NOISE ELEMENT

1.0 Introduction

The presence or absence of noise in the environment can greatly affect quality of life. Given its rural character, Calaveras County affords a relatively quiet environment, compared to urbanized areas of California. This factor is one of many which attracts visitors and residents to the County.

The Noise Element examines noise sources in the County with a view toward identifying and appraising the potential for noise problems. The element addresses noise which affects the community at large, rather than noise associated with particular working conditions. Workplace noise affecting individuals is regulated by state and federal law, and is not covered by the General Plan. Similarly, the Noise Element does not address isolated noise problems, such as barking dogs or loud stereos. Private remedies are available to individuals affected by those situations.

Because the Noise Element must quantify and analyze noise conditions, it is one of the most technical parts of the General Plan. Technical terms used throughout the element are explained in the Noise Element Appendix.

To form the basis for the noise element, the County conducted an assessment of noise conditions prepared in accordance with the Noise Element Guidelines of the California Department of Health Services and the Governor's Office of Planning and Research. That assessment produced a technical report included in the *Calaveras County General Plan Update Background Report (Crawford , Multari, and Starr, 1993).* The existing and future noise environments were prepared by Brown- Buntin Associates.

Noise modeling techniques, noise measurements and use of existing noise measurement data were used to develop generalized day-night average sound level (L_{dn}) noise contours for the major roadways, railroad and fixed noise sources in Calaveras County for existing and future conditions. Noise modeling techniques use source-specific data including average levels of activity, hours of operation, seasonal fluctuations, and average levels of noise from source operations. The modeling methods used in this closely follow recommendations made by the State Office of Noise Control, and were supplemented where appropriate by field-measured noise level data to account for local conditions. The noise exposure contours are based upon annual average conditions. Because local topography, vegetation, or intervening structures may significantly affect noise exposure at a particular location, the noise contours presented should not be considered site-specific.

The following summary presents the major findings of the assessment, organized according to noise sources (those that produce noise) and noise sensitive uses (those that are subjectively sensitive to noise). The results of the assessment are also shown graphically in the diagrams included in this element.

1.1 Legal Authority

Section 65302 (f) of the California Government Code requires that a Noise Element be prepared as a part of the General Plan. this Stat law requires that a jurisdiction's Noise Element identify and work toward mitigation of noise problems in the community. This Noise Element

analyzes and quantifies, to the extent practical as determined by the legislative body, current and projected noise levels of highways and major local roads, the railroad corridor, the County airport, and fixed noise sources.

1.2 Relationship to other General Plan Elements

The primary function of the Noise Element is to incorporate noise considerations into the land use decision making process. Proposed development is assessed according to the data presented here, to determine its noise compatibility with surrounding land uses. The Noise Element is integrated with the other elements of the General Plan and with the County Airport Land Use Plan, to create a pattern for land use and transportation planning which minimizes public's exposure to excessive noise.

The Noise Element is most closely related to the Land Use, Housing, Circulation, and Open Space Elements. The major objective of the Noise Element is to provide guidelines to achieve noise land use compatibility. The Land Use and Noise Elements, therefore, are related closely. By identifying noise sensitive land uses and establishing compatibility guidelines for land use and noise, the Noise Element will influence the general distribution, location and intensity of future land use. Effective land use planning can reduce noise problems.

Residential areas are one of the noise-sensitive land uses. Therefore, the Housing Element is directly affected by the Noise Element. The implementation of noise compatibility guidelines can reduce noise impacts in residential locations. In addition, proper noise mitigation measures during housing construction can guard against adverse noise impact.

2.0 Major Noise Sources

Existing and projected major sources of noise in Calaveras County are roadways, railways, the County Airport, mining and other industry, the County Animal Shelter, and facilities used for special events. The general locations of these sources are shown on Noise Sources map, Page VI-3.

2.1 Traffic Noise

The state highways and county roads identified as major sources of noise and are listed in Table VI-1. It is recognized that noise levels will increase along these major routes with any future development within the County.

