As a consequence, the precise noise contours were not available to include in this Plan. However, relative policies have been included in the General Plan. Upon adoption of the Airport Master Plan and CLUP, the new noise contours will be incorporated into Figure LU-4 of this General Plan.



#### **Airport Related Policies in our General Plan**

The San Bernardino International Airport (SBIA) influences many aspects of our community: from land use and economics, to circulation, noise, and safety. Accordingly, see related discussions/policies in the Land Use (Chapter 2) and Noise (Chapter 14) Chapters.

specified noise contours. For planning purposes, federal and state laws have established well-defined regulations for acceptable noise levels with the basic criterion set at a maximum 65 decibel (dB) Community Noise Equivalent Level (CNEL) value. The noise contours for the San Bernardino International Airport are defined in the Comprehensive Land Use Plan (CLUP) for the SBIA and shown in Figure LU-4, San Bernardino International Airport Planning Boundaries. While there are some acceptable mitigation within the noise contours, avoidance by noise sensitive uses is often the best remedy. Conversely, those land uses with the fewest people or those that generate significant noise levels themselves (e.g. industrial uses), are ideally suited to locate within these noise contours.

Overflight creates another noise concern. An overflight is a distinctly visible and audible passage of an aircraft, not necessarily one that is directly overhead. Overflight often extends past the boundary of the defined CNEL contour and creates an annoyance. The SBIA has limited control of overflight impacts but provide policy guidance for minimizing these impacts in the CLUP.

In addition, local helicopter air traffic is commonplace throughout the City. News and other helicopters (e.g., freeway traffic report helicopters) fly through the area. Helicopter use for fire and police and at hospitals is considered as an emergency activity and is addressed by FAA regulations. There are currently five heliports in San Bernardino (National Orange Show, Red Dog Properties, San Bernardino Community Hospital, SCE Eastern Division, and in the Tri-City area).

### **3. Railways**

Another prevalent source of noise in the City is from railroad operations. Within the San Bernardino planning area, trains travel on three different rail lines that include: (1) The Cajon Pass Line; (2) The Main Line-Redlands, which extends eastward to the City of Redlands; and, (3) The Main Line-Colton, which extends westward to the City of Colton.

Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) also operate rail lines within the City. These rail lines include: (1) The Santa Fe Subdivision Two Line; (2) The Santa Fe Subdivision Three Line; and, (3) The Santa Fe Cajon Pass Line. Each route contributes a different level of noise to the City resulting from the different volumes of train traffic that occur on each line.

