



Chapter 5

NOISE

A place where all citizens enjoy opportunities to thrive in a safe, healthy, and productive community.
- The Tuolumne County Vision

Introduction

The Noise Element of the General Plan provides a policy framework for addressing potential noise conflicts encountered in the development process with a focus on minimizing such conflicts. The content of this Noise Element and the methods used in its preparation follows the requirements of Section 65302(f) of the California Government Code and the General Plan Guidelines prepared by the State Office of Planning and Research (OPR). The OPR Guidelines require that major noise sources and areas containing noise-sensitive land uses be identified and quantified by preparing generalized noise exposure contours for current and projected conditions.

In accordance with the Government Code requirements, noise exposure information has been collected in conjunction with the preparation of this Element for highways, arterials and major collector roads, railroad operations, aircraft and airport operations, local industrial facilities and other stationary sources.

Noise-sensitive uses identified by the Government Code and by Tuolumne County include urban residential development, schools, hospitals, convalescent homes, churches and libraries.

Overarching Vision

OAV1. Promote development in Tuolumne County that reflects the values and vision of the community and implements the latest legal, statutory, scientific, and technical changes and advances.

OAV2. Achieve, enable and preserve maximum flexibility within the constraints of state and federal law and an ever-evolving legal, cultural and environmental landscape.

OAV3. Recognize that the County has a unique role to collaborate with special districts/stakeholders within the County to promote the delivery of efficient and cost effective public services.

Purpose
Minimize the potential for noise conflicts arising from development in Tuolumne County.



GOAL 5A:

Protect the economic base of Tuolumne County and preserve the tranquility of residential areas by minimizing potential conflicts between transportation and stationary noise sources and noise sensitive land uses.

POLICIES & IMPLEMENTATION PROGRAMS

Policy 5.A.1: Evaluate the need of proponents of new development of noise-sensitive land uses proposed adjacent to existing transportation or other noise sources to incorporate noise reduction techniques so that noise levels at the new development are consistent with the exposure threshold standards shown in Tables 5.A and 5.B.

Implementation Programs

5.A.a - Review new public and private development proposals to determine conformance with the policies and programs of this Noise Element. Determine that noise levels from new development will not exceed the noise level standards for specified land uses included in Tables 5.A, 5.B, 5.C, or 5.D. Determine that new development of noise-sensitive land uses in proximity of existing noise sources or land designated on the General Plan land use diagrams as HI, LI, BP, HC, TPZ or MPZ will not be affected by noise levels exceeding the standards of Table 5.C. For modifications or expansions of existing stationary noise sources that already exceed the standards of Table 5.C on lands designated as noise-sensitive uses, Tuolumne County will determine that the new development will not increase the noise level received at the noise-sensitive land uses, or require noise reduction measures, so that the cumulative noise generated from the entire development site is equal to or less than the pre-modification or pre-expansion ambient noise level.

5.A.b - Require an acoustical analysis where activities associated with proposed development are likely to produce noise levels exceeding those specified in Tables 5.A, 5.B, 5.C, or 5.D of this Element. The acoustical analysis shall be conducted early in the review process so that the possible effects of noise and noise mitigation can be considered in the project design. The requirements of an acoustical analysis are listed in Implementation Program 5.A.c.

5.A.b.1- Outdoor gatherings associated with normal, day-to-day agritourism uses shall be limited to daytime hours (7:00 a.m. to 10:00 p.m.). Exceptions may be allowed with review and approval by the County. As part of the County review and approval, such exceptions shall include an operation noise plan prepared by an acoustical engineer that evaluates potential for outdoor gatherings occurring during nighttime hours to exceed County noise standards. If needed, the noise plan shall include noise minimization measures (such as siting/orientation of the gathering) to minimize sound exposure of any nearby residences such that County noise standards (Table 3.12-7 of this EIR) are not exceeded. The applicant shall demonstrate through the plan how the nighttime gathering would not exceed applicable County noise standards. After the noise plan is approved by the County for the agritourism operation, no additional noise plan would be required, unless the agritourism operation proposes changes to its nighttime outdoor uses that could meaningfully affect exterior noise levels (e.g., changes in location/orientation of gatherings, location of access/parking, and type of gatherings, and/or substantial change in typical number of guests).



