

# 6

## Noise

The purpose of the Noise Element is to identify the noise sources that exist within the city, and to establish guiding policies and implementing actions to mitigate their potential impacts through both preventative and responsive measures.

### 6.1 NOISE

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#### NOISE CHARACTERISTICS AND MEASUREMENT

Noises vary widely in their scope, source, and volume, ranging from individual occurrences such as leaf blowers, to the intermittent disturbances of overhead aircraft, to the fairly constant noise generated by traffic on freeways. Noise is primarily a concern with regard to noise-sensitive uses such as residences, schools, churches, and hospitals.

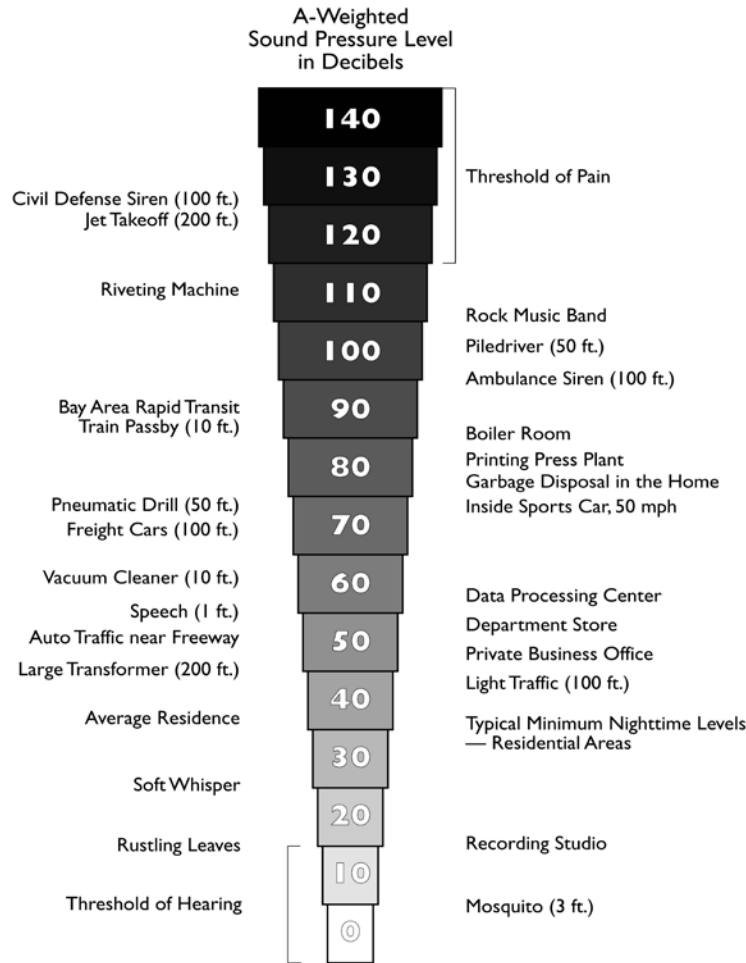
#### Noise Measurement

Noise is commonly defined as undesirable or unwanted sound. Three aspects of community noise are used in assessing the noise environment:

- **Level** (e.g., magnitude or loudness) of sound. Sound levels are measured and expressed in decibels (dB) with 10 dB roughly equal to the threshold of hearing. Figure 6-1 shows the decibel levels associated with different common sounds.
- **Frequency** composition or spectrum of the sound. Frequency is a measure of the pressure fluctuations per second, measured in units of hertz (Hz). The characterization of sound level magnitude with respect to frequency is the sound spectrum, often described in octave bands, which divide the audible human frequency range (e.g., from 20 to 20,000 Hz) into ten segments.
- **Variation** in sound level with time, measured as noise exposure. Most community noise is produced by many distant noise sources that change gradually throughout the day and produce a relatively steady background noise having no identifiable source. Identifiable events of brief duration, such as aircraft flyovers, cause the community noise level to vary from instant to instant. A single number called the equivalent sound level or Leq describes the average noise exposure level over a period of time.

Transient noise events may be described by their maximum A-weighted noise level (dBA) Hourly Leq values are called Hourly Noise Levels.

Figure 6-1  
Typical Sound Levels



(n ft.) = Distance in feet between source and listener

Source: California Office of Noise Control

### Reporting Noise Levels

Measuring and reporting noise levels involves accounting for variations in sensitivity to noise during the daytime versus nighttime hours. Noise descriptors used for analysis need to factor in human sensitivity to nighttime noise when background noise levels are generally lower than in the daytime and outside noise intrusions are more noticeable. Common descriptors include the Community Noise Equivalent Level (CNEL) and the Day-Night Average Level (DNL, symbol (Ldn)). Both reflect noise exposure over an average day with weighting to reflect the increased sensitivity to noise during the evening and night. The two descriptors are roughly equivalent. The CNEL descriptor is used in relation to major continuous noise sources, such as aircraft or traffic, and is the reference level for the Noise Element.

