



VISION

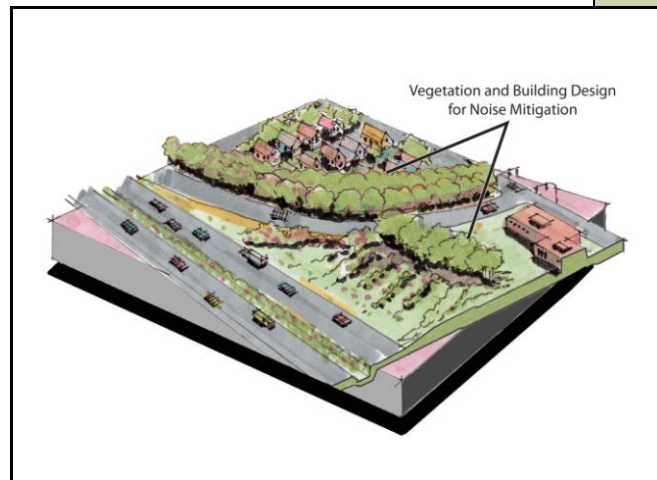
The City of Chico is free of excessive noise disturbances in 2030. Residents and visitors are able to enjoy indoor and outdoor spaces without the intrusion of harmful levels of noise. Industrial uses, traffic corridors, and airports function with minimal ~~constraints from the encroachment from~~ of noise-sensitive development. Noise mitigation measures in the City emphasize site and project design that incorporates effective and visually attractive features.

INTRODUCTION

This element identifies the major noise sources and noise-related concerns in Chico and outlines goals, policies, actions, and standards intended to promote safe and comfortable noise levels throughout the community.

Noise is typically defined as unwanted sound that interferes with an individual's ability to perform a task or enjoy an activity. From a planning perspective, noise control focuses on two primary concerns: (1) preventing the introduction of new noise-producing uses in noise-sensitive areas; and (2) preventing the encroachment of noise-sensitive uses into existing noise-producing areas. Some facilities, such as airports and certain industrial operations, inherently generate noise, and the encroachment of noise-sensitive uses can jeopardize their continued operation. Therefore, some noise-generating uses need to be protected from the development of incompatible uses in their vicinity. Working to balance the compatibility of uses and reduce the impact of significant sources of noise will improve the quality of life for Chico residents.

The Noise Element is a mandatory element of the General Plan that relates to several other elements, including the Land Use, Community Design, Circulation, and Safety Elements. Where appropriate, cross references are provided to alert the reader to applicable policies or actions in other elements.



Noise Mitigation



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ISSUES AND CONSIDERATIONS

This section of the element identifies primary noise issues raised during the outreach efforts for the General Plan Update and explains how they are addressed. Policy guidance can be found in the goals, policies, and actions section of this element. An explanation of specialized terms used in this element can be found in the General Plan Glossary (**Appendix A**).

NOISE COMPATIBILITY OF LAND USES

One factor in determining and managing the compatibility of different land uses is the need to separate noise-sensitive uses from uses that generate significant amounts of noise. A primary purpose of this element is to establish standards that can be used to equitably manage the noise compatibility of land uses. For example, standards may prevent noise generating uses such as industrial operations or major roadways from developing near residences or outdoor recreation areas. Conversely, new noise-sensitive uses may be prevented from locating near existing noise-generating uses to avoid an incompatible situation. Since the General Plan promotes a compact urban form and the integration of different land uses, there is a need for the Noise Element to establish standards that support a mix of uses in close proximity to one another.

TRANSPORTATION-RELATED NOISE COMPATIBILITY



Appropriate noise mitigation must be incorporated to protect residents from exposure to transportation-related noise. This issue primarily concerns development near the State Route 99 and 32 corridors and along larger arterial roadways. ~~The issue is how~~ Noise standards along these corridors can ~~can~~ must be met and maintained over time without excessive construction of obtrusive and community-dividing sound walls. This element establishes noise standards to attenuate noise to levels that minimize disruption to noise-sensitive uses, and it includes policies and actions which address noise compatibility issues.

TRAINS

Trains traversing the City on the Union Pacific Railroad tracks present issues related to both noise and public safety. Development near the railroad tracks must be compatible with the noise environment. This element addresses train generated noise by establishing standards for ~~building construction and~~ noise attenuation and by providing policy guidance for the use of land adjacent to the railroad tracks.