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop L_{dn} contours for all highways and major roadways in Calaveras County. A more detailed explanation of the model is contained in the Noise Element Appendix.

Noise Sources map

Traffic data representing annual average traffic volumes for existing (1990) and projected future (2010) conditions were obtained from TJKM Transportation Consultants and Caltrans. These data are summarized in the Noise Element Appendix. Day/night traffic distribution and truck mix were based upon Caltrans data and Brown-Buntin Associates (BBA) file data. Using these data and the FHWA methodology, traffic noise levels were calculated for existing and projected future conditions. Distances from the centerlines of the major roadways to the 60 dB L_{dn} contour are summarized in Table VI-1.

TABLE VI-1
DISTANCE FROM ROADWAY CENTERLINES TO EXISTING AND FUTURE
60 dB L_{dn} TRAFFIC NOISE LEVEL CONTOURS
Calaveras County, 1993

				Distance to Contour (feet)	
Roadway	**#**	**From**	**To**	**Existing**	**Future**
State Route 4	1	West County Line	Pool Station Road	98	178
	2	Pool Station Road	Angeles Camp	83	102
	3	Angeles Camp	Vallecito	169	259
	4	Vallecito	Murphys	191	306
	5	Murphys	Avery	201	298
	6	Avery	Arnold	159	239
	7	Arnold	Dorrington	97	149
	8	Dorrington	East County Line	69	99
State Route 12	9	West County Line	Highway 26/Valley Springs	175	256
	10	Valley Springs	Highway 26/Toyon	201	263
	11	Toyon	Highway 49	177	233
State Route 26	12	West County Line	Jenny Lind Road	119	184
	13	Jenny Lind Road	SR 12/Valley Springs	161	208
	14	Valley Springs	SR 12/Toyon Area	201	263
	15	Toyon Area	Highway 49	65	92
	16	Highway 49	Jesus Maria Road	103	121
	17	Jesus Maria Road	Ridge Road	86	103
	18	Ridge Road	Wilseyville	65	80
	19	Wilseyville	West Point	51	60
	20	West Point	North County Line	67	96
State Route 49	21	North County Line	Mokelumne Hill	168	249
	22	Mokelumne Hill	Highway 12	166	233

TABLE VI-1
DISTANCE FROM ROADWAY CENTERLINES TO EXISTING AND FUTURE
60 dB L_{dn} TRAFFIC NOISE LEVEL CONTOURS
Calaveras County, 1993

				Distance to Contour (feet)	
Roadway	**#**	**From**	**To**	**Existing**	**Future**
State Route 49	23	Highway 12	Fricot Point Road	163	210
	24	Fricot City Road	Angeles Camp	184	228
	25	Angeles Camp	South County Line	103	150
Burson Road	26	State Route 26	State Route 12	43	49
O'Byrnes Ferry Road	27	Highway 4	Copper Cove Village	92	177
O'Byrnes Ferry Road	28	Copper Cove Village	South County Line	71	139
Milton Road	29	State Route 26	Rock Creek Road	52	68
Mountain Ranch Road	30	State Route 49	Sheep Ranch Road	96	126
Murphys Grade	31	State Route 49	French Gulch	126	149
	32	French Gulch	Murphys	109	130
Paloma Road	33	North of Highway 26		46	66
Parrots Ferry Road	34	State Route 4	South County Line	71	118
Pool Station Road	35	San Andreas	Highway 4	43	66

Source: Brown-Buntin Associates, 1993.

These calculations do not include consideration of shielding caused by local buildings or topographical features, so the distances reported in Table 2-1 are worst-case estimates of noise exposure along roadways in the county.