Knowledge of the following relationships is helpful in understanding how changes in noise and noise exposure are perceived:

- Except under special conditions, a change in sound level of 1 dB cannot be perceived;
- A 3 dB change is considered a just-noticeable difference;
- A 5 dB change is required before any noticeable change in community response would be expected. A 5 dB increase is often considered a significant impact; and
- A 10 dB increase is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response.

## NOISE GENERATION IN LOS BANOS

The major noise sources of concern are SR-152 and SR-165, and the Los Banos Airport. Other vehicle traffic on arterial and collector streets are also a source of noise. The Union Pacific Railroad (UPRR) facilities are abandoned and no longer are a noise source of concern.

### Traffic Noise

Traffic noise depends primarily on the speed of traffic and the percentage of truck traffic. The primary source of noise from automobiles is high frequency tire noise, which increases with speed. In addition, trucks and older automobiles produce engine and exhaust noise, and trucks also generate wind noise. While tire noise from cars is generally located at ground level, truck noise sources can be located as high as ten to fifteen feet above the roadbed due to tall exhaust stacks and higher engines; sound walls are not effective for mitigating such noise unless they are very tall.

According to common practice, maximum noise levels of 60 dB are considered “normally acceptable” for unshielded residential development. Noise levels from 60 dB to 70 dB fall within the “conditionally unacceptable” range, and those in the 70 to 75 dB range are considered “normally unacceptable.”

Noise exposure contours for Los Banos were modeled by Charles Salter Associates by applying the Federal Highway Administration’s noise modeling procedure. These noise contours are conservative, meaning that the contours are modeled with minimal noise attenuation by natural barriers, buildings, etc. The noise level measured at a specific location may be lower than what is shown on the noise contour map.

## PROJECTED CONDITIONS UNDER GENERAL PLAN BUILDOUT

Future development within the city’s Planning Area will result in new roads and increased traffic volumes, thus increasing noise levels in some areas. The realignment of SR-152 will reduce the highway noise for many residents, but add noise for residents on the north side of the city. Increased traffic volumes on the highway will result in increased noise exposure for all adjacent development. Additionally, continued growth of the city—residential as well as commercial and industrial uses—will further increase traffic and noise levels on arterial roadways both leading to and crossing over SR-152 and SR-165. Sensitive receptors along Pacheco Boulevard, Mercey Springs Road, Center Road, H Street and the perimeter road planned adjacent to SR-152 will be impacted by increased noise exposure. Future noise contours are illustrated in Figure 6-2.

The major sources of noise in Los Banos throughout the General Plan time frame include:

### SR-152 and SR-165

The predominant noise source in Los Banos is motor vehicle and truck traffic, which currently dissects the city both north-south and east-west. When SR-152 is bypassed, the noise will be heavier on the north side of the city than on the south, from this source. Increased traffic on SR-152 and SR-165 and on Los Banos’ arterial streets can be expected to increase noise exposure for sensitive receptors along these thoroughfares.

### Arterial Streets

Arterial streets with substantial noise levels include Ward Road from Pioneer to Henry Miller Road, Mercey Springs (SR-165), West I Street, south of Pacheco Boulevard, Badger Flat Road from Capri Avenue to Pioneer Road, H Street-Ingomar Grade Road west of 7th, I Street north of Pacheco Boulevard, Pacheco Boulevard, and Pioneer Road from Los Banos Creek to Ward Road. In general, auto traffic volumes will increase and along with it greater noise levels.

### Los Banos Municipal Airport

The City may relocate the Los Banos Municipal Airport to another site at some future time. Until the Airport is relocated, however, pursuant to the California Public Utilities Code Section 21676, changes in land use around the Airport must be consistent with the airport land use compatibility plans adopted by the Merced County Airport Land Use Commission. In 2005, annual operations (takeoffs and landings) at Los Banos Municipal Airport were estimated at over 18,510, averaging approximately 51 flights per day. Year 2015 forecasts for the airport predict 21,210, averaging approximately 60 flights per day. Figure 6-2 shows CNEL noise contours at the Los Banos Airport based on forecast activity in the year 2015. Until a decision is made to relocate the airport, the City will not permit new non-compatible uses in the immediate vicinity of the airport.

### GUIDING POLICIES

N-G-1 Strive to achieve an acceptable noise environment for the present and future residents of Los Banos.