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AIRPORTS

The primary noise issue associated with airports is the noise generated by aircraft take off and approach for landing. The Chico area has two airports: the City-owned Chico Municipal Airport and the small, private Ranchoero Airport located west of the City. Airports can become vulnerable to pressure to curtail operations and expansion plans when residential or other noise-sensitive development occurs nearby. The Butte County Airport Land Use Commission (ALUC) has adopted an Airport Land Use Compatibility Plan (ALUCP) for both airports. ~~The General Plan is largely compatible with the ALUCP, but consistent with state law, the City has followed procedures to override the ALUC due to some incompatibilities associated with Chico Municipal Airport's southern over flight zones.~~ The City's efforts to ensure that development is consistent with the ALUCP will help reduce noise-related conflicts near airports. This element establishes ~~policies regarding standards that apply to new development~~ land uses near airports.

THE CHANGING NOISE ENVIRONMENT

Because Chico is becoming increasingly urban in size and density, it is important to recognize that exterior noise levels will tend to increase in some areas. While the community has high expectations for a quiet environment, the acceptance of increased exterior noise levels must be considered as a tolerable and practical aspect of living in an urban environment. Setting noise standards too low in areas, such as along highways, will not necessarily make the environment quieter, and can result in missed opportunities for appropriate development. This element establishes noise standards that recognize the changing noise environment and policies that guide ~~construction standards and mitigation concepts~~ noise attenuation methods used to address urban noise issues.

NOISE CHARACTERISTICS AND MEASUREMENTS

This section of the element explains noise characteristics and measurements used for the noise standards in the Goals, Policies, and Actions section of this element.

NOISE CHARACTERISTICS

Noise in a community is generated by a number of sources including transportation-related sources such as automobiles, trucks, trains and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. The human response to environmental noise is subjective and varies considerably from one individual to another. Noise in a community has often been cited as a health concern, not necessarily in terms of actual physiological damage, such as hearing impairment, but in terms of its impact on general well-being and contribution to excessive stress, annoyance and sleep disturbance.





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Noise-sensitive land uses are those for which noise exposure could cause health-related risks to individuals or quiet is essential to the use. Land uses identified in Chico as being “noise-sensitive” include all-most types of residences, nursing homes, day care centers, hospitals, schools, parks, and places of assembly, such as theaters, churches and meeting halls. Residential dwellings are of primary concern because of the impacts associated with exposure of individuals to potentially high interior and exterior noise levels.

Outdoor activity areas are the portions of parcels where outdoor activities generally occur, such as residential patios and yards, or outdoor instructional areas. These exterior activity areas are exposed to noise with fewer structural elements such as walls and windows for noise attenuation. Public land uses such as historic sites, cemeteries, and recreation areas may also be sensitive to high exterior noise levels.

The characterization and quantification of noise levels and their effects on people typically includes the use of technical terminology. While an in-depth explanation of noise terminology is not included in this element, a summary of industry standards and terms used in this chapter is provided below.

NOISE MEASUREMENT

To approximate the sensitivity of the human ear to changes in frequency, sound is usually measured in what is referred to as “A-weighted decibels” (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA.

The intensity of noise fluctuates over time, and several measurements of time-averaged noise levels are used to describe noise characteristics for different circumstances. The following acoustical measurements are commonly used:

- **dB – Decibel.** A measure, on a logarithmic scale, of the amplitude of sound. On the decibel scale, the smallest audible sound (near total silence) is 0 db. A sound 10 times more powerful is 10dB. A sound 100 times more powerful is 20dB. The “A” weighted decibel, commonly abbreviated as dBA, relates the measurement of sound to the sensitivity of the human ear.
- **L_{eq} – Energy Equivalent Noise Level.** A single measure, in dBA, of average acoustic energy level used to represent fluctuating sound levels over a specific period of time.
- **L_{min} – Minimum Noise Level.** This represents the minimum instantaneous noise level during a specific period of time.
- **L_{max} – Maximum Noise Level.** This represents the maximum instantaneous noise level during a specific period of time.

