13. Noise

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Introduction

Hearing is a sense that affects everything—from a person's mood to their concentration levels to their health and well-being. Living in neighborhoods, working or shopping in commercial areas, or enjoying a park brings a variety of sounds—children playing, loud car stereos, air conditioners, music, lawnmowers, vehicles and traffic, and the hustle of people. Some of these sounds are welcome sounds, and others are considered noise.

The Noise Element is intended to identify the noise sources in San Bernardino, such as trains, freeways, roadways, manufacturing and industry, airports, and other sources, to inform the development process so that exposure to noise is known and manageable. Sometimes managing noise requires keeping certain land uses (e.g., residential) away from the noise source, and other times the project itself is designed to reduce noise.

Photograph pending

Regulatory Framework

The Noise Element is intended to meet the statutory requirements in the California Government Code Section 65302(f)). This chapter not only identifies sources of noise and vibration in San Bernardino and supports a pattern of land uses intended to minimize exposure to excessive noise and vibration but also identifies areas or neighborhoods that may need to be shielded from excessive noise. Various federal regulatory agencies also provide regulations and standards for aircraft, railroad, and freeway noise. This chapter also includes solutions to address existing and foreseeable noise, reduce noise where needed, and establish standards for acceptable noise.

Organization of the Element

The Noise Element incorporates goals, policies, and strategies that address the generation, mitigation, avoidance, and control of noise. Specifically, this element covers an array of topics such as land use, transportation-related noise from roadways, passenger and freight railroad operations, airport operations, and spillover noise. This element is organized as follows:

- Planning context on the regulatory context surrounding noise and vibration in San Bernardino.
- Noise, including principal sources of noise, standards and regulations, and noise contour mapping.
- Vibration, including principal sources of vibration, standards and regulations, and noise contour mapping.

Relationship with Other Elements and Plans

The Noise Element is closely linked with other general plan elements, especially Land Use and Urban Form; Circulation; and Park, Recreation and Trails Elements. The City's municipal code, specifically the development code, regulates noise based on standards in this element. The Noise Element is also related to the San Bernardino International Airport Land Use Plan. A final layer is state and federal law, which also have mandated requirements for maximum noise for different land uses. Together, these guidelines, standards, and elements provide for the citywide regulation of excessive noise.

Achieving the Vision

Noise is an inherent by-product of urban life, shaping the character and livability of San Bernardino's neighborhoods, commercial corridors, industrial core, and public spaces. The San Bernardino General Plan 2050 Vision does not specifically mention community noise, but articulates the importance of residents' quality of life. Noise is an everyday issue affecting residents, businesses, and visitors. As the City grows and changes, it needs proactive noise and vibration management strategies to balance economic vitality, transportation needs, and community well-being.

To achieve quality-of-life objectives in the Vision, the City will take a proactive, balanced approach to reducing disruptive noise from transportation, construction, and recreational activities. Though not all sources of noise can be eliminated, effective strategies can be used to minimize noise. Strategies may include techniques like sound barriers and quiet pavement, applying smart land use planning to separate noisy uses from sensitive areas, and enforcing design and construction standards to minimize sound impacts.

This element guides the City's approach to mitigating noise as follows:

- Reduction of transportation noise impacts on sensitive uses through erecting barriers, establishing setbacks, and use of sound-absorbing materials.
- Mitigating the effects of construction and demolition by regulating hours of operation and encouraging use of quieter equipment.
- Vibration control to prevent structural damage and discomfort from trains, heavy vehicles, industrial operations, and construction activities.
- Establishing mixed-use and entertainment areas that integrate noise insulation to protect residential spaces while maintaining lively activity.
- Preservation of quiet zones in parks, residential areas, and other spaces where tranquility is prioritized.
- Enforce noise standards, adopt active noise control, and maintain equipment to reduce long-term operational noise.

Planning Context

The Noise Element provides a framework to address existing and future noise and vibration through land use planning, mitigation measures, and targeted policies. By identifying key noise generators, such as roadways, railroads, airports, construction activities, and industrial operations, this element ensures that policymakers and developers consider the acoustic impacts from proposed projects while preserving the quality of residential, commercial, recreational areas such as parks, and mixed-use areas in the City.

Through collaboration with regional agencies, enforcement of local standards, and implementation of context-sensitive design principles, San Bernardino can foster functional spaces that protect residents from excessive noise without stifling urban activity.

Noise and Vibration

Noise can be simply defined as any unwanted sound based on objective and subjective criteria but also subjective criteria. For instance, outdoor events such as music festivals and sporting events may be enjoyable for attendees, but could disturb others. An occasional event may not be annoying to the neighborhood, but regular events after daytime hours could be. Noise from airplanes, railroads, and major freeways also can disturb residents. Likewise, necessary services like street cleaning often take place during quieter hours to avoid cars parked on the street and not obstruct businesses; however, such timing might bother those trying to rest.

