

**Noise Performance Standards**

Daytime noise standards are typically set at noise levels that would not annoy or impede human interaction or function in outdoor activity areas. Nighttime noise standards are typically set to result in acceptable noise levels that would not interfere with sleep for most people inside a building with windows closed. In general, noise standards are designed to prevent annoyance or sleep disruption in sensitive members of the public.

Table HS-2 shows the acceptable noise levels for various land use categories, and is used when determining a proposed project's noise impact.

**Table HS-2  
Land Use Noise Compatibility Guidelines**

Land Use Category	Community Noise Exposure (L <sub>dn</sub> or CNEL, dBA)			
	Normally Acceptable <sup>1</sup>	Conditionally Acceptable <sup>2</sup>	Normally Unacceptable <sup>3</sup>	Clearly Unacceptable <sup>4</sup>
Residential—Low Density Single Family, Duplex, Mobile Home	<60	55–70	70–75	75+
Residential—Multifamily	<65	60–70	70–75	75+
Transient Lodging—Motel, Hotel	<65	60–70	70–80	80+
Schools, Libraries, Churches, Hospitals, Nursing Homes	<70	60–70	70–80	80+
Auditoriums, Concert Halls, Amphitheaters		<70	65+	
Sports Arena, Outdoor Spectator Sports		<75	70+	
Playgrounds, Neighborhood Parks	<70		67.5–75	72.5+
Golf Courses, Riding Stables, Water Recreation, Cemeteries	<75		70–80	80+
Office Building, Business Commercial, and Professional	<70	67.5–77.5	75+	
Industrial, Manufacturing, Utilities, Agriculture	<75	70–80	75+	

**Table HS-2  
Land Use Noise Compatibility Guidelines**

Notes:

CNEL = community noise equivalent level; dBA = A-weighted decibel; L<sub>dn</sub> = day-night average noise level

<sup>1</sup> Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

<sup>2</sup> 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.

<sup>3</sup> 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. Outdoor areas must be shielded.

<sup>4</sup> New construction or development should generally not be undertaken.

<sup>5</sup> These standards are not applicable for development within the airport compatibility review area. Development in the airport compatibility review areas are subject to standards in the applicable airport land use plan.

Source: State of California Governor's Office of Planning and Research 2003, EDAW 2007

Table HS-3 provides acceptable outdoor and interior noise levels for land uses.

**Table HS-3  
Noise Standards for New Uses Affected by Traffic and Railroad Noise**

New Land Use	Sensitive Outdoor Area (dBA Ldn)	Sensitive Interior <sup>1</sup> Area (dBA Ldn)	Notes
All Residential	65	45	2
Transient Lodging	65	45	2, 3
Hospitals and Nursing Homes	65	45	2, 3, 4
Theaters and Auditoriums	–	35	3
Churches, Meeting Halls, Schools, Libraries, etc.	65	40	3
Office Buildings	65	45	3
Commercial Buildings	–	50	3
Playgrounds, Parks, etc.	70	–	
Industry	65	50	3

Notes:

dBA = A-weighted decibels; Ldn = day-night average noise level

**Table HS-3  
Noise Standards for New Uses Affected by Traffic and Railroad  
Noise**

---

<sup>1</sup> Interior-noise-level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.

<sup>2</sup> If these uses are affected by nighttime railroad passages, the potential for sleep disturbance shall be addressed

<sup>3</sup> Where there are no sensitive exterior spaces proposed for these uses, only the interior-noise-level standard shall apply.

<sup>4</sup> Hospitals are often noise-generating uses. The exterior-noise-level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

Table HS-4 defines noise performance standards for nontransportation noise sources. In addition, properties located within an influence area surrounding Travis Air Force Base, Rio Vista Municipal Airport or Nut Tree Airport are also subject to the more stringent noise/land use compatibility standards of the applicable Airport Land Use Compatibility Plan (ALUCP). Figure LU-5 shows the areas in which land use proposals must comply with the standards of the applicable ALUCP. Figures HS-16, HS-17, and HS-18 show the noise contour lines surrounding the three airports. These are provided here for informational purposes only. For the appropriate standards, please see the applicable ALUCP.