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- **SEL – Single Event Level.** This measures the total acoustic energy of a single noise event, such as an aircraft overflight, compressed into a period of one second. Because the SEL is normalized to a one second period, it will almost always be larger in magnitude than the L_{max} for the event.
- **DNL or L_{dn} – Day-Night Average Noise Level.** A 24-hour L_{eq} with a 10 dBA “penalty” for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m.
- **CNEL – Community Noise Equivalent Level.** The CNEL is similar to the L_{dn} described above, but with an additional 5 dBA “penalty” for noise events that occur between the hours of 7:00 p.m. and 10:00 p.m. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated L_{dn} .
- **Hourly L_2 –** This is the dBA level which is exceeded during 2 percent, or approximately one minute, of a given hour. The noise level descriptor L_{50} may also be used, which is the noise level exceeded during 50 percent (or 30 minutes) of a one-hour period.
- **L_n -** The dBA level exceeded for n percent of a given time period. For instance, L_2 is the level exceeded for 2% of the time and L_{50} is the level exceeded 50% of the time. The commonly used values of n are 2, 10, 50, and 90.
- **Noise Sensitive Land Uses -** Land uses for which noise exposure could cause health-related risks to individuals or where quiet is essential to the use. Land uses identified in Chico as being “noise-sensitive” include residences, nursing homes, day care centers, hospitals, schools, parks, and places of assembly, such as theaters, churches and meeting halls.

NOISE SOURCES

This section of the element identifies both stationary and transportation noise sources. **Figure N-1**, Noise Sources Map, depicts the primary noise sources in the Planning Area. **Figure N-2**, Noise Contour Map, depicts the noise contours from primary noise sources in the Planning Area.

STATIONARY NOISE SOURCES

Stationary noise sources in Chico include industrial and commercial activities. Many industrial processes produce noise even when the best available noise controls are applied. Noise exposure within industrial facilities is controlled by federal and state employee health and safety regulations. Exterior noise levels that affect neighboring parcels are typically subject to local regulations. Commercial, recreational, and public service activities can also produce noise. These noise sources can be continuous or intermittent and may contain tonal



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components that are annoying to individuals who live nearby. For instance, emergency sirens and backup alarms are often considered nuisance noise sources but may not occur frequently enough to be considered incompatible with noise-sensitive land uses. In addition, noise generation from fixed noise sources may vary based upon climate conditions, time of day, and existing ambient noise levels.

- **Commercial and Industrial Noise.** Noise levels from commercial and industrial uses can vary substantially, depending on the activity. For instance, noise associated with neighborhood commercial activities may be indiscernible from the ambient noise level, whereas noise levels associated with the use of heavy equipment can generate much higher intermittent noise levels. For this reason, noise impacts generated by commercial and industrial uses need to be evaluated on a project and site-specific basis. Within Chico, commercial and industrial land uses are located primarily along major roadway corridors and at the edges of the community. Industrial land uses are largely located in the northern portion of the City along the Esplanade, Nord Avenue, and in the Airport Industrial Park, as well as in the southwest portion of the City along 20th Street, Park Avenue and Hegan Lane. Noise sources commonly associated with these land uses include on-site truck traffic, loading dock activities, heavy-equipment operation, banging of metal on metal, conveyor belts, air handling systems, and large HVAC (heating, ventilating, and air conditioning) systems.
- **Silver Dollar Speedway.** The Silver Dollar Speedway is an open-air raceway within the Silver Dollar Fairgrounds which is owned by the state and surrounded by the City. The Speedway conducts stock and sprint car races from March through October. Racing typically begins at approximately 6:30 p.m. and ends by 10:00 p.m. Maximum noise levels associated with racing activities range between 55 and 70 dB at approximately 3,000 feet from the track, with ~~background~~ noise from the races often heard at much greater distances throughout the City.
- **Parks and School Playing Fields.** The noise generated at parks and schools in Chico varies by the type of activity and the number of people using the facility. School playing field activities tend to generate more noise than those of neighborhood parks because of the intensity of the activities. At a distance of 100 feet from an elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events such as high school football games with large crowds and public address systems, the noise generated is often significantly higher.