Because San Bernardino is a large and active suburban community, noise generated from traffic, deliveries, and buses is prevalent. Freeways, such as the I-10, I-215 and state routes, produce significant levels of noise, especially from trucks passing at higher speeds. The San Bernardino International Airport (SBIA) is the source of aircraft take-off/landing and aircraft over-flight noise, with impacts concentrated under flight paths and near runways. The BNSF railyard, one of the largest facilities in California, produces noise from trains that frequent the facility and cross the community. Finally, stationary sources such as commercial uses, industrial operations, and recreational facilities contribute to the noise environment.

Table N-1, Noise and Vibration Terms, provides a definition of common terms for understanding the noise environment.

Table N-1 Noise and Vibration Terms

Terms	Definition
Intrusive Noise	Noise that intrudes above the ambient (normal level) noise at a site. Its intrusiveness depends on amplitude, duration, frequency, time of day, and the prevailing noise level.
dB (Decibel)	A unit describing the amplitude of sound, a logarithmic unit used to express the ratio of two values of a physical quantity, often power or amplitude, like sound intensity
dBA (A-weighted decibel)	A-weighted decibel scale that ranges from zero dBA for the average least perceptible sound to 130 for the average pain level. A 10 dBA increase indicates a doubling of the level of noise that is received by a receptor.
L_{01}, L_{10}, L_{50}, and L_{90}	The A-weighted noise levels exceeded 1%, 10% and 90% of the time during the measurement period. These values are used to demonstrate compliance with noise restrictions in the City noise ordinance.
L_{eq} (Equivalent Noise Level)	The average A-weighted noise level that occurs during the period of measurement (day, night, etc.). • L_{max}: the maximum A-weighted noise level measured • L_{min}: the minimum A-weighted noise level measured
Community Noise Equivalent Level (CNEL))	Average A-weighted sound level during a 24-hour day, obtained after adding 5 decibels to sound levels in the evening from 7:00–10:00 pm and after adding 10 decibels to sound levels in the night from 10 pm–7 am.
Noise Contours	Lines drawn around a noise source indicating equal levels of noise exposure. CNEL and L_{dn} are metrics that describe noise levels and to establish land use criteria for noise.
PPV (Peak Particle Velocity)	PPV measures the maximum velocity of a vibration. It is a standard metric for assessing potential for architectural or structural damage to buildings from vibration.
VdB (Vibration Decibels)	VdB quantifies RMS (root mean square) vibration velocity on a decibel scale. Typical background vibration in neighborhoods measures around 50 VdB, while vibrations become faintly perceptible to humans at 65 VdB.
Human Perception Thresholds	Normal background vibration at 50 VdB is generally imperceptible. At 65 VdB, vibrations are faintly noticeable, and by 75 VdB, they transition to distinctly noticeable. At 100 VdB, minor damage may occur in fragile structures.
Sources of Ground Vibration	Natural phenomena such as earthquakes, landslides, and ocean waves, as well as human-induced sources like construction, heavy machinery, trains, traffic (especially on rough roads), pile driving, and explosions.

Noise Standards and Regulations

The federal government and State of California have enacted noise controls to promote an environment for all people free from noise that jeopardizes the public health, safety, and welfare. The City supplements these state and federal standards with local regulations tailored to the community. The following provides an overview of noise regulations affecting San Bernardino.

Local Noise Regulations

The City regulates the sources and levels of noise in the City through various provisions of the Development Code. These include:

- Chapter 8.54-Noise Control
- Chapter 8.57-Sound Vehicles
- Chapter 9.48-Sound-Making or Sound-Amplifying Devices
- Chapter 10.56-Noise Limits
- Chapter 19.20- Property Development Standards

These development codes establish the maximum permissible noise levels of 65 dBA L_{eq} for residential uses at the exterior boundary of a property and the maximum permissible interior noise levels of any habitable room in a home at or below 45 dBA L_{dn}.

Acceptable Noise Levels

Major freeways and interstate routes traverse San Bernardino. The Federal Highway Administration (FHWA) is responsible for developing standards for acceptable highway traffic noise levels. Based on the California Office of Land Use, the City has set exterior noise standards for activity areas impacted by noise from roads, railways, and transit. **Table N-2,** Acceptable Noise Levels for Transportation Noise Sources, outlines the maximum acceptable exterior noise levels. However, these are maximum levels, and lower thresholds may be desired.[1]

[1] The federal Department of Housing and Urban Development noise standards and conditions take precedence when approving HUD-supported or assisted housing. Generally, in areas with ≤ 65 dBA, residential development is acceptable; in areas with noise levels of 65 to 75 dBA, housing is permitted with mitigation; and in areas with noise levels that exceed 75 dBA, residential development is prohibited.

