F. NOISE

1. Introduction

Noise is often defined as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. Noise in the community has often been cited as being a health problem; not in terms of actual physiological damage such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. As noise levels increase, poublic annoyance with the noise source also increase, while at the same time the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels. Table 13 provides some examples of noise sources and their corresponding descriptive measurements.

The Auburn/Bowman Community Plan area contains a number of significant noise sources which include: traffic on major roadways and highways such as Interstate-80, Highway 49, Bell Road, Luther Road, etc.; railroad operations such as Southern Pacific Railroad, an important transcontinental railroad; airports and heliports such as the Auburn Airport and the California Department of Forestry heliport, and; certain industrial activities and fixed noise sources. Figure 12 depicts future 60 dB L_{dn} contours for major roadways, railroads, and the airport.

Table 13

EXAMPLES OF SOUND LEVELS

NOISE SOURCE	SOUND LEVEL	SUBJECTIVE DESCRIPTION
AMPLIFIED ROCK 'N ROLL	120 dB	
JET TAKEOFF @ 200 FT		DEAFENING
	100 dB	
BUSY URBAN STREET		VERY LOUD
	80 dB	
FREEWAY TRAFFIC @ 50 FT		LOUD
CONVERSATION @ 6 FT	60 dB	
TYPICAL OFFICE INTERIOR		MODERATE
SOFT RADIO MUSIC	40 dB	
RESIDENTIAL INTERIOR		FAINT
WHISPER @ 6 FT	20 dB	
HUMAN BREATHING		VERY FAINT
	0 dB	

Figure 12

2. GOALS

a. TO PROTECT COMMUNITY PLAN AREA RESIDENTS FROM THE HARMFUL AND ANNOYING EFFECTS OF EXPOSURE TO EXCESSIVE NOISE.

b. TO PRESERVE THE RURAL NOISE ENVIRONMENT OF THE COMMUNITY PLAN AREA AND SURROUNDING AREAS.

c. TO PROTECT THE ECONOMIC BASE OF THE COMMUNITY PLAN AREA BY PREVENTING INCOMPATIBLE LAND USES FROM ENCROACHING UPON EXISTING OR PLANNED NOISE-PRODUCING USES.

d. TO ENCOURAGE THE APPLICATION OF STATE OF THE ART LAND USE PLANNING METHODOLOGIES IN AREAS OF POTENTIAL NOISE CONFLICTS.

3. Policies

a. New development of noise-sensitive uses shall not be allowed where the noise level due to non-transportation noise sources will exceed the noise level standards of Table 14 as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table 14.

b. Noise created by new non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 14 as measured immediately within the property line of lands designated for noise-sensitive uses.

c. Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 14 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are given by Table 15.)

Note: For the purposes of the Noise Element, transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as a noise control ordinance. Non-transportation noise sources may include industrial operations, outdoor recreation facilities, HVAC units, loading docks, etc.

Table 14

NOISE LEVEL PERFORMANCE STANDARDS
FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-TRANSPORTATION SOURCES

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	50	45
Maximum level, dB	70	65

Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

d. The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Table 16.

e. New development of noise-sensitive land uses will not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table 16, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table 16.

f. Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 16 at outdoor activity areas or interior spaces of existing noise-sensitive land uses in either the incorporated or unincorporated areas.

g. Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table 16 or the performance standards of Table 15, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

h. Where noise mitigation measures are required to achieve the standards of Tables 15 and 16, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

Table 15

REQUIREMENTS FOR AN ACOUSTICAL ANALYSIS
An acoustical analysis prepared pursuant to the Noise Element shall:
1. Be the responsibility of the applicant. 2. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics. 3. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources. 4. Estimate existing and projected cumulative (20 years) noise levels in terms of L_{dn} or CNEL and/or the standards of Table 14, and compare those levels to the adopted policies of the Noise Element. Noise prediction methodology must be consistent with the appendix to the Noise Element. 5. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance. 6. Estimate noise exposure after the prescribed mitigation measures have been implemented. 7. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

i. Both existing and future traffic noise levels along the Interstate 80 corridor pose an unusual problem for existing and future land uses within nearly 1/2 mile of either side of the freeway centerline. In order to allow reasonable use of this land, a maximum exterior noise exposure of 70 dB L_{dn}/CNEL shall be allowed. In such cases it may be necessary to incorporate noise barriers, special building construction materials, and similar measures into project design in order to achieve suitable interior noise levels as specified in Table 16. Outdoor recreation areas should be shielded using wing walls, sound barriers, the structure itself, or other appropriate techniques to the extent practicable. Project-wide soundwalls will be used only where other potential measures are not feasible.