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- **California State University, Chico.** The California State University, Chico campus generates a range of noise events and noise types ranging from normal and customary noise associated with student activities on campus to periodic noise events from special activities at campus facilities (e.g. Nettleton Stadium and athletic field use). The majority of the noise associated with normal campus activities occurs during day-time hours and falls within the permitted range of normal day-time ambient noise levels. Periodically, noisy activities occur outside of the normal day-time hours and result in short-term noise levels approaching the maximum permitted standards. These events are most commonly associated with the nighttime use of outdoor stadiums and facilities and most commonly occur during the summer and fall seasons. The noise concerns associated with these events include discomfort and interference with personal activities such as sleeping and relaxing.

TRANSPORTATION NOISE SOURCES

Sources of transportation noise in Chico include vehicle traffic, and railroad and aircraft operations. The City of Chico is concerned with protecting people from unacceptable levels of transportation noise while balancing the need to provide an effective and well-connected transportation system. Below are four primary sources of transportation noise in Chico.

- **Traffic Noise.** Ambient noise levels in many portions of the City are defined primarily by traffic on major roadways such as State Routes 99 and 32 and major arterials. Existing and future traffic noise contours for roadway segments within the City are summarized in the General Plan Environmental Impact Report (EIR). Future noise contours assume no natural or human-made shielding, such as intervening terrain, vegetation, berms, walls, or buildings. The contours represent bands of similar estimated noise exposure along roadway segments, but not absolute demarcation lines. Although these predicted noise contours are not considered site-specific, they are useful for predicting potential land use conflicts.
- **Airport Noise.** The Chico Municipal Airport (CMA) is used for general aviation, commercial aviation, fire fighting, air cargo operations, and maintenance. It currently handles nearly 70,000 aircraft take-offs and landings annually. Noise concerns associated with airport operations include discomfort and interference with personal activities such as sleeping and relaxing. While individual responses to noise can vary, standardized noise measurements and descriptors are used to quantify human responses to aircraft noise levels. Additional detail concerning existing and projected noise contours for the airports are depicted in the General Plan EIR, including the higher average and maximum day noise contours for fire suppression operations. Except for periods of intense fire suppression operations,





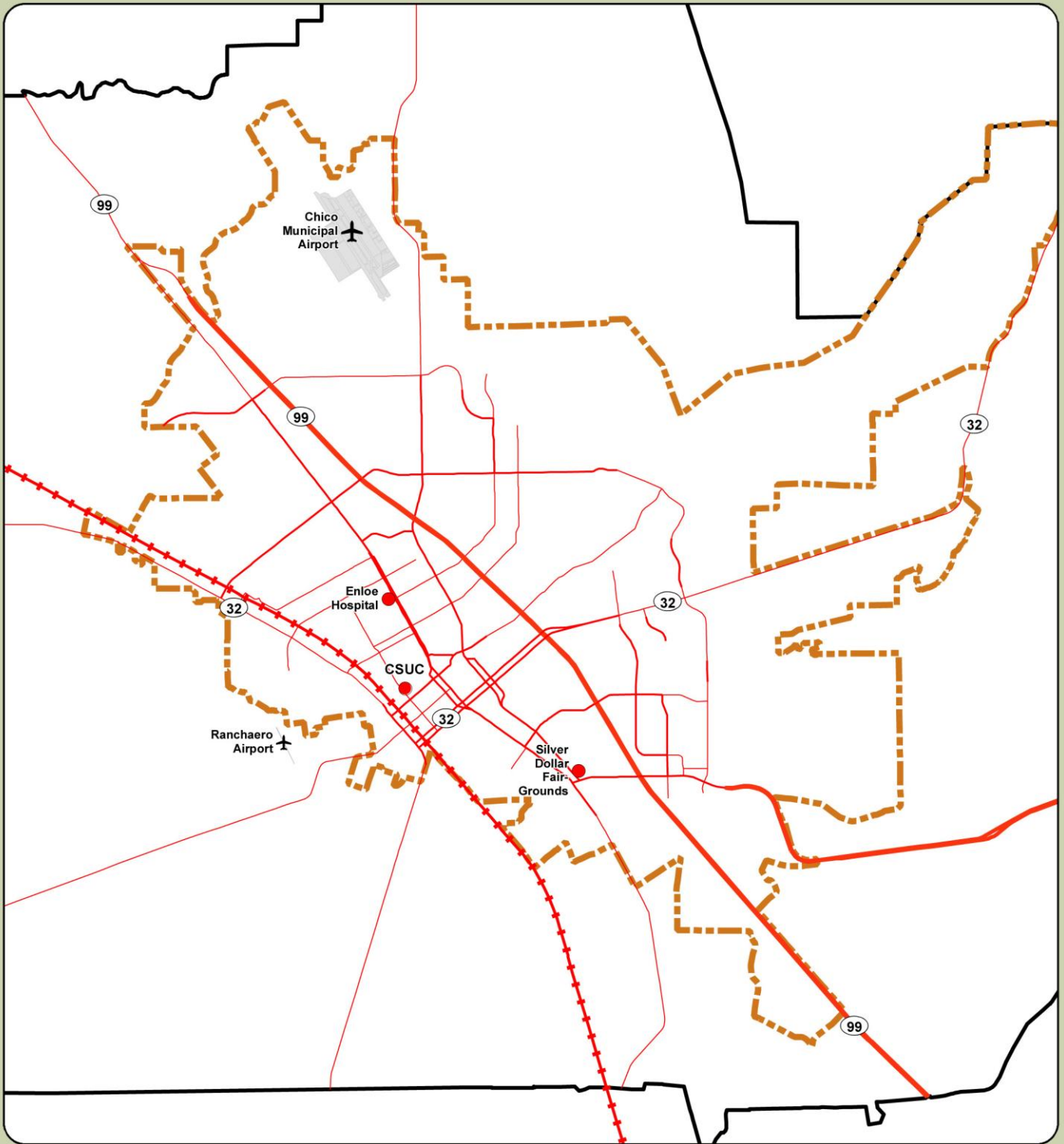
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the 65 and greater CNEL contours lie mostly over the airport and surrounding publicly owned property.