Distance to 60 dB L_{dn} Contour chart, Page IV-6, prepared using the FHWA Model, may be used to estimate the distance to the existing 60 dB L_{dn} contour for projected volumes of arterial traffic on the roadways not included in this analysis. For arterial traffic, the predicted distance to the 60 dB L_{dn} contour is determined by the Average Daily Traffic Volume (ADT) and the posted speed limit. L_{dn} contours derived from Distance to 60 dB L_{dn} Contour chart are only indicators of potential noise conflicts, requiring more detailed analysis to determine traffic noise levels at any given location.

Distance to 60 dB L_{dn} Contour
Arterial Traffic

Topography in Calaveras County varies considerably, sometimes alternating from flat to mountainous along relatively short roadway segments. Due to the size and topographic complexity of Calaveras County, it was not possible to evaluate the effects of topography on traffic noise at all locations in the County for inclusion in the General Plan. Therefore the numbers presented in Table VI-1 should be considered estimates of traffic noise exposure.

Table VI-2 has been prepared to serve as a guide when applying the traffic noise exposure contour information presented in this section to areas with varying topography. The table is used by adding the correction factor to the noise level predicted at a given distance. It should be noted that the adjustment factors presented in Table VI-1 are intended to provide conservative (worst-case) results, therefore complex situations where the potential for significant noise impact may exist, should be evaluated in detail.

TABLE VI-2

TRAFFIC NOISE ADJUSTMENTS FOR VARIOUS TOPOGRAPHIC CONDITIONS

	Distance from Center of Roadway (Feet)		
Topographic Situation	**<200**	**200 - 400**	**>400**
Hillside overlooks roadway	-0-	+1 dB	+3 dB
Roadway Elevated (>15')	-5 dB	-2 dB	-0-
Roadway in cut/below embankment	-5 dB	-5 dB	-5 dB

Source: Brown-Buntin Associates, 1993.

2.2 Railroad Noise

Railroad activity in Calaveras County is limited to future operations on the San Andreas branch of the Southern Pacific Railroad, the Kentucky House Branch. Before closure of the Calaveras Cement Plant in San Andreas (1984), the freight train operated three times per week, round trip, from Lodi to the cement facility.

Southern Pacific Railroad Company has currently filed a request for abandonment of the branch with the Interstate Commerce Commission (ICC). Calaveras County has filed a request to the ICC for a public use condition. The future of any railroad operations in Calaveras County are currently unknown, but if resumed in the near future, are likely to remain as freight transportation.

Due to the lack of operational data for this track segment, the distances to the railroad L_{dn} contours were developed as a function of the number of hypothetical daily operations. The results of these calculations are provided in Table VI-3. The Table VI-3 data should be considered conservative, in that existing shielding of railroad noise by intervening topography and structures is not included in the calculations.

The noise levels provided in Table VI-3 should be increased by 3 dB where warning horns are used. The railroad noise exposure will differ from these values where the tracks are significantly elevated or shielded relative to the receiver location. The approximate location of the 60 dB L_{dn} railroad noise contour, assuming 2 daily railroad operations, is about 100 feet from railroad tracks.

TABLE VI-3

APPROXIMATE DISTANCE TO RAILROAD NOISE CONTOURS AS A FUNCTION OF DAILY ACTIVITY
Calaveras County, 1993

Daily Trains	L_{dn}, dB, 100 Feet From Tracks	Distance to 60 dB L_{dn} contour (feet)	Distance to 65 dB L_{dn} contour (feet)
1	57	63	29
2	60	100	46
3	62	136	63
4	63	159	77
5	64	185	86
10	67	293	136

Calculations assume average railroad sound exposure level of 100 dB at 100 feet from the tracks, a 4.5 dB decrease in noise levels per each doubling of distance from the noise source, and that the operations are randomly distributed throughout the day and nighttime hours.

Source: Brown-Buntin Associates, 1993.