Table N-2 Acceptable Noise Levels for Transportation Noise Sources

Land Use Category		CNEL (dBA)	
Categories	**Uses**	**Interior[1]**	**Exterior[2]**
Residential	Single family residential, duplex	45[3]	65
	Multi-family residential	45[3]	
	Mobile Homes	----	
Commercial	Hotel, motel, transient housing	45	65[4]
	Movie Theaters	45	----
	Amphitheater, auditorium, movie theater	45	----
	Commercial retail, bank, restaurant	55	----
	Office building, R&D, professional offices	50	----
	Gymnasium (Multipurpose)	50	----
	Sports Club	55	----
	Manufacturing, warehouse, wholesale, utilities	65	----
Institutional, Public	Hospital, school classrooms, playgrounds	45	65
	Church, library, or similar use	45	----
Open Space	Parks and Open Spaces	----	65

Source: Governor's Office of Land Use and Climate Innovation *Noise Element Guidelines.*

Notes:

[1] Indoor environment excluding: bathrooms, kitchens, toilets, closets, and corridors

[2] Outdoor environments limited to: private yard of single-family dwellings, multi-family private patios or balconies, mobile home parks, park picnic areas, school playgrounds, and hospital patios

[3] 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. Exterior noise levels should be such that interior noise levels will not exceed 45 dBA CNEL.

The State of California's noise insulation standards for noise-sensitive uses are codified in Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards). They require that noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) provide an annual average noise level of no more than 45 dBA CNEL. When such structures are in a 60 dBA CNEL (or greater) noise contour, an acoustic analysis is required to ensure that interior levels do not exceed the 45 dBA CNEL annual threshold.

The California Building Code provides a minimum standard for building design—a maximum interior noise level of 45 dBA L_{dn}/CNEL. Where exterior noise levels exceed 60 dBA L_{dn}/CNEL, a report must be submitted with the building plans describing the noise control

measures that will be incorporated into the project's design to meet the noise limit. Noise reduction measures such as increased setbacks, strategic placement of noise-insensitive land uses, proper orientation of bedrooms away from noise sources, mechanical ventilation, and the construction of noise barriers are ways to achieve compliance with the standards above.

Urban Core Noise Standards

Downtown San Bernardino experiences persistent noise from high-volume traffic, including cars, buses, and trucks. Roads like E Street, Third Street, and the I-215 off-ramps contribute to elevated noise levels, particularly during peak commute hours. Though residential neighborhoods have lower-speed roads, they still are affected by localized noise sources unrelated to transportation. In suburban neighborhoods, lawn mowers, leaf blowers, hedge trimmers, and power tools contribute to disruptive noise.

Table N-3, Urban Core Acceptable Exterior Noise Levels for Stationary Noise and Street Event Sources, specifies the maximum acceptable exterior noise levels for non-transportation noise sources, such as industrial equipment or commercial activities. This table separates standards into daytime and nighttime hours to protect sleep and accommodate daytime activity in louder environments. In interpreting the categories, a 10 dBA increase in the level of noise refers to the doubling of noise levels received by a receptor.

Table N-3 Urban Core Acceptable Exterior Noise Levels for Stationary Noise and Street Event Sources

Land Use Category	Daytime (L_{eq}) 7 am to 11 pm	Nighttime (L_{eq}) 11 pm to 7 am
Residential	65 dBA	50 dBA
Mixed Use/Commercial	70 dBA	60 dBA
Industrial	75 dBA	65 dBA

Note: A 3 dBA increase results when doubling a stationary noise source in the same location or doubling existing average daily traffic volumes along a roadway segment. A 10 dBA change is perceived as a doubling (or halving) of the sound.

Airport Noise Standards

Airport noise is heavily regulated by the federal government and local airport land use commissions. While the San Bernardino International Airport (SBIA) does not appear to have a recent adopted Airport Land Use Compatibility Plan as required, the City's Development Code includes noise standards that govern the noise environment resulting from airport operations. The Development Code also addresses land uses around an airport, citing decisions and regulations that affect developments around the airport.

The Municipal Code provides noise regulations that govern the siting, permitting, and mitigation for land uses surrounding the airport. The Airport area is divided into five zones based on noise levels and proximity to runways. Generally, uses that are not noise sensitive (such as warehousing, industry, and mining) are allowed closer to the airport, and noise-sensitive land uses (with noise reduction measures) are allowed in areas exposed to less airport noise.

Table N-4, Airport Compatibility Zone Summary, provides the noise exposure levels in various zones and the development standards, allowable land uses, and mitigations required.

Table N-4 Airport Compatibility Zone Summary

Zone	Noise Exposure (Ldn)	Development Standards	Allowable Uses
AD 1	80+	Max height: 30 feet Min lot size: 35,000 sqft No human occupancy NLR: 30 dBA required	Warehousing Light industrial Wholesale trade Agriculture/mining
AD 2	75–80	Max height: 30 feet Min lot size: 35,000 sqft NLR: 30 dBA required	All AD 1 land uses Limited retail) Offices/banks Golf courses
AD 3	75–80	NLR: 30 dBA required	All land uses listed above provided noise reduction mitigation is incorporated.
AD 4	70–75	NLR: 25 dBA required	
AD 5	65–70	NLR: 20 dBA required	

(NLR) = Noise Level Reduction

Source: Airport Overlay District, City of San Bernardino Development Code, 2025.

Railroad Noise Standards

The Environmental Protection Agency (EPA) retains authority to regulate railroad noise under the Noise Control Act found in 40 CFR Part 201. Although the EPA's Noise Control Act regulations are still technically active, their Office of Noise Abatement and Control was defunded in 1982. Since then, the Federal Railroad Administration (FRA) has been responsible for their enforcement.