5.A.b.2- No exterior amplified sound systems (e.g., public address systems) will be allowed as part of any agritourism use. Exceptions may be allowed with review and approval by the County with the submittal of a plan analyzing the noise from the speakers/amplification. As part of the County review and approval, the applicant shall submit a speaker/amplification noise plan prepared by an acoustical engineer, that evaluates the potential for the proposed amplified sound to exceed County noise standards (Table 3.12-7 of this EIR). If necessary, the noise plan shall include protocols for siting, orientation, and operation of speakers (including potential volume limits) that would be implemented to reduce the effect of noise levels generated by on-site stationary noise sources. The applicant shall demonstrate through the plan how the speaker/amplification system would not exceed applicable County noise standards (Table 3.12-7 of this EIR). After the noise plan is approved by the County for the agritourism operation, no additional speaker/amplification noise plan would be required, unless the agritourism operation proposes changes to the speaker/amplification system that could meaningfully affect noise levels (e.g. changes to the location, orientation, or volume of the amplification system).

Policy 5.A.2: Evaluate if proponents of proposed new transportation noise sources need to submit evidence of noise effects on existing noise-sensitive land uses. Require that new development of transportation noise sources be located and designed so that existing noise-sensitive land uses will not be exposed to noise levels that exceed the standards shown in Tables 5.A, 5.B or 5.D. Potential noise effects on any adjacent sensitive wildlife habitat and associated special-status wildlife species should also be considered and minimized, as needed.

Implementation Program

5.A.c - Institute procedures to enforce noise reduction measures required pursuant to an acoustical analysis during the building permit and construction processes and to monitor compliance with noise reduction measures during operation of the development. Acoustical studies shall meet all requirements detailed below:

- Be the financial responsibility of the applicant.
- Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and significant noise sources. Where actual field measurements cannot be conducted, all sources of information used for calculation purposes shall be fully described.
- Estimate existing and projected (20 years) noise levels of the noise generating source and compare those levels to the adopted policies of the Noise Element. Projected future noise levels shall take into account noise from planned streets, highways and road connections.
- Recommend appropriate mitigation to achieve compliance with the adopted policies of the Noise Element, giving preference to proper 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.
- Estimate noise exposure after the prescribed mitigation measures have been implemented.



Policy 5.A.3: Require proponents of proposed development of new stationary noise sources or modifications of existing stationary noise sources to evaluate noise effects on existing nearby noise-sensitive land uses. This policy does not apply to noise levels associated with agricultural operations.

Implementation Program

5.A.d - Prepare and adopt a noise ordinance to be used in defining acceptable noise levels received at various land uses and enforcing excessive noise levels have been reported and verified.

Policy 5.A.4: Require new development located within the Noise Impact Area diagrams identified by the Tuolumne County Airport Land Use Compatibility Plan to be located and designed so that it will not be affected by noise levels exceeding the standards within the Airport Land Use Compatibility Plan.

Policy 5.A.5: Require that construction activity and temporary construction impacts do not expose existing noise-sensitive land uses to excessive noise levels. Require all new construction activities to implement all feasible noise-reducing measures as necessary to limit construction noise exposure at receiving occupied land uses to within acceptable County noise levels identified in Table 5.3. Should nighttime construction activities be required (between the hours of 7 p.m and 7 a.m.) exterior noise levels shall not exceed 65 dBA Lmax, based on FICAN's 65 dBA SEL level for sleep disturbance (but conservatively using Lmax, which is more appropriate for construction activities).

Implementation Programs

5.A.e - The County shall ensure that, where residences or other noise sensitive uses are located within 1,900 feet of construction sites, appropriate measures shall be implemented to limit noise exposure from construction. Specific techniques may include, but are not limited to, restrictions on construction timing, use of sound blankets on construction equipment, and the use of temporary walls and noise barriers to block and deflect noise.

