10. NOISE

10.1 PURPOSE OF THE CHAPTER

This chapter identifies sources of noise and existing and future noise levels in Yountville and provides standards to address exposure to current and projected noise sources. The primary source of existing noise in Yountville is vehicle traffic from State Route 29 and major roadways. Additional noise sources include the Napa Valley Wine Train. Tourist activity, special events, recreation, construction, landscape maintenance, and truck loading and unloading are among the stationary sources that contribute to the noise environment. The purpose of the Noise chapter is to limit the community's exposure to excessive noise levels in noise-sensitive areas and at noise-sensitive times of day.

The Noise chapter includes the following sections.

10.2 Fundamentals of Noise. Describes the fundamentals of sound and noise-related terms.

10.3 Existing Noise Conditions. Discusses the most significant sources of noise in Yountville, including roadways, trains, and stationary sources.

10.4 Noise and Land Use Compatibility Standards. Presents standards that should be used to evaluate compatibility between new land uses and noise levels in Yountville.

10.5 Future Noise Environment. Describes future noise conditions expected with development projected under the General Plan.

10.6 Goals, Policies, and Programs. Identifies goals, policies, and programs to limit the community's exposure to noise and vibration.

10.2 FUNDAMENTALS OF NOISE

Noise is a subjective reaction to different types of sound. Noise is typically defined as sound that is loud, unpleasant, unexpected, or undesired.

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers can experience noise in the last category. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

A decibel (dB) is the fundamental unit of sound, and sound is measured on a decibel scale. The decibel scale is logarithmic, not linear, which means that an increase in 10 dB is 10 times greater than the base number. The perceived loudness of sound is dependent upon many factors, including sound pressure and frequency content. The A-weighted decibel scale is used to give greater weight to the frequencies of sound to which the human ear is most sensitive by de-emphasizing the very low and very high frequencies. The A-weighted sound level is expressed as dBA and is the most common method to characterize sound in California. Representative outdoor and indoor noise levels in units of dBA are shown in Table NS-1 and Figure NS-1.

Table NS-1
TYPICAL A-WEIGHTED SOUND LEVELS

COMMON OUTDOOR ACTIVITIES	NOISE LEVEL (dBA)	COMMON INDOOR ACTIVITIES
	110	Rock Band
Jet fly-over at 1,000 ft	100	
Gas lawn mower at 3 ft	90	
Diesel truck at 50 ft. and 50 mph	80	Food blender at 3 ft Garbage disposal at 3 ft
Noisy urban area, daytime Gas lawn mower at 100 ft	70	Vacuum cleaner at 10 ft
Commercial area Heavy traffic at 300 ft	60	Normal speech at 3 ft
Quiet urban daytime	50	Large business office Dishwasher in next room
Quiet urban nighttime	40	Theater (background)
Quiet suburban nighttime	30	Library
Quiet rural nighttime	20	Bedroom at night
	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol 2013.

The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived. Outside the laboratory, a 3 dBA change is a just-perceivable difference. Generally, a change in level of at least 5 dBA is required before any noticeable change in human response would be expected. A 10 dBA change sounds like the noise has approximately doubled.