The EPA standards themselves, which set operational noise limits and requirements for new equipment, are summarized in **Table N-5**, Summary of EPA/FRA Railroad Noise Standards.

Table N-5 Summary of EPA/FRA Railroad Noise Standards

Zone	Operating Conditions	Noise Metric[1,2]	Distance (feet)	Noise Standard (dBA)
Locomotives built before 12/31/79	Stationary	Lmax(Slow)	100	73
	Idle Stationary	Lmax(Slow)	100	93
	Non-Idle Moving	Lmax(Fast)	100	95
Locomotives built after 12/31/79	Stationary	Lmax(Slow)	100	70
	Idle Stationary	Lmax(Slow)	100	87
	Non-Idle Moving	Lmax(Fast)	100	90
Rail Cars	Speed < 45 mph	Lmax(Fast)	100	88
	Speed > 45 mph	Lmax(Fast)	100	93
	Coupling	Avg. Max.	50	92

Source: USEPA Railroad Noise Emission Standard (40 CFR Part 210).

1. Slow and fast exponential time-weighting is used.
2. Note that these values are in terms of the Lmax and can be considerably greater than the Leq typically used in the measurement of obtrusive noise.

Local communities do not have the authority to override federal noise regulations for railroads. However, they can petition the FRA to establish "quiet zones" at grade crossings by meeting safety criteria and installing engineering improvements to mitigate the absence of a train horn. Of the 60 at-grade crossings in San Bernardino, half (30 crossings) have established quiet zones.

Vibration Standards and Regulations

Vibration refers to oscillating motion that transfers energy through solid materials. For example, freight trains or heavy-duty construction equipment produce vibrations that can rattle windows or disturb nearby residents. Even HVAC units can generate persistent vibrations that affect comfort or concentration. Several land uses are especially sensitive to vibration, such as concert halls, hospitals, libraries, residential neighborhoods, schools, and offices.

Vibration can impact older structures and sensitive environments, such as surgical facilities. The primary source of disruptive vibrations is construction activity, such as earthmoving and pile-driving. Though railways and airports also produce vibrations, most lack the intensity to impact structural integrity or human sensitivity. **Table N-6** describes sensitivity to groundborne noise and vibration that can help assess the impact of vibrations and inform mitigation strategies.

Table N-6 FTA Construction Noise and Vibration Levels

Building/Structural Category	L_{eq} (8-hour) dBA	
	Daytime	Nighttime
Residential	80	70
Commercial	85	85
Industrial	90	90
Building/Structural Category	**Peak Particle Velocity (PPV)**	**Approximate Vibration dB**
I. Reinforced-concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Nonengineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: Federal Transportation Administration, Transit Noise and Vibration Impact Assessment, 2018.

Notes: dBA = A-weighted decibels; Leq = equivalent continuous sound level; db = decibel; in/sec = inches per second; PPV = peak particle velocity

The following provides the planning context, goals, and policies to achieve the City's vision as articulated in the 2050 General Plan.

Goals and Policies

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

Downtown Noise

Currently, Downtown San Bernardino has limited nighttime activity and subdued street life. While this calmness ensures minimal noise disruption for residents, it also reflects the area's underutilized potential as a vibrant mixed-use destination. Few entertainment venues or late-night businesses operate at full capacity, and pedestrian activity dwindles after hours. Major transit corridors generate some ambient noise, but without the energy of a thriving downtown, the soundscape remains muted.

As downtown becomes a hub of commerce, entertainment, and culture, the General Plan 2050 anticipates higher noise levels in designated activity zones but implements strategies to protect nearby neighborhoods. This includes zoned noise tolerance, with livelier soundscapes in entertainment and commercial districts while shielding residential areas with acoustic barriers and noise insulation requirements. Transit and design solutions, such as sound-absorbing street designs, will soften noise from increased vehicular activity.

Goal N-1 Urban Core Noise

Provide for a noise management framework that accommodates urban vibrancy by permitting context-sensitive exemptions, updating standards for activity hubs, and requiring mitigation strategies that balance community livability with economic and cultural vitality.

Policies

N-1.1 **Urban development**. Exempt development in focus areas, transit hubs, or along major roads from outdoor noise standards provided acceptable interior noise levels are maintained.

N-1.2 **Urban noise standards**. Allow tailored exterior noise standards based on place to accommodate businesses and entertainment venues provided that acceptable interior noise levels can be maintained.

Neighborhood Noise

The City of San Bernardino is known for the diversity of its residential neighborhoods–from traditional suburban neighborhoods to hillside developments to transitional neighborhoods with a mix of uses, to urbanized neighborhoods near the downtown or other activity areas. As a result, the noise concerns expressed by residents vary based on their location, adjacency to transportation-related noise sources (e.g., freeways, airport, and rail), level of traffic, and other unique concerns.

Suburban homes often face noise from nearby gatherings, barking dogs, and home improvement projects. Backyard parties, kids playing, and late-night DIY work can lead to excessive noise. The City's noise ordinance sets quiet hours (10 pm to 7 am) and regulates excessive noise, enforced through code compliance. Community education campaigns promote courtesy notifications for planned events and soundproofing fencing or shrubbery to buffer noise.