5.A.f – Require the use of alternative pile driving techniques, where feasible, if a particular project requires pile driving within 800 feet of sensitive receptors requires pile driving.

5.A.g - Require equipment and trucks used for project construction utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds).

5.A.h – Require impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction be hydraulically or electrical powered wherever feasible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatically powered tools is unavoidable, the use of an exhaust muffler on the compressed air exhaust is recommended to lower noise levels from the exhaust by up to about 10 dBA. When feasible, external jackets on the impact equipment should also be incorporated to achieve a further reduction of 5 dBA. Whenever feasible, require the use of quieter procedures, such as drilling rather than impact equipment operation.



**Table 5.A
MAXIMUM ALLOWABLE NOISE EXPOSURE-TRANSPORTATION NOISE SOURCES
EXCLUDING AVIATION RELATED NOISE¹**

	Outdoor Activity Areas²	Interior Spaces³
Land Use	L_{dn}/CNEL, dB	L_{dn}/CNEL, dB
Urban Residential	60	45
Transient Lodging ⁴	60	45
Hospitals, Nursing Homes ⁵	60	45
Churches, Meeting Halls, Office Buildings, Mortuaries	---	45
Schools, ⁵ Libraries, Museums	---	45

¹ This table applies to noise exposure levels that result from a transportation noise source other than aircraft; Table 5.3 addresses aircraft noise. For existing receiving land uses, consideration shall be given to the noise exposure from new transportation noise sources during the design and approval of the new transportation project. In the case of existing transportation noises sources, projects or consideration of land use changes involving noise-sensitive land uses shall address the noise exposure environment and use these standards as thresholds.

² An outdoor activity area is a location outside of the immediate structure where formal or informal activities are likely to happen. For example, anywhere on an urban residential property could be an outdoor activity area, while the outdoor activity area for a school would be the playground or sporting fields, and for a hospital would be an exterior patio or exercise area. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land uses.

³ For typical construction methods, the reduction in the noise level from the outside of the structure to the inside is approximately 15dB. In a high noise environment, special construction techniques may be necessary to reduce the interior noise level to the standard.

⁴ Transient lodging are overnight accommodations usually intended for occupancy by tourists or other short-term paying customers, examples include hotels, motels, or homeless shelters. Transient lodging, as used in this case, does not include bed and breakfast establishments which are located in rural areas, campgrounds, or guest ranches.

⁵ These standards only apply to nursing homes or schools that have more than 6 beds or students, respectively.



**Table 5.B
MAXIMUM ALLOWABLE NOISE EXPOSURE-AIRCRAFT NOISE SOURCES¹**

Land Use	Outdoor Activity Areas ²	Interior Spaces ³		
	L _{dn} /CNEL, dB	L _{dn} /CNEL, B	L _{max} db ⁴	
			Day	Night
Residential - Living Areas	55	45	45	45
Residential - Sleeping Areas	55	40	45	40
Transient Lodging ⁵	60	45	--	40
Hospitals, Nursing Homes ⁶	60	45	--	40
Churches, Meeting Halls, Office Buildings, Mortuaries	60	45	45	45
Schools, Libraries, Museums	60	45	55	55

¹ This table applies to noise exposure levels that result from aircraft. For existing receiving land uses, consideration shall be given to noise exposure from new aviation-related sources during the design and approval of the new aviation-related project. In the case of existing aviation-related noise sources, projects or consideration of land use changes that lie within the jurisdictional area of the Tuolumne County Airport Land Use Commission, which involve noise-sensitive land uses shall address the noise exposure environment and use these standards as thresholds.

² An outdoor activity area is a location outside of the immediate structure where formal or informal activities are likely to happen. For example, anywhere on an urban residential property could be an outdoor activity area, while the outdoor activity area for a school would be the playground or sporting fields, and for a hospital would be an exterior patio or exercise area. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land uses.

³ For typical construction methods, the reduction in the noise level from the outside of the structure to the inside is approximately 15dB. In a high noise environment, special construction techniques may be necessary to reduce the interior noise level to the standard.