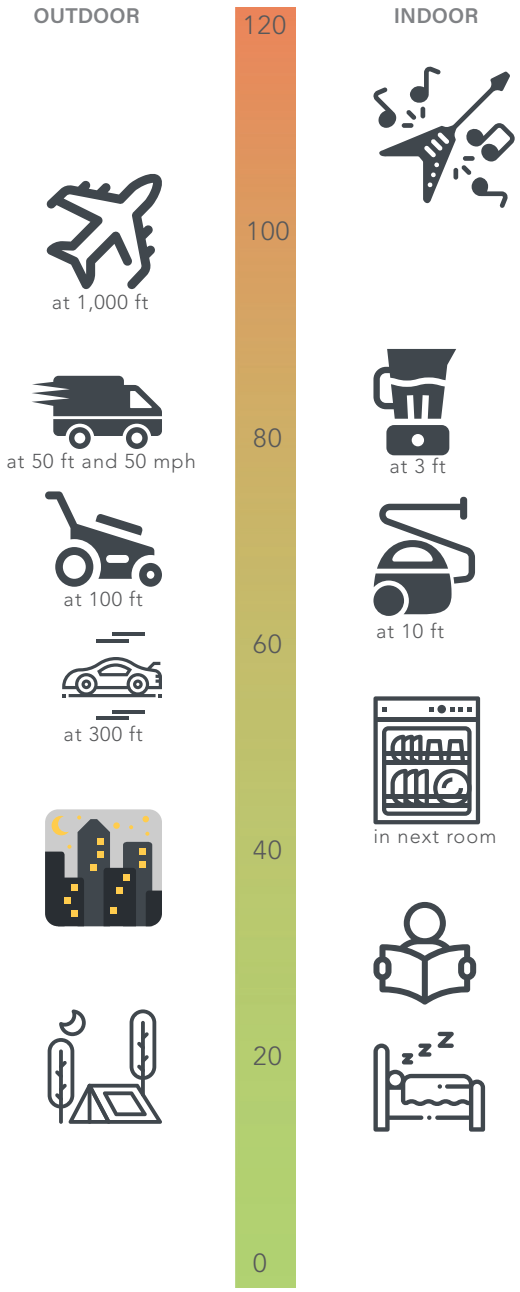
Varying levels of noise can impact sleep and speech and cause annoyance. The thresholds for speech interference indoors are about 45 dBA if the noise is steady and about 55 dBA if the noise is fluctuating. Steady noise above 35 dBA and fluctuating noise levels above about 45 dBA have been shown to affect sleep.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level of a given environment consisting of all noise sources audible at that location. A common statistical tool to measure ambient noise is average, or equivalent, sound level. The day/night average level (Ldn) is based on the average noise level over a 24-hour day, with a 10 decibel weighting applied to noise occurring during nighttime (10 p.m. to 7 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice a loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

An important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted. In general, the more a noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

Figure NS-1

TYPICAL A-WEIGHTED SOUND LEVELS



10.3 EXISTING NOISE CONDITIONS

The most significant source of traffic noise in Yountville is from State Route 29. Major roadways, including Washington Street, Yount Street, and Yountville Cross Road, are significant noise sources for land uses immediately adjoining these roadways. Background noise measurements and generally accepted noise modeling techniques were used to develop noise contours for all highways and major roadways in the planning area, as shown in Figure NS-2. Noise contours represent maximum noise exposure assuming line-of-site to the noise source. The contours are intended for screening purposes to identify locations where site-specific noise studies may be required.

Predicted noise levels at the nearest receptors were prepared for the General Plan Existing Conditions Report. Roadway segments where noise levels were at least 65 dBA Ldn at the closest receptor included the following:

- SR 29, through the Town limits
- California Drive, between SR 29 northbound ramp to Washington Street

Nearest receptors on these roadways appear to be primarily buildings associated with commercial uses.

RAILROAD NOISE LEVELS

The Napa Valley Wine Train is a privately-operated excursion train that runs between Napa and St. Helena. Much of the rail line parallels State Route 29 after leaving the City of Napa and passes Yountville, Rutherford, and Oakville. The typical operating schedule for the train includes four roundtrips per day for a total of eight train passages per day, depending upon the season. The typical sound exposure level west of the Madison Street crossing is 103 dBA at a distance of 75 feet from the railroad tracks. Day-night average noise levels are shown in Table NS-2.