Ranchaero Airport is a privately owned general aviation facility located west of the City. This airport serves a combination of recreational, flight training, agricultural, and limited business functions with an estimated 5,000 annual aircraft take-offs and landings. Portions of the City are beneath this airport's over flight area and may be subject to noise impacts.

- **Enloe Medical Center Heliport.** The existing Enloe Medical Center, located at the northwest corner of the Esplanade and West 5th Avenue, has a rooftop helipad used by the Center's Flight Care helicopter to transport patients. Take-offs and landings are considered "emergency" activities not subject to the noise criteria used for airports. Air space above the Esplanade is used as the primary approach and departure route for helicopters at this facility. Aircraft typically approach from the north and then west between 6th and 7th Avenues, while normal departures travel directly north over the Esplanade. Under abnormal wind conditions, however, helicopters can arrive and depart from the north or south. To reduce noise impacts on local residents, pilots are asked to maintain an altitude of approximately 500 feet above ground level. Predicted noise contours (CNEL and SEL) for the north and south approaches are depicted in the General Plan EIR.
- **Union Pacific Railroad.** The Union Pacific Railroad (UPRR) tracks are located west of and generally parallel to State Route 99, bisecting the City of Chico in a south-northwest direction. The UPRR is used for both freight transport and Amtrak passenger service. Approximately 17 freight trains (at speeds of up to 70 mph) and two Amtrak passenger trains travel along this rail line on a daily basis. Noise levels generated by trains can vary depending on speed, number of engines, track conditions, condition of train wheels, and shielding provided by intervening terrain. Additional factors, such as the sounding of the train horns and the operation of roadside signaling devices can also contribute to overall noise levels. Noise levels associated with train passages can reach levels ranging from 96 to 110 dBA L_{max} at 50 feet from the track centerline. Noise contours for the railroad line are depicted in the General Plan EIR.