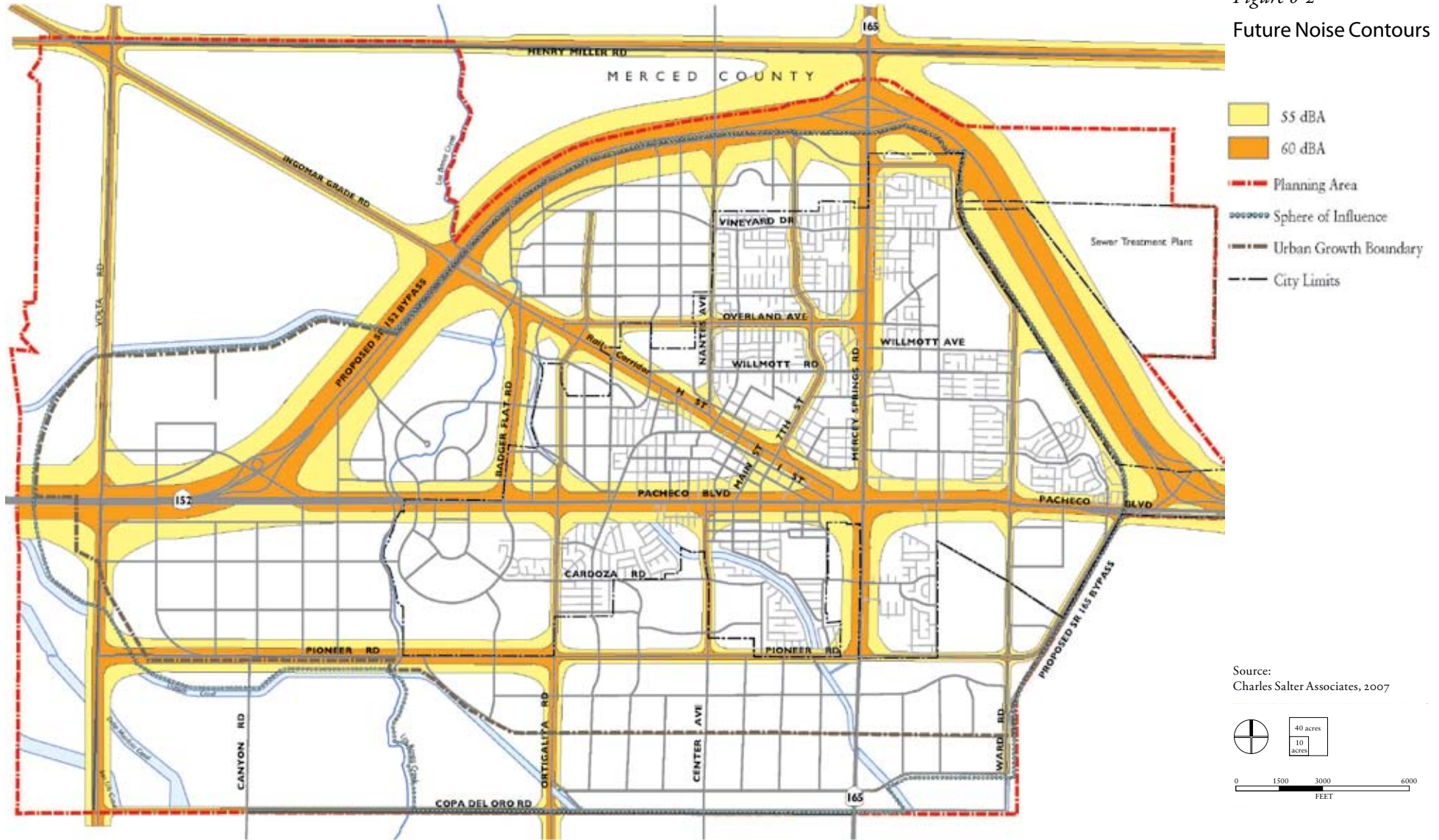
### IMPLEMENTING ACTIONS

N-I-1 Use the community noise level exposure standards, shown in Figure 6-2, as review criteria for new land uses.