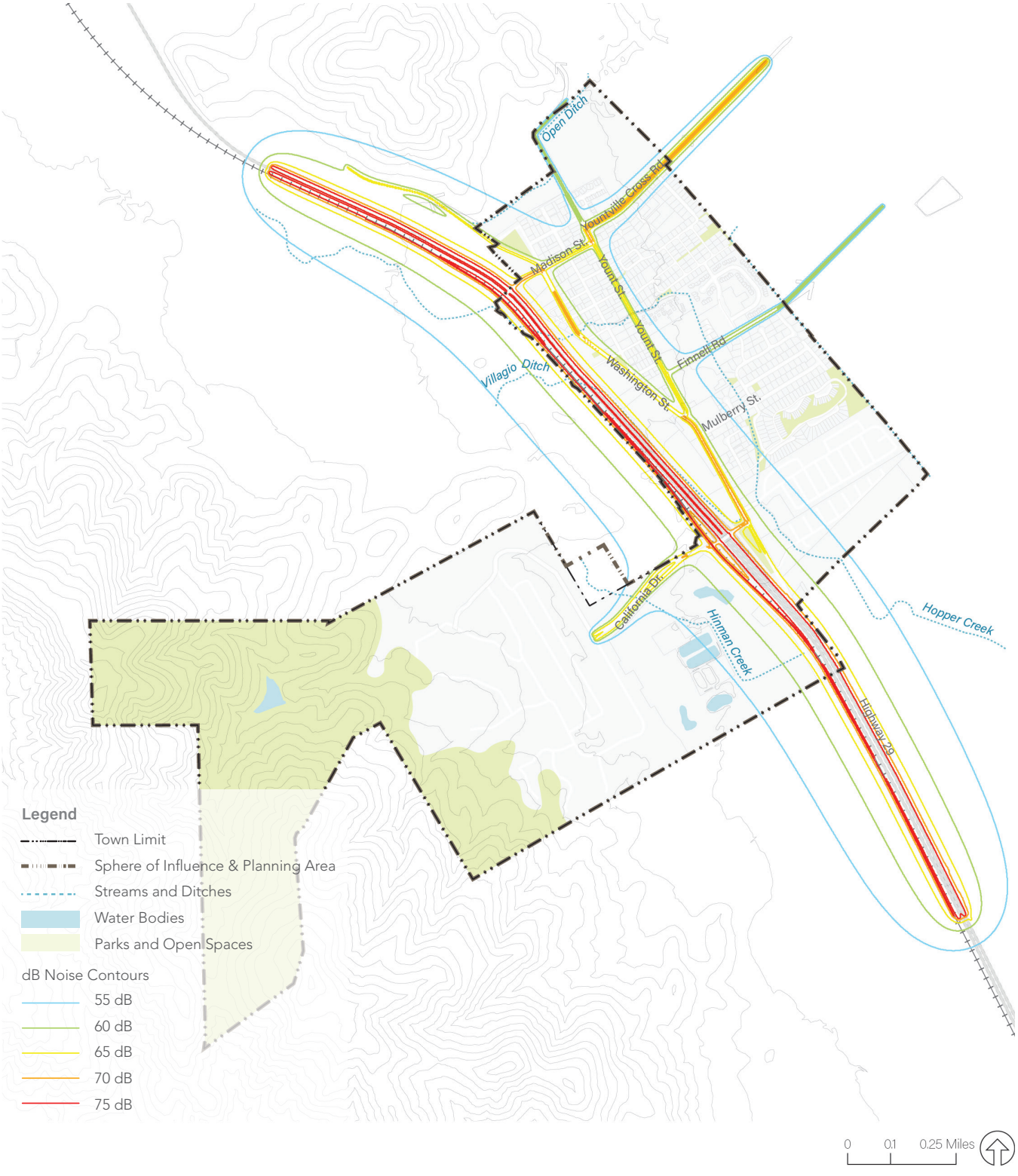
STATIONARY NOISE SOURCES

Commercial activity, construction, landscape maintenance, parking lots, car alarms, loading docks, parks, schools, and special events are among the stationary noise sources in Yountville. Construction noise includes demolition, excavation, grading, delivery of materials, and building on a project site or staging area. Stationary noise sources also include: mechanical systems for heating, ventilation and air conditioning; service and delivery trucks idling, loading and unloading; and recreation activities and special events. The Town's noise ordinance prohibits excessive or intrusive noise to residential and commercial properties in the Town. The ordinance establishes exterior daytime and nighttime noise standards over given time periods for sensitive receptors (residential, school, religious institution, library and hospital uses) and commercial uses.

Table NS-2
APPROXIMATE DISTANCES TO RAILROAD NOISE CONTOURS

EXTERIOR NOISE LEVEL CONTOUR	DISTANCE FROM RAILROAD TRACKS TO NOISE LEVEL CONTOUR
60 dBA	71 feet
65 dBA	33 feet
70 dBA	15 feet

Figure NS-2
EXISTING NOISE CONTOURS



10.4 NOISE AND LAND USE COMPATIBILITY STANDARDS

The standards listed in Table NS-3 should be used to evaluate the compatibility between new land uses and future noise in Yountville. Table NS-3 should be used in combination with Figures NS-2 and NS-3 to determine whether a proposed development or land use is located in an area that exceeds the normally acceptable noise exposure for that type of development or land use and therefore requires an acoustical analysis and/or special noise mitigating measures.