Goal N-2 Neighborhood Noise

A city with appropriate noise and vibration levels that provide peaceful, quiet living in residential neighborhoods.

Policies

N-2.1 **Noise sensitive uses**. Minimize, protect, or prohibit new housing, health care, schools, libraries, religious facilities, and other sensitive uses in areas where existing or future noise levels stated in **Table N-2.**

N-2.2 **Vehicle noise reduction**. Promote measures that reduce noise from motor vehicles (e.g., truck routes limits, blaring horns or muffler monitoring, and speed limits) to reduce the impact on noise-sensitive land uses.

N-2.3 **Rail quiet zones**. Partner with railroads to implement minimize rail-related noise impacts through quiet zones, restricted air horn use, and limiting timetables for train traffic. Encourage the construction of noise barrier walls for homes located adjacent to railroad rights of way.

N-2.4 **Noise regulation enforcement**. Enforce the City's Noise Ordinance to ensure that neighborhood noise sources and levels of noise experienced by residents adhere to daytime limits and are minimized whenever feasible.

Land Use Planning and Design

As San Bernardino continues to grow, increasing population, employment, and tourism will bring more traffic and noise-generating activities. At the same time, undeveloped and underdeveloped areas—some designated for noise-sensitive uses like housing, schools, or health care—may be near busy roadways, railroads, or transit lines. To maintain good quality of life, integrating smart land-use planning and noise-reduction strategies is essential.

To minimize disruptions, the City should conduct noise impact evaluations for development projects where sensitive land uses and major noise sources intersect. Through the project review process, planners and developers can collaborate on innovative design solutions that reduce noise exposure. Modern approaches include:

- Buffer zones that reduce noise with a barrier or separation between a noise source and a sensitive area. Examples include:
    - Structural buffers: positioning parking structures or storage or utility areas between noise sources and quiet areas.
    - Vegetative buffers: dense plantings of trees, shrubs, and grasses that absorb and deflect sound waves.
    - Physical barriers such as walls or berms that can deflect noise from transportation sources.
- Building site planning and design techniques that reduce the level of noise experienced. Examples include:
    - Orienting structures to shield outdoor living spaces from railroad traffic noise.
    - Locating bedrooms, home offices, and quiet zones away from high-traffic roads.
    - Using sound-absorbing materials (acoustic fencing, green walls, or insulated windows).
- Incorporate quieter pavement materials for roadways (rubberized asphalt), noise barriers, and transit-oriented design with bicycle paths and pedestrian walkways to reduce traffic noise wherever feasible and not cost prohibitive.

Goal N-3 Land Use Planning and Design

Ensure that residents and sensitive land uses are protected from excessive levels of noise through the implementation of careful land planning and design techniques.

Policies

N-3.1 **Sensitive land uses and transportation noise**. Prohibit development of housing, health care facilities, schools, libraries, religious facilities, and other noise-sensitive uses in areas where existing or future noise levels from transportation sources exceed noise levels in **Table N-2**.

N-3.2 **Truck delivery regulations**. Prohibit truck deliveries to commercial properties adjacent to residential zones outside of daytime hours (7 am to 10 pm), unless no feasible alternative exists or overriding benefits necessitate off-hour operations. Exemptions may be granted for critical deliveries or emergency operations, or when delivery trucks are equipped with electric motors that do not generate noise.

N-3.3 **New development of stationary noise sources**. Prohibit the development of new or expansion of existing industrial, commercial, or other uses that generate noise impacts exceeding 65 dBA L_{eq} at the receiving property line of housing, schools, health care facilities or other sensitive uses.

N-3.4 **Sensitive land uses and stationary noise sources.** Prohibit development of new or expanded residential or other noise-sensitive uses (e.g., schools, hospitals, senior housing, and religious facilities) in areas where existing or planned stationary noise sources would expose them to noise levels that exceed 65 dBA L_{eq} at the receiving land use property line, as defined by **Table N-3**.

N-3.5 **Noise mitigation techniques.** Require the use of noise buffer zones, building site planning and design techniques, physical barriers, or innovative and emerging technologies as feasible to reduce noise levels to acceptable levels consistent with **Tables N-2** and **N-3**.

Transportation Related Noise Sources

San Bernardino is a key transportation hub, home to major highways (State Routes 18, 30, 330, and 66, Interstates 10, 210, and 215), major roads, railways, and the San Bernardino International Airport. While these facilities are vital for mobility and economic growth, these uses also cross residential areas and other sensitive land uses. Therefore, implementing cost-effective strategies to minimize their undue impact on the community's soundscape is an important goal.

Though local government has limited control over transportation noise (many standards are set by state and federal agencies), the City can still enforce its municipal code to address noise. The most effective tools to control transportation noise are noise barriers and smart site design. Noise barriers are most effective when placed close to the noise source, which forces the noise energy wave up and over. The taller and more strategically positioned the barrier, the greater the reduction in noise. Additional sound dampening can be achieved depending on the type of transportation noise.