NOISE SOURCES

Transportation Noise Source

- Freeway /Expressway (4-6 lanes)
- Arterial (2-4 lanes)
- Railroad

Other Noise Source

- Airport
- Source Point



City of Chico Sphere of Influence Boundary

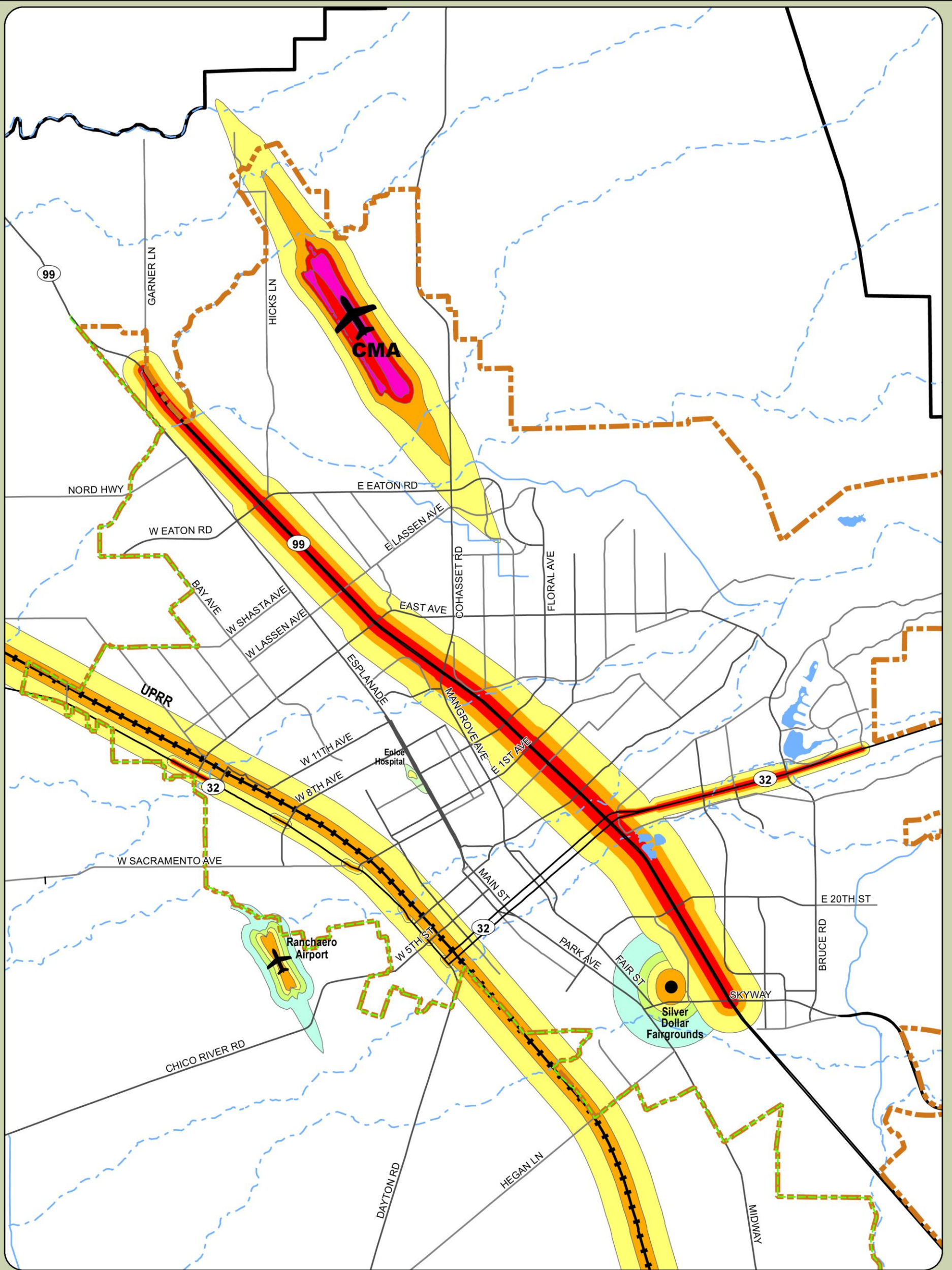


Chico Planning Area Boundary

Source: Brown-Buntin Associates



Figure N-1 Noise Sources



Note: Distances are approximate, may vary depending on level of activity, and should not be interpreted as absolute lines of demarcation.

**NOISE CONTOURS
dBA**

- 75
- 70
- 65
- 60
- 55
- 50

CNEL/Ldn

- Airports
- Highway 99 (from centerline)
- Highway 32 (from centerline)
- Railroad (with Horn Soundings)
Leq
- Speedway (from track centerline)

- Greenline
- City of Chico Sphere of Influence Boundary
- Chico Planning Area Boundary

Sources: Airport Noise Compatibility Program, 2008, Mead & Hunt, Inc., 2000, City of Chico, Ambient Air Quality & Noise Consulting, 2010.