The State of California establishes minimum noise insulation performance standards for hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings as set forth in the California Building Code. The noise limit established by this General Plan, in conformance with State law, is a maximum interior noise level of 45 dBA Ldn.

Table NS-3

LAND USE COMPATIBILITY STANDARDS

LAND USE CATEGORY	EXTERIOR NOISE EXPOSURE—DBA LDN						
	50	55	60	65	70	75	80
Residential and hotels							
Outdoor sports and recreation, neighborhood parks and playgrounds, golf courses, cemeteries							
Schools, libraries, churches, hospitals, nursing homes, museums, meeting halls							
Office buildings, business commercial and professional							
Industrial, manufacturing, utilities, agriculture							
Auditoriums, concert halls, amphitheaters, sports arenas							

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are 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 are included in the design.

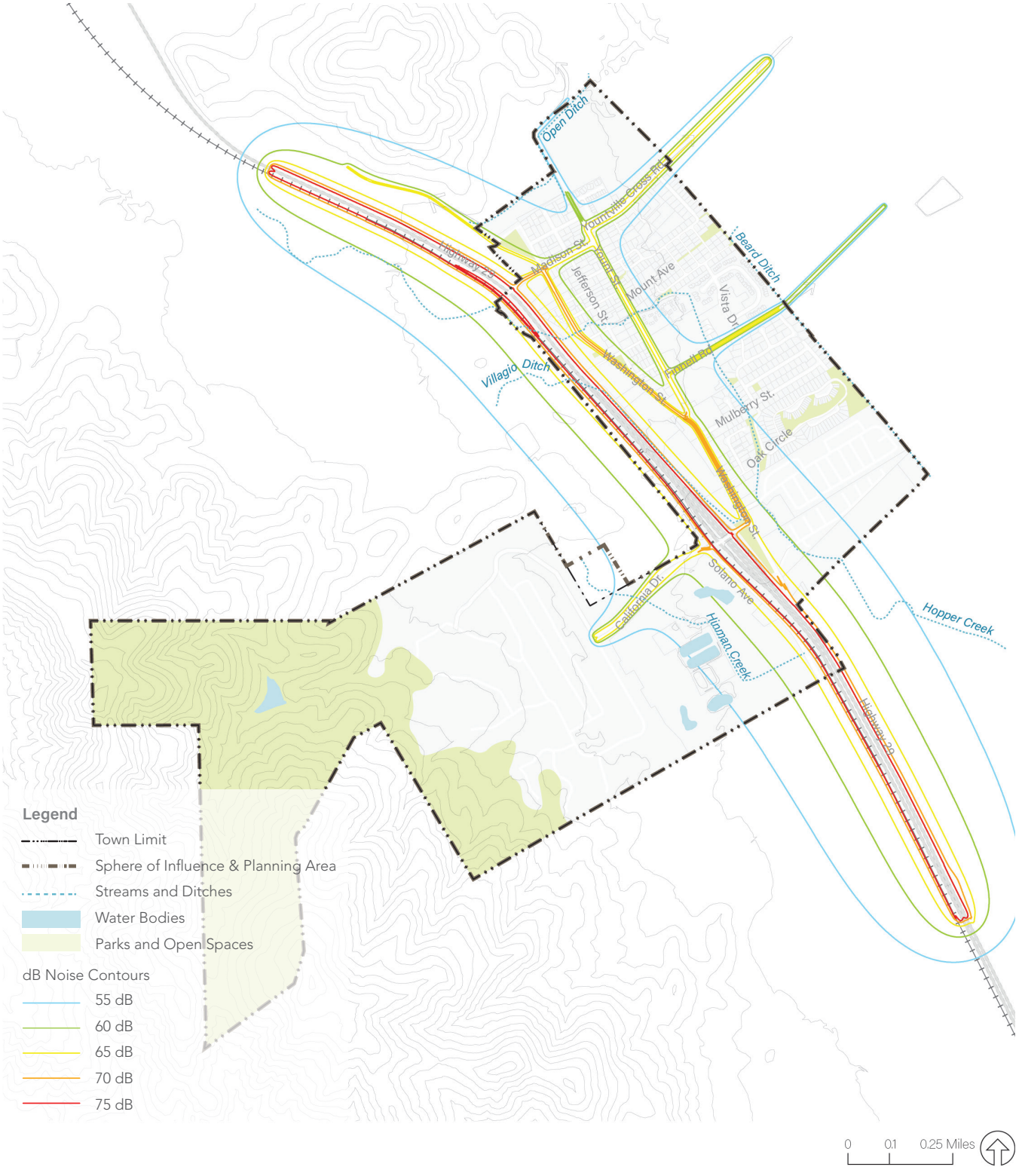
Unacceptable: New construction or development should generally not be undertaken because mitigation is usually not feasible.