Roadways

Roads are a major source of noise, with sound coming from vehicle engines and tire friction on pavement. The City can reduce this noise through speed management; even a 5 mph decrease can lower noise levels by 1 to 2 dBA, and a 10 mph reduction can have the same effect as cutting traffic volume in half. Truck traffic plays an outsized role in roadway noise, with medium and heavy trucks generating as much noise as 5 to 60 passenger vehicles, depending on speed and weight. The City can mitigate this impact with weight restrictions and designated routes, prohibiting noisier vehicles from sensitive areas.

Well-maintained roads also contribute to quieter streets because smooth pavement prevents the rattling and bouncing that amplify traffic noise. By prioritizing road repairs and eliminating bumps and dips, the City can further reduce unwanted noise. These efforts, combined with speed management and smart truck routing, create a more peaceful environment for residents while maintaining vital transportation networks. Existing and future circulation noise projections for San Bernardino are mapped on **Figures N-1 and N-2.**

Railways

San Bernardino's rail network is a significant contributor to noise, with three major routes traversing the City: the Cajon Pass Line, the MetroLink Arrow Service, and the Main Line-Colton. Additionally, the BNSF and Union Pacific operate key freight corridors. Noise levels vary across these routes due to differences in train frequency, speed, and operational patterns. Rail noise depends on multiple factors, including daily train volume, scheduling, engine and railcar numbers, track type (continuous welded vs. bolted), and the use of warning horns at at-grade crossings. Faster trains and frequent horn use, particularly near crossings, will amplify disruptions.

Federal regulations limit local control over rail operations, but the City can reduce noise through land-use planning near rail corridors. For instance, the City integrates rail noise considerations into the land use policies in the Land Use and Urban Form and Noise elements. The strategic placement of physical buffers, such as industrial or less noise-sensitive uses, near rail lines helps ro reduce the noise that reaches sensitive uses. Current noise projections for these lines are mapped later in this section of the element.

Public Transit and Rail Noise

Downtown's transit hubs, including the San Bernardino Transit Center and nearby Metrolink/Amtrak stations, produce frequent noise from train horns, braking, and loudspeaker announcements. The BNSF freight line also cuts through the urban core, causing vibrations and low-frequency rumbling. The City is pursuing Federal Railroad Administration (FRA) "quiet zone" designation for select rail crossings to eliminate routine use of train horns. Additionally, the transition to electric buses and rail dampening technologies will reduce transit-related noise over time. The City also encourages commercial and industrial uses to adopt transportation demand management programs aligned with the Air Quality Management Plan. These programs should promote incentives for carpooling, vanpooling, and public transit use, helping to reduce traffic congestion and lower noise levels in the community.

Airports

San Bernardino International Airport provides cargo, commercial, and general aviation service for domestic and international flights. San Bernardino hosts five heliports, including locations at the National Orange Show, Community Hospital, and SCE Eastern Division. Airport activities generate noise that can affect nearby homes and businesses. Overflight noise such as aircraft passing and audibly beyond official noise boundaries can affect quality of life.

San Bernardino International Airport's operations are delineated in six safety zones, each with unique risks, noise levels, and land use requirements. While these zones were primarily established to address the potential for airplane crashes into buildings, they also align with noise mitigation strategies by restricting incompatible land uses in areas most affected by aircraft operations. The Airport Overlay Zone in the City's development code outlines six zones that correspond to different levels of safety hazards.

Federal and state law dictate the type of allowable development and building height limits in each of the six airport zones. However, the City plays a key role in decisions that affect land use compatibility. The Airport Overlay District specifies permissible and prohibited land uses in each zone to minimize exposure to public safety hazards. Each of these regulations must be followed. By aligning land use policies with safety zone guidelines, San Bernardino can protect residents while fostering responsible growth around the airport.

Ultimately, the airport safety zones and noise management policies work together to provide a comprehensive noise-protection approach to land use planning around the airport. By considering both the crash risk for airplanes and noise exposure in development decisions, San Bernardino can protect public health and safety while still allowing for appropriate growth near the airport.

Noise levels for transportation routes are mapped on **Figure N-1**, and projections for the rail and airport are shown on **Figure N-2**. The subsequent goal and policies address these sources of noise.