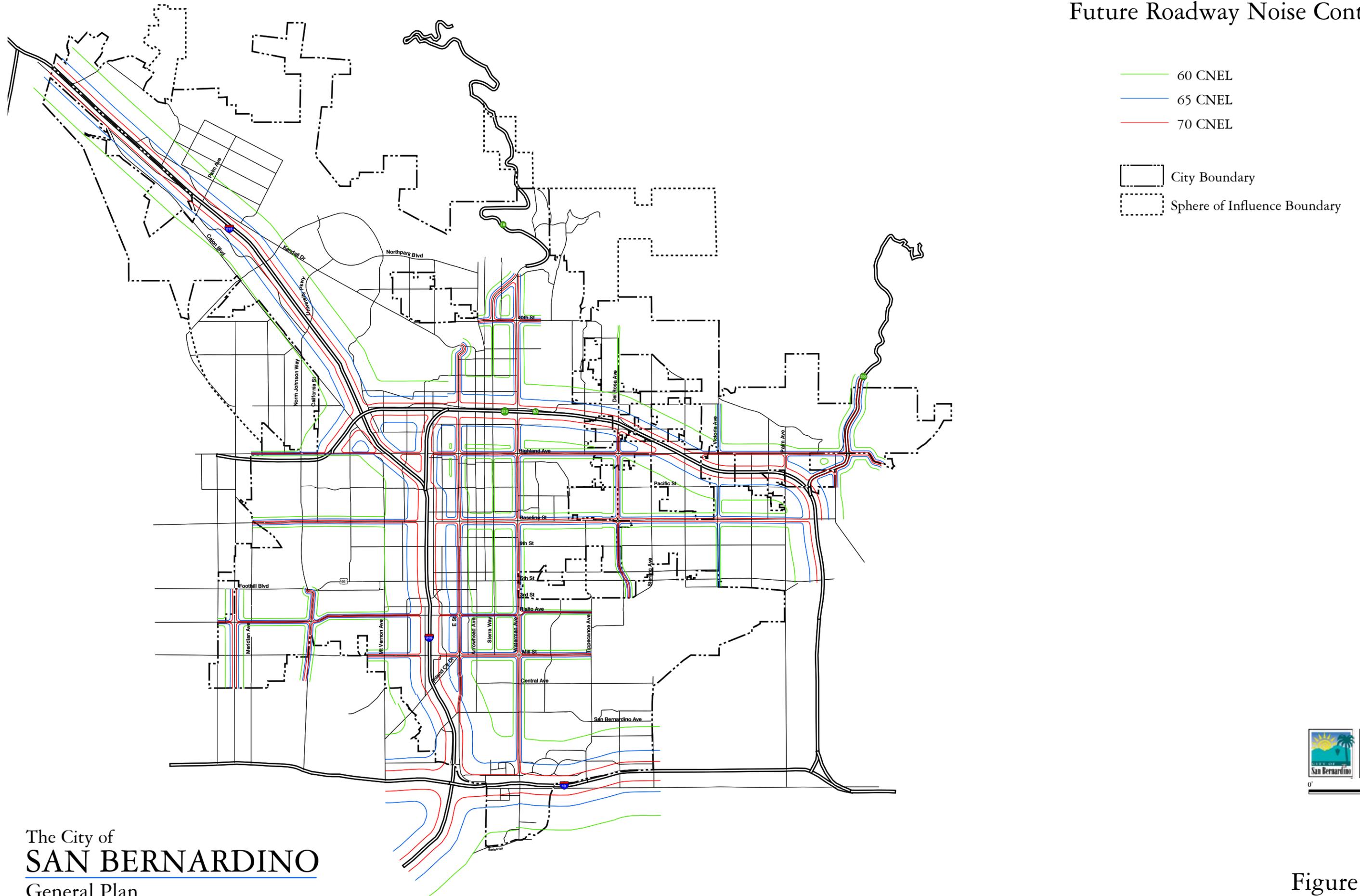
Railroad noise is dependant on a number of factors including the number of operations per day, the times these operations occur, the numbers of

engines and railcars, the speed, the type of rail (i.e., continuous or bolted), and whether at-grade rail crossings exist that require engineers to sound a warning horn. Noise contours for railway operations are presented in Figure N-2, *Future Roadway Noise Contours*.



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# Future Roadway Noise Contours





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**Goal 14.2** Encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations, and railroad movements.

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**Policies:**

- 14.2.1 Work with Caltrans to landscape or install mitigation elements along freeways and highways adjacent to existing residential subdivisions or noise-sensitive uses to reduce noise impacts. (N-1)
- 14.2.2 Employ noise mitigation practices when designing future streets and highways, and when improvements occur along existing road segments. Mitigation measures should emphasize the establishment of natural buffers or setbacks between the arterial roadways and adjoining noise-sensitive areas. (N-1)
- 14.2.3 Require that development that increases the ambient noise level adjacent to noise-sensitive land uses provide appropriate mitigation measures. (LU-1)
- 14.2.4 Maintain roadways so that the paving is in good condition and free of cracks, bumps, and potholes. (A-2)
- 14.2.5 Require sound walls, berms, and landscaping along existing and future highways and railroad right-of-ways to beautify the landscape and reduce noise. (N-1)
- 14.2.6 Buffer residential neighborhoods from noise caused by train operations and increasing high traffic volumes along major arterials and freeways. (N-1)
- 14.2.7 Require heliports/helistops to comply with Federal Aviation Administration standards.
- 14.2.8 Minimize noise attributable to vehicular travel in residential neighborhoods by inhibiting through trips by the use of cul-de-sacs, one-way streets, and other traffic controls.
- 14.2.9 Enforce sections of the California Vehicle Code related to mufflers and modified exhaust systems.