0 0.5 1 Miles



Figure N-2 Noise Contour Map



GOALS, POLICIES, AND ACTIONS

- Goal N-1: To benefit public health, welfare and the local economy, protect noise-sensitive uses from uses that generate significant amounts of noise.**
- Goal N-2: Encourage noise attenuation methods that support the goals of the General Plan.**
- Goal N-3: Promote and enforce the City's noise standards.**

- **Goal N-1: To benefit public health, welfare and the local economy, protect noise-sensitive uses from uses that generate significant amounts of noise.**
 - **Policy N-1.1 (New Development and Transportation Noise) - New development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels specified in Table N-1, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Table N-1.**
 - **Policy N-1.2 (New Development and Non-Transportation Noise) - New development of noise-sensitive land uses will not be permitted in areas exposed to existing non-transportation noise sources that exceed the levels specified in Table N-2, unless the project design includes measures to reduce exterior noise levels to the unadjusted levels specified in Table N-2.**
 - **Policy N-1.3 (Acoustical Analysis) - Where proposed projects are likely to expose noise-sensitive land uses to noise levels exceeding the City's standards, require an acoustical analysis as part of environmental review so that noise mitigation measures may be identified and included in the project design. The requirements for the content of an acoustical analysis are outlined in Table N-3.**
 - **Policy N-1.4 (Roadway Improvement Projects) - Where proposed roadway improvement projects are likely to expose noise-sensitive land uses to noise levels exceeding the standards in Table N-1 or an increase of 10 dB Ldn or more in ambient noise levels, conduct an acoustical analysis to determine the level of impacts and to identify feasible noise mitigation measures that could be included in the project design to minimize impacts.**
 - ▲ **Action N-1.4.1 (Roadway Project Significance Criteria) – For roadway improvement projects where an acoustical analysis demonstrates that it is not practical to reduce traffic noise levels to be consistent with Table N-1, the following criteria will be used as a test of significance for the environmental review:**



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- Where existing traffic noise levels are less than 65 dB Ldn in the outdoor activity areas of noise-sensitive uses, a +8 dB Ldn increase in noise levels due to a roadway improvement project will be considered significant.
- Where existing traffic noise levels range between 65 and 70 dB Ldn in the outdoor activity areas of noise-sensitive uses, a +5 dB Ldn increase in noise levels due to a roadway improvement project will be considered significant.
- Where existing traffic noise levels are greater than 70 dB Ldn in the outdoor activity areas of noise-sensitive uses, a +3 dB Ldn increase in noise levels due to a roadway improvement project will be considered significant.

Cross
reference
CIRC-1.2

- **Policy N-1.5 (Proposed Projects Near Railroads) - Require site-specific noise studies for noise-sensitive projects which may be affected by railroad noise, and incorporate noise attenuation measures into the project design to reduce any impacts to these levels specified in Table N-1.**
- **Policy N-1.6 (Construction Activity) - Maintain special standards in the Municipal Code to allow temporary construction activity to exceed the noise standards established in this element, with limits on the time of disturbance to nearby noise-sensitive uses.**

Cross
reference
CIRC-7.1.2

- **Goal N-2: Encourage noise attenuation methods that support the goals of the General Plan.**
 - **Policy N-2.1 (Well-Designed Noise Mitigation) - Utilize effective noise attenuation measures that complement the Community Design Element's Goals.**
 - ▲ **Action N-2.1.1 (Noise Control Measures) - Limit noise at the ~~source~~ exposure through the use of insulation, ~~berms~~, building design and orientation, staggered operating hours, and other techniques. Utilize physical barriers such as landscaped sound walls only when other solutions are unable to achieve the desired level of mitigation.**
 - **Policy N-2.2 (Partners in Noise Reduction) – Consult with public and private organizations to encourage reduction of the noise levels of activities that impact large portions of the community.**
 - ▲ **Action N-2.2.1 (Railroad Warning Systems) – Consult with Union Pacific Railroad (and Amtrak as applicable) to ~~determine if there are~~ investigate the cost, safety, and feasibility of implementing alternative railroad warning systems and safety measures that reduce the use of train horns near residential areas while still meeting public safety objectives.**

Cross
reference
S-7.1 and
CIRC-7.1.2

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- ▲ **Action N-2.2.2 (Silver Dollar Speedway)** - ~~Contact~~ Seek support of the State and the Silver Dollar Fair Board to express the City's interest in reducing the noise levels associated with events at the Silver Dollar Speedway.