N-I-2 Require a noise study and mitigation measures for all projects that have noise exposure greater than “normally acceptable” levels based on specific criteria and standards in the Zoning Ordinance. These measures may include, but are not limited to, the following actions:

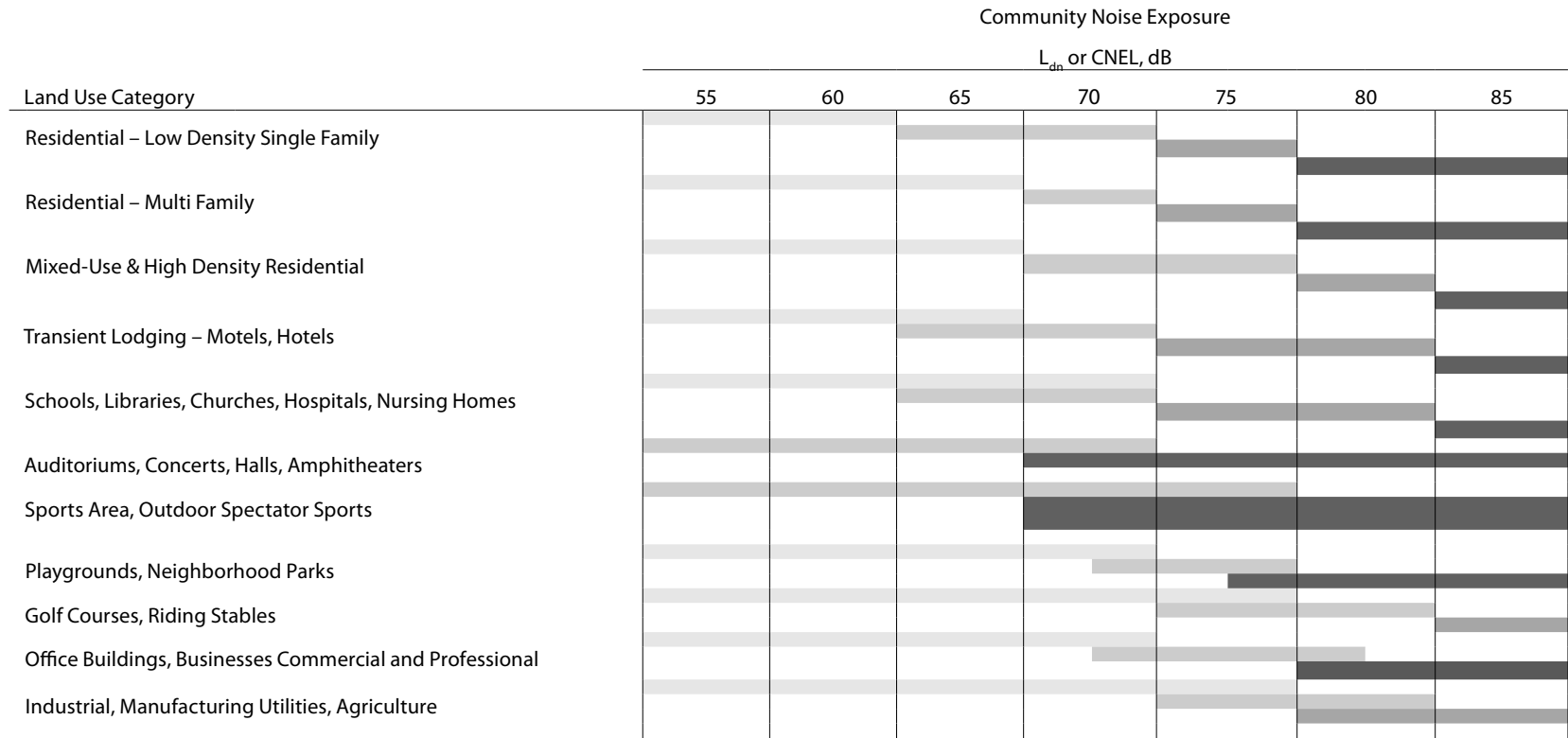
- Screen and control noise sources, such as parking and loading facilities, outdoor activities and mechanical equipment;
- Increase setbacks for noise sources from adjacent dwellings;
- Retain fences, walls, and landscaping that serve as noise buffers;
- Use soundproofing materials and double-glazed windows; and
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.

Figure 6-2  
Future Noise Contours



Source:  
Charles Salter Associates, 2007

6-1: Land Use Compatibility For Community Noise Environments



Legend:

	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development should not be undertaken.

Source: City of Los Banos, 2007.

- N-I-3 Promote the use of noise attenuation measures to improve the acoustic environment inside residences where existing single-family residential development is located on an arterial street.
- N-I-4 Discourage sound walls, except along freeways. In all other instances, permit sound walls only upon finding that alternative noise attention measures are not available.
- N-I-5 Minimize noise impacts of flight operations on existing noise-sensitive development.
- N-I-6 Protect especially sensitive uses, including schools, hospitals, and senior care facilities, from excessive noise.
- N-I-7 Require the use of Best Available Control Technology (BACT) to minimize noise from all stationary sources as well as mobile/temporary sources such as operation of construction equipment.

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