- 14.2.10 Provide for the development of alternate transportation modes such as bicycle paths and pedestrian walkways to minimize the number of automobile trips. (LU-1)
- 14.2.11 Require that new equipment and vehicles purchased by the City comply with noise performance standards consistent with the best available noise reduction technology. (A-3)
- 14.2.12 Require that commercial and industrial uses implement transportation demand management programs consistent with the Air Quality Management Plan that provide incentives for car pooling, van pools, and the use of public transit to reduce traffic and associated noise levels in the City. (LU-1)
- 14.2.13 Work with local agencies and businesses to provide public transit services that reduce traffic and associated noise.
- 14.2.14 Work with public transit agencies to ensure that the buses, vans, and other vehicles used do not generate excessive noise levels.
- 14.2.15 Work with all railroad operators in the City to properly maintain lines and establish operational restrictions during the early morning and late evening hours to reduce impacts in residential areas and other noise sensitive areas.
- 14.2.16 Work with all railroad operators to install noise mitigation features where operations impact existing adjacent residential or other noise-sensitive uses.
- 14.2.17 Ensure that new development is compatible with the noise compatibility criteria and noise contours as defined in the Comprehensive Land Use Plan for the SBIA and depicted in Figure LU-4.
- 14.2.18 Limit the development of sensitive land uses located within the 65 decibel (dB) Community Noise Equivalent Level (CNEL) contour, as defined in the Comprehensive Land Use Plan for the SBIA and depicted in Figure LU-4.
- 14.2.19 As may be necessary, require acoustical analysis and ensure the provision of effective noise mitigation measures for sensitive land uses, especially residential uses, in areas significantly impacted by noise.

## **Non-Transportation Related Noise Sources**

The City currently has a diverse collection of land uses, most of which generate their own noise. Industrial facilities generate noise through various processes that involve the use of heavy equipment and machinery. Commercial facilities and residential units can generate noise from the use of heating, ventilating, air conditioning (HVAC) units, pool and spa pumps, as well as landscape maintenance equipment. Additionally, schoolyard activities, barking dogs, and residential parties can also be sources of nuisance noise.

Mixed-use areas that place more sensitive residential uses alongside or above commercial uses can present their own problems. Requiring that the commercial aspect meet a residential standard could make commercial operations difficult and offer an unfair competitive advantage to a similar operation placed in a dedicated commercial zone. Alternatively, applying a commercial standard to a mixed-use project could result in unacceptable noise levels at the residential portion of the structure/site. Still, mixed-use projects offer several advantages from both an air quality and transportation perspective, and should be encouraged.

Another source of noise comes from the operations of trucks and trains within the City. As previously mentioned, the operation of railroad trains and heavy trucks is preempted from local noise regulation while operating on public roads and dedicated right-of-ways. However, noise is also generated by operations (e.g., idling, loading, and unloading) that occur at facilities. Once on private property, these sources are no longer considered preempted and the City has authority to regulate this noise if it “spills” into adjacent areas.

Finally, construction in all land use zones can temporarily elevate noise. The City recognizes that construction is a necessity; still, various measures are available to reduce this nuisance (and potentially hazardous) noise when necessary.



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**Goal 14.3** Protect residents from the negative effects of “spill over” or nuisance noise.

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**Policies:**

- 14.3.1 Require that construction activities adjacent to residential units be limited as necessary to prevent adverse noise impacts. (LU-1)
- 14.3.2 Require that construction activities employ feasible and practical techniques that minimize the noise impacts on adjacent uses. (LU-1)
- 14.3.3 Adopt and enforce a standard for exterior noise levels for all commercial uses that prevents adverse levels of discernible noise on adjoining residential properties. (A-1)
- 14.3.4 Adopt and enforce a standard for exterior noise levels from the use of leaf blowers, motorized lawn mowers, parking lot sweepers, or other high-noise equipment on commercial properties if their activity will result in noise that adversely affects abutting residential parcels. (A-1)
- 14.3.5 Require that the hours of truck deliveries to commercial properties abutting residential uses be limited unless there is no feasible alternative or there are overriding transportation benefits by scheduling deliveries at another hour. (LU-1)
- 14.3.6 Ensure that buildings are constructed soundly to prevent adverse noise transmission between differing uses located in the same structure and individual residences in multi-family buildings. (LU-1)
- 14.3.7 Require that commercial uses in structures containing residences on upper floors not be noise intensive. (LU-1)
- 14.3.8 Require common walls and floors between commercial and residential uses be constructed to minimize the transmission of noise and vibration. (LU-1)