**Table HS-4  
Nontransportation Noise Standards—  
Average (dBA Leq)/Maximum (dBA Lmax)<sup>1</sup>**

Receiving Land Use	Outdoor Area		Interior <sup>2</sup>	Notes
	Daytime	Nighttime	Day and Night	
All Residential	55/70	50/65	35/55	
Transient Lodging	55/75	–	35/55	3
Hospitals and Nursing Homes	55/75	–	35/55	4,5
Theaters and Auditoriums	–	–	30/50	5
Churches, Meeting Halls, Schools, Libraries, etc.	55/75	–	35/60	5
Office Buildings	60/75	–	45/65	5
Commercial Buildings	55/75	–	45/65	5
Playgrounds, Parks, etc.	65/75	–	–	5
Industry	60/80	–	50/70	5

Notes:

Leq = equivalent or energy-averaged sound level; Lmax = Highest root-mean-square sound level measured over a given period of time

- <sup>1</sup> The standards shall be reduced by 5 dBA for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards, then the noise level standards shall be increased at 5-dBA increments to encompass the ambient.
- <sup>2</sup> Interior-noise-level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
- <sup>3</sup> Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
- <sup>4</sup> Hospitals are often noise-generating uses. The exterior-noise-level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
- <sup>5</sup> The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.

### Noise Contours

The county noise environment can be described with contours derived from monitoring and modeling major sources of noise. A noise contour is a line overlaid on a map or aerial photograph that depicts where a certain noise level occurs. Future noise contours have been estimated with information about baseline and projected land development and associated transportation activity. The contours assist in setting policies for land use planning and establishment of development standards. Contours are provided for roadway noise, railroad noise, and aircraft noise.

### Roadway Noise

Figure HS-14 shows the roadway noise contours for baseline year 2006. As the figure illustrates, major highways represent the major sources of noise. Figure HS-15 identifies the estimated roadway noise contours for year 2030 based upon future estimated traffic levels. Interstates 80, 505, 680, 780 and State Route 12 are the most heavily traveled roadways in Solano County and therefore have the largest noise impact areas. Given the topographic complexity of Solano County, these contours should be considered conservative estimates of traffic noise exposure and not absolute lines of demarcation, to be supplemented by detailed and project-specific study as needed.

### Railroad Noise

Figure HS-16 shows railroad noise contours along the Union Pacific Railroad (UPRR) tracks. Railroad activity in Solano County consists mainly of freight and passenger operations on the UPRR tracks. The UPRR tracks extend from the southwest portion to the northern portion of the county. It is difficult to predict future railroad noise exposure in Solano County without knowing if, or to what degree, railroad activity may change in the future. Therefore, Figure HS-16 was developed using 1,200 foot distances to the 60-dB  $L_{dn}$  railroad noise contours for various numbers of future daily train activity in Solano County. The data assume that railroad operations in Solano County would occur uniformly throughout day and nighttime hours.

### Aircraft Noise

Estimated noise contours for Travis Air Force Base are shown in Figure HS-17. Travis Air Force Base is located in the central portion of Solano County just east of the City of Fairfield, and is home to three Air Force Command Units. The base occupies approximately 7,100 acres of land, with two 11,000-foot runways oriented northeast-to-southwest away from existing housing developments. Military aircraft are not subject to the same noise standards as commercial aircraft and often fly lower flight patterns.

Estimated noise contours for Rio Vista Municipal airport are shown in Figure HS-18. Rio Vista Municipal Airport is located in the southwest corner of Solano County 3 miles north of the City of Rio Vista.

Estimated 2025 noise contours for Nut Tree Airport are shown in Figure HS-19. The Nut Tree Airport is located in the central portion of the county within the city limits of Vacaville.

### Stationary Noise Source Control

Activities at industrial, commercial, recreational, and public service facilities can also generate noise levels that adversely affect adjacent sensitive land uses. From a land use planning perspective, stationary noise source control strategies focus on two goals: (1) preventing the introduction of new stationary noise sources near noise-sensitive areas and (2) preventing encroachment of noise-sensitive uses on existing stationary noise sources. The first goal can be achieved by applying noise performance standards to proposed stationary noise sources. The second