2.3 Airport Noise

The Calaveras County Airport (Maury Rasmussen Field) began operation in December of 1981. Information on noise resulting from the aircraft operations at the airport is based on the County of Calaveras Airport Final Environmental Impact Report, 1982. Given that the area adjacent to the airport is generally undeveloped, the noise resulting from aircraft operations has very little impact on current land uses. Land use in the vicinity of the Calaveras County Airport is guided by both the County Airport Land Use Plan (ALUP), which was incorporated into the General Plan as the Airport Special Plan, and is included in the Noise Element. For additional information regarding airport operations and noise generation, refer to the Airport Special Plan.

The boundaries of the Airport Special Plan are a composite of the critical impact areas, which include the outer limits of the Federal Aviation Regulation Part 77 Horizontal Surface and the 55 CNEL contour line. The goal of the policies and implementation measures regarding noise is to minimize the public's exposure to excessive aircraft noise, thus protecting the Calaveras County Airport from future annoyance complaints.

2.4 Fixed Noise Sources

Noise production is a result of many industrial processes, even with use of the best available noise control technology. Noise exposures within industrial facilities are controlled by federal and state employee health and safety regulations administered by the Occupational Safety and Health Administration (OSHA), but exterior noise levels may approach the limits of locally acceptable standards. Commercial, recreational and public service facility activities can also produce noise affecting adjacent sensitive land uses.

From a land use planning perspective, fixed-source noise control issues have two goals: to prevent the introduction of new noise-producing uses in noise-sensitive areas, and to prevent encroachment of noise sensitive uses upon existing noise-producing facilities. The first goal can be achieved by applying noise performance standards to proposed new noise-producing uses. The

second goal can be met by requiring that new noise-sensitive uses in proximity to noise-producing facilities include mitigation measures to ensure compliance with noise performance standards.

3.0 Noise Sensitive Uses

Land uses on which noise may have a significant impact include residences, schools, conservation areas, and hospitals or other care facilities.

GENERAL PLAN RECOMMENDATIONS

Goal VI-1: Improve noise compatibility between new and existing land uses.

Policy VI-1A: Protect existing noise sensitive uses from new non-residential sources of excessive noise.

Implementation Measure VI-1A-1: Consider the potential noise impacts of non-residential land use proposals on adjacent residential and other noise sensitive land uses to the following noise levels as measured at the property line of the noise sensitive land use:

Noise Sensitive Land Use	Maximum Noise Level
Single Family Residential	60 Ldn
Multifamily Residential	65
Schools, Hospitals	70

Implementation Measure VI-1A-2: Site specific noise analyses should be performed where major noise sources are proposed to be located near noise sensitive land uses.

Implementation Measure VI-1A-3: Use setbacks, landscaping, earth berms and other effective measures to provide buffers and barriers between noise generators and surrounding areas.

Policy VI-1B: Restrict the development of noise sensitive land uses near identified major noise sources.

Implementation Measure VI-1B-1: Site specific noise analyses should be performed where noise sensitive land uses are proposed in proximity to major noise sources.

Implementation Measure VI-1B-2: Utilize Noise Contours in reviewing land use proposals.

Implementation Measure VI-1B-3 : Require developers to use setbacks, landscaping, earth berms and other effective measures to provide buffers and barriers between the noise sensitive land uses and the existing major noise sources.

Goal VI-2: Minimize noise disturbance from ground transportation facilities

Policy VI-2A: Consider potential noise impacts in locating new residential subdivisions near highways, major county roads and rail lines.

Implementation Measure VI-2A-1: Utilize Noise Contours and noise generation projections in evaluating new residential subdivisions.

Implementation Measure VI-2A-2: Impose the provisions of the California Noise Insulation Standards and the Uniform Building Code when locating future single family residential subdivisions within the 60 dB Ldn contour.

Goal VI-3: Minimize noise disturbance from all public and private air facilities in the county.

Implementation Measure VI-3A-1: Use the County Airport Land Use Plan to guide land use decisions within the ALUP boundary.

Implementation Measure VI-3A-2 : Condition airfield use permits so as to reduce noise impacts to acceptable levels.