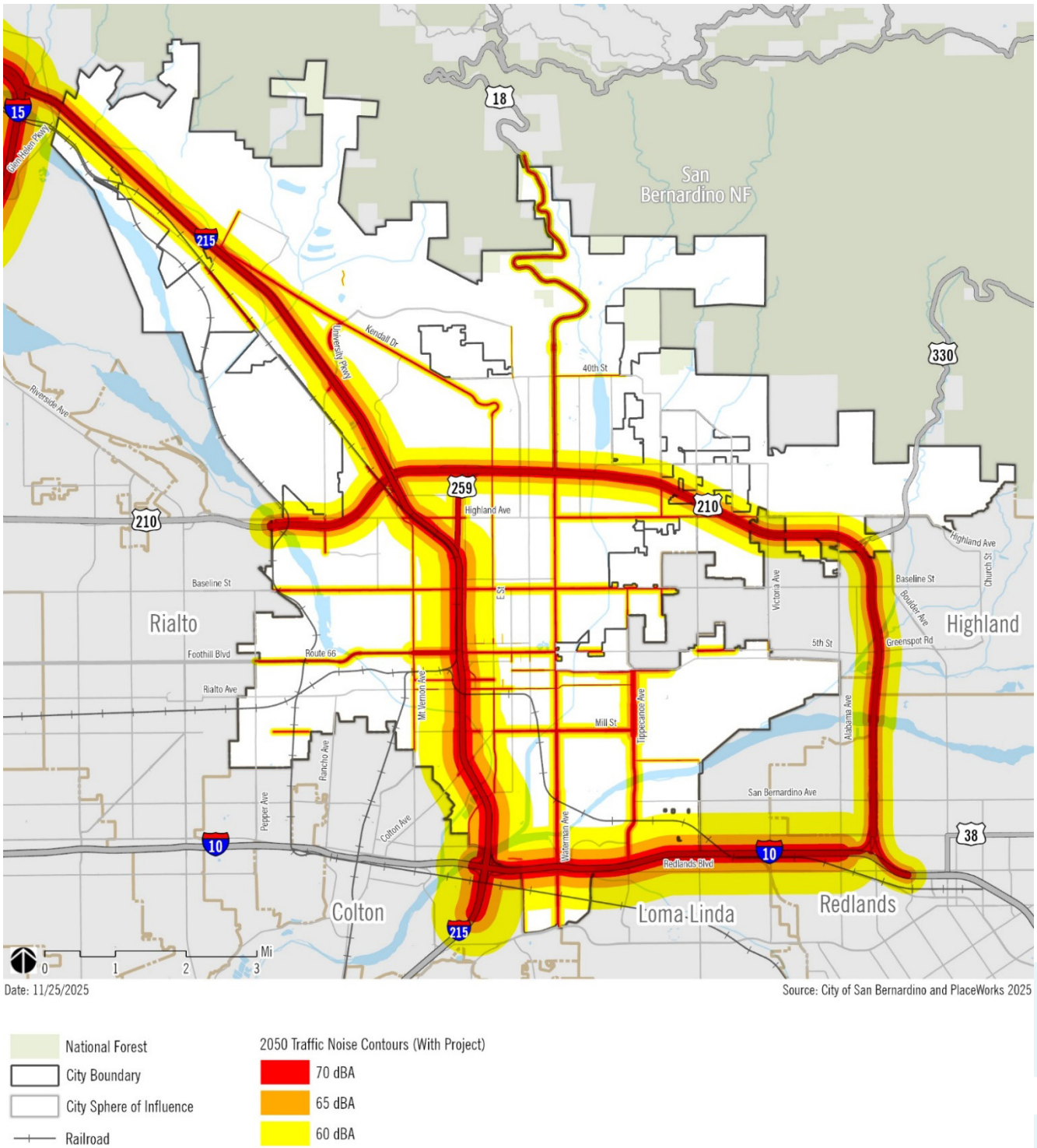
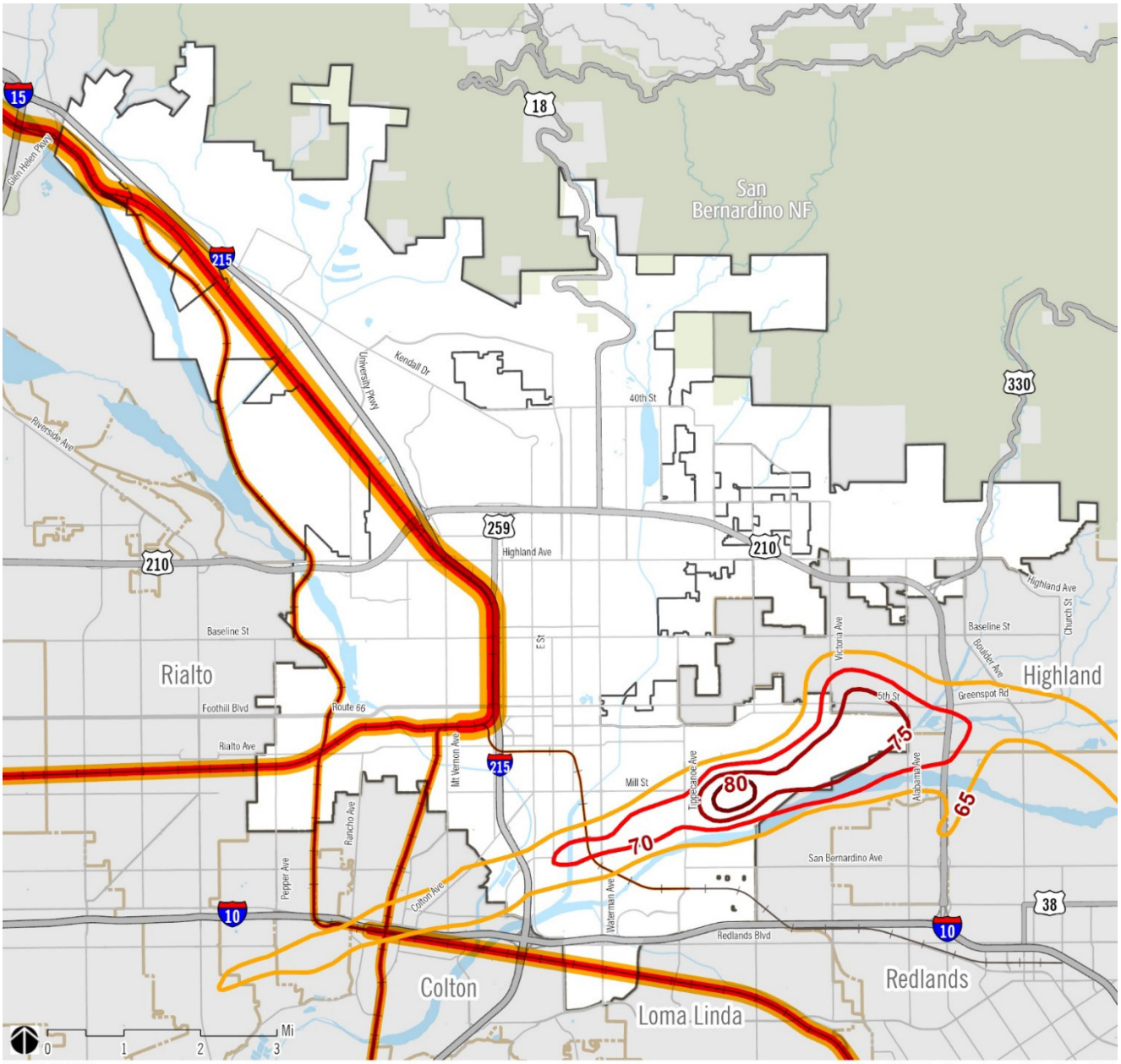