- ▲ **Action N-2.2.3 (Noise from State Highways)** - Request that Caltrans provide freeway sound walls with aesthetic design features, noise-reducing pavement, and speed reductions along state highways adjacent to residential areas where existing noise levels exceed 67 dBA.

- **Goal N-3: Promote and enforce the City's noise standards.**
 - **Policy N-3.1 (City Noise Control Program)** - **Maintain a noise enforcement program to identify and resolve problems concerning noise in the community.**
 - ▲ **Action N-3.1.1 (Noise Program Duties)** - Enforce the City's Noise Ordinance by processing complaints, conducting on-site testing of noise sources, and sharing information on the effects of noise issues in the community.

 - ▲ **Action N-3.1.2 (Street Noise Environment)** - Periodically assess the noise levels associated with city streets by reviewing traffic count data as an indication of increasing traffic noise.

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TABLE N-1
MAXIMUM ALLOWABLE NOISE LEVELS FROM
TRANSPORTATION NOISE SOURCES

Land Use	Outdoor Activity Areas ¹ Ldn/CNEL, dB	Interior Spaces	
		Ldn/CNEL, dB	Leq, dB ²
Residential	65 ³	45	--
Transient Lodging	--	45	--
Hospitals, Nursing Homes	65 ³	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	65 ³	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	65 ³	--	45
Playgrounds, Neighborhood Parks	70	--	--

Notes:

1. Noise standards are to be applied at outdoor activity areas with the greatest exposure to the noise source. When it is not practical to mitigate exterior noise levels at the patios or balconies of multi-family dwellings, a common area or onsite park may be designated as the outdoor activity area. For noise-sensitive land uses that do not include outdoor activity areas, only the interior noise standard shall apply.
2. As determined for a typical worst-case hour during periods of use.
3. Where it is not possible to reduce noise in outdoor activity areas to 65 dB L_{dn}/CNEL or less using all feasible noise reduction measures, an exterior noise level of up to 70 dB L_{dn}/CNEL may be allowed provided that interior noise levels are in compliance with this table.

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**TABLE N-2
MAXIMUM ALLOWABLE EXTERIOR NOISE LEVELS FROM NON-
TRANSPORTATION SOURCES**

Noise Level Descriptor (dBA)	Exterior Noise Level (dBA)	
	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Average-Hourly Noise Level (L_{eq})	55	50
Intermittent Noise Level (L_2 or L_{max})	75	65

Notes:

- Noise levels are for planning purposes and may vary from the standards of the City's Noise Ordinance, which are for enforcement purposes.
- Noise levels shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. Noise level standards do not apply to mixed-use residential units established in conjunction with industrial or commercial uses provided interior noise levels remain below 45 dB $L_{dn}/CNEL$.
- In areas where the existing ambient noise level exceeds the established daytime or nighttime standard, the existing level shall become the respective noise standard and an increase of 3 dBA or more shall be significant. Noise levels shall be reduced 5 dBA if the existing ambient hourly L_{eq} is at least 10 dBA lower than the standards.
- Noise standards are to be applied at outdoor activity areas with the greatest exposure to the noise source. When it is not practical to mitigate exterior noise levels at patio or balconies of multi-family dwellings, a common area or onsite park may be designated as the outdoor activity area.



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TABLE N-3
REQUIREMENTS FOR AN ACOUSTICAL ANALYSIS

An acoustical analysis prepared pursuant to the Noise Element shall:
A. Be the financial responsibility of the applicant.
B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
D. Estimate existing and projected cumulative (20 years) noise levels in terms of L_{dn} , CNEL, and the standards of Table N-1 or Table N-2 , as applicable, and compare those levels to the adopted policies of the Noise Element. Where the noise source consists of intermittent single events, address the impact on sleep disturbance.
E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element, giving preference to site planning and design over mitigation measures which require the construction of noise barriers or structural modifications to buildings which contain noise-sensitive land uses.
F. Estimate noise exposure after the prescribed mitigation measures have been implemented.
G. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.