10.5 FUTURE NOISE ENVIRONMENT

Future noise levels will be largely attributable to vehicular traffic, and to a lesser extent, railroad operations. Projected noise contours are shown in Figure NS-3. This figure identifies areas that may be exposed to excessive noise levels, defined as those above 60 dBA Ldn. Policies and programs in this chapter address these noise issues through implementation of a variety of noise-mitigating measures and, where possible, conditioning future development to limit future noise exposure.

Figure NS-3

PROJECTED FUTURE NOISE CONTOURS



10.6 GOALS, POLICIES, AND PROGRAMS

Goal NS-1: Maintain a quiet community.

NS-1.1 **Noise in the Community**. Protect the livability and quality of life in Yountville by reducing unwanted noise as feasible.

NS-1.1a **Noise Ordinance**. *Maintain and periodically update a Noise Ordinance that addresses noise resulting from tourism, outdoor businesses, building construction, landscape maintenance machines and leaf blowers, amplified music, special events, on-site trash disposal, animals, and similar sources. Consider advancements in technology and the needs of all community members when revising the ordinance.*

NS-1.2 **Noise Impacts of Development**. Prevent land uses and new development that increase noise levels above acceptable standards as feasible.

NS-1.2a **Land Use Compatibility Standards**. *Apply the Land Use Compatibility Standards in Table NS-3 in locating and designing new development.*

NS-1.2b **Indoor Noise Standard**. *The maximum acceptable interior noise level for all new residential development, including hotels, is 45 dBA Ldn. Include appropriate site and building design, building construction, and noise attenuation techniques in new development to meet this standard.*

NS-1.2c **Acoustical Compatibility Study**. *Require an acoustical study for all new residential and noise-sensitive projects with a future exterior noise exposure of 60 dBA Ldn or greater as shown on Figure NS-3 and incorporate mitigation measures to lower interior noise exposure to a maximum indoor noise level of 45 dBA Ldn.*

NS-1.2d **Noise Mitigation**. *Consider mitigation measures for new projects or land uses that would cause a substantial increase in noise (i.e., cause an increase above 60 dBA Ldn or cause an increase of 5 dBA Ldn or more in the ambient noise levels) in adjacent residential areas or in residential areas affected by traffic generated by the proposed project.*

NS-1.2e **Caltrans Noise Mitigation**. *Work with Caltrans to ensure that adequate noise studies are prepared and alternative noise mitigation measures are considered in State projects, and request that Caltrans obtain Town concurrence prior to initiating any noise mitigation project in Yountville.*

NS-1.2f **Construction Best Practices**. *During review of development, infrastructure, and other projects involving construction activities, determine if proposed construction projects could exceed the Town's Noise Ordinance standards at nearby residences and sensitive receptors and, if necessary, require mitigation measures in addition to the standard best practice controls.*

NS-1.3 **Vibration Impacts of Development**. Reduce vibration impacts from demolition and construction projects.

NS-1.3a **Vibration Mitigation**. *Require new development to minimize vibration impacts to adjacent uses during demolition and construction. For sensitive historic structures, a vibration limit of 0.08 in/sec PPV (peak particle velocity) will be used to minimize the potential for cosmetic damage to the building. A vibration limit of 0.30 in/sec PPV will be used to minimize the potential for cosmetic damage at buildings of normal conventional construction.*