Figure N-1 Roadway Noise in San Bernardino



Date: 11/25/2025

Source: City of San Bernardino and PlaceWorks 2025

National Forest
City Boundary
City Sphere of Influence
Railroad

Rail Noise Contours
70 dBA
65 dBA

Airport Noise Contours
80 dBA
75 dBA
70 dBA
65 dBA

Figure N-2 Rail and Airport Noise in San Bernardino

Goal N-4 Transportation Related Noise

Encourage reduction of noise from transportation-related sources such as vehicles, aircraft operations, and railroad movements.

Policies

N-4.1 **Highway and freeway noise**. Work with Caltrans to landscape or install mitigation elements along freeways and highways adjacent to residential subdivisions or noise-sensitive uses to reduce noise impacts.

N-4.2 **Physical buffering requirements.** Require sound walls, berms, and/or landscape buffering along highways and railroad rights-of-way to beautify the landscape and reduce the noise caused by trains and traffic volumes.

N-4.3 **Noise mitigation designs for roadways**. Employ noise mitigation practices when designing or improving streets, highways, or road segments. Emphasize the establishment of natural buffers or setbacks between arterial roads and adjoining noise-sensitive areas.

N-4.4 **CEQA ambient noise increase threshold**. Require that proposed development which increases the ambient noise level by 3 dBA or more adjacent to noise-sensitive land uses provide mitigation measures to ensure the project does not exceed this threshold.

N-4.5 **Railroad operations to reduce noise**. Work with railroad operators to reduce noise levels by:

- Properly maintaining lines to reduce unnecessary noise impacts.
- Restricting travel during the early morning and late evening hours to reduce impacts in residential areas.
- Installing or adjusting noise mitigation features (e.g., Quiet Zones and walls), where feasible.

N-4.6 **Airport land use compatibility**. Limit the development of noise-sensitive land uses within the 65 dBA CNEL contour designated in SBIA's Land Use Plan. Where such uses are proposed, building design must achieve interior noise levels of 45 dBA CNEL or lower in habitable rooms.

Construction-Related Noise Sources

Construction is a necessary part of developing and redeveloping communities. Construction noise is typically intermittent and during the less intrusive daytime hours. Two types of temporary noise impacts could occur during construction of these land uses. Transportation of workers and movement of materials to and from the site could increase noise levels along local access roads. Temporary noise during construction activities, including asphalt demolition, site preparation, grading, building construction, and paving, each of which has its own mix of equipment and its own noise characteristics, could increase ambient noise levels at noise-sensitive receptors.

Goal N-5 Construction Noise

Protect residents from the negative effects of construction noise spillover through the enforcement of strict time restrictions and noise mitigation measures like sound barriers or low-decibel equipment.

Policies

N-5.1 **Construction near sensitive uses**. Require that construction activities adjacent to residential units and other sensitive land uses are limited as necessary to prevent adverse noise impacts.

N-5.2 **Feasible options to reduce noise from construction**. Require that construction activities employ feasible and practical techniques that minimize the noise impacts on adjacent uses.

N-5.3 **Exterior noise standard for construction activities.** Adopt acceptable noise and vibration FTA standards for construction activities at the receiving land use, as defined by **Table N-6.**

N-5.4 **Update noise ordinance**. Update the Noise Ordinance to require that construction activities employ feasible and practical techniques that minimize the noise impacts on adjacent uses.