⁴ L_{max} refers to the maximum interior noise level. The design L_{max} value shall be established as the maximum aircraft noise level which is exceeded by 10 percent of the aircraft noise events occurring during a typical 24-hour day of aircraft operations. In other words, the L_{max} value used in the evaluation shall be determined by eliminating the loudest 10 percent of the aircraft events measured during the sample period, which should be a typical 24-hour day.

⁵ Transient lodging are overnight accommodations usually intended for occupancy by tourists or other short-term paying customers, examples include hotels, motels, or homeless shelters. Transient lodging, as used in this case, does not include bed and breakfast establishments which are located in rural areas, campgrounds, or guest ranches.

⁶ These standards only apply to nursing homes or schools that have more than 6 beds or students, respectively.



**Table 5.C
MAXIMUM ALLOWABLE NOISE EXPOSURE-STATIONARY NOISE SOURCES¹**

	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L _{eq} , dB ²	50	45
Maximum level, dB ³	70	65

¹ This table applies to noise exposure as a result of stationary noise sources. For a development project or land use change involving a noise-sensitive land use, the noise from nearby noise sources will be considered during design and approval of the project, or in determining whether the land use change is appropriate. For development projects which may produce noise, land use changes and project review will consider the effects of the noise on possible noise-sensitive land uses. When considering modification or expansion at a site that already produces noise levels which exceed these standards at noise-sensitive land uses, the modification or expansion shall be reviewed to consider if the proposed action will further raise the existing noise levels received at the noise-sensitive land use(s).

Noise-sensitive land uses include urban residential land uses, libraries, churches, and hospitals, in addition to nursing homes or schools which have over 6 beds or students, respectively. Transient lodging establishments which are considered noise sensitive land uses include hotels, motels, or homeless shelters, but not bed and breakfast establishments located in rural areas, campgrounds, or guest ranches.

² The sound equivalent level as measured or modeled for a one-hour sample period. The daytime or nighttime value should not be exceeded as determined at the property line of the noise-sensitive land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.

³ Similar to the hourly L_{eq}, except this level should not be exceeded for any length of time.



**Table 5.D
SIGNIFICANCE OF CHANGES IN CUMULATIVE NOISE EXPOSURE¹**

Ambient Noise Level Without Project ² (Ldn or CNEL)	Significant Impact if Cumulative Level Increases By:
<60 dB	+ 5.0 dB or more
60-65 dB	+ 3.0 dB or more
>65 dB	+ 1.5 dB or more

¹These standards shall be applied when considering the noise impacts from projects that could cause a significant increase in the cumulative noise exposure of existing noise-sensitive land uses. If it is likely that existing noise-sensitive land uses could experience these increases in cumulative noise exposure, as measured in CNEL or Ldn, then an acoustical analysis that meets the requirements of Table 5.1 shall be accomplished and the results considered in project design.

²Ambient Noise is defined as the composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Source: Federal Interagency Committee on Noise (FICON), Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.

5.A.i - Locate stationary noise sources as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors shall be adequately designed to minimize noise exposure at sensitive receptors such that County noise standards are met.

5.A.i.1 - Require, prior to approval of development or construction activities that would include blasting activities, proof of contract with a State licensed contractor if blasting is required for any construction activities. Blasting shall not be allowed during the sensitive night time hours (7 p.m. to 7 a.m.). In addition, prior to approval of construction/grading permits, Tuolumne County will review all proposed blasting activities and require construction contractors to implement available noise reduction measures, including alternatives to blasting.

Policy 5.A.6: The County shall ensure that, where new residences or other noise sensitive uses would be located adjacent to existing or new railroad tracks that would be in use, such as the Sierra Railroad, appropriate measures shall be implemented to ensure such residences would not be exposed to noise levels that exceed standards in Table 5.A and applicable vibration levels (e.g., Federal Transit Administration Guidelines). New residential development adjacent to existing railroads shall be required to prepare an acoustical study in accordance with requirements in Implementation Program 5.A.c to determine appropriate measures, including distance buffers, site design, building material choice, to ensure compliance with noise and vibration standards.