Table 16
MAXIMUM ALLOWABLE NOISE EXPOSURE
TRANSPORTATION NOISE SOURCES

Land Use	Outdoor Activity Areas[1] L_{dn}/CNEL, dB	Interior Spaces L_{dn}/CNEL, dB	Interior Spaces L_{eq}, dB[2]
Residential	60[3]	45	--
Transient Lodging	60[3]	45	--
Hospitals, Nursing Homes	60[3]	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60[3]	--	40
Office Buildings	60[3]	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

[1] 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 use.

[2] As determined for a typical worst-case hour during periods of use.

[3] Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table. For properties affected by transportation noise from I-80 or railroad tracks, this maximum level shall be 70 dB L_{dn}/CNEL, provided that interior levels are in compliance with this table.

4. Discussion

There are a number of noise related issues that have been identified in the Plan area. Each of these issues is described below. The goals and policies previously listed were specifically developed as mechanisms to mitigate each of these issues.

a. Residential land use and noise

Noise is a significant factor in the suitability of lands within the Plan area for residential uses. Excessive noise in all portions of the Plan area may have harmful effects upon persons residing in and using those areas. Therefore, in order for the Plan to provide a healthful and pleasing environment, residents should not be exposed to excessive noise and associated adverse effects.

b. Rural noise expections

Rural neighborhoods expect, and generally experience, lower ambient noise levels than more urbanized settings. Loss of "peace and quiet" is often a complaint of rural residents as areas build out, particularly when vehicular traffic increases near homes. Where rural neighborhoods are planned, their noise environments should remain appropriate to this land use.

c. Land use and noise incompatibilities

Residential and other noise-sensitive land uses and commercial/industrial land uses create inherently different noise environments owing to the differences in necessary activities. Where such potentially incompatible uses come closely into contact, residents may complain and otherwise make it difficult for commercial/industrial uses to conduct their business.

d. Noise reduction techniques

Where land uses with potential noise conflicts are planned close to one another, a number of techniques exist which, when employed, can lessen adverse noise effects. These techniques may involve the configuration/location of uses on the property, reductions of noise generated by equipment, the use of physical barriers to noise, simply avoiding the placement of noise-conflicting uses near one another, and so forth. Where such methodologies are not applied, unnecessary conflicts between differing land uses are likely to develop.

5. Implementation Measures

To provide a comprehensive approach to noise control which supports the goals of the Noise Element, Placer County shall:

a. Develop and employ procedures to ensure that noise mitigation measures required pursuant to an acoustical analysis are implemented in the project review and building permit processes.

Responsible Agency/Department: Division of Environmental Health
Time frame: On-going
Funding: Permit fees

b. Develop and employ procedures to monitor compliance with the standards of the Noise Element after completion of projects where noise mitigation measures are required.
Responsible Agency/Department: Division of Environmental Health
Time frame: On-going
Funding: Mitigation fees

c. Enforce the State Noise Insulation Standards (California Code of Regulations, Title 24) and Chapter 35 of the Uniform Building Code (UBC).
Responsible Agency/Department: Building Department
Time frame: On-going
Funding: Permit fees

Note: Title 24 of the California Code of Regulations (CCR) requires an acoustical analysis where multi-family dwellings are located within the 60 dB L_{dn} or CNEL, which is intended to provide an acceptable environment for sleep and other indoor activities. Party walls and floor-ceiling assemblies must have a laboratory rated Sound Transmission Class (STC) of at least 50. Floor Ceiling assemblies must have a laboratory rated Impact Insulation Class (IIC) of at least 50. An STC or IIC rating of 45 is allowed for field-tested assemblies.

d. Request that the Highway Patrol actively enforce the California Vehicle Code sections relating to adequate vehicle mufflers and modified exhaust systems.
Responsible Agency: Division of Environmental Health
Time frame: On-going
Funding: No cost

e. Purchase only new equipment and vehicles which comply with noise performance standards based upon the best available noise reduction technology.
Responsible Agency/Department: Procurement
Time frame: On-going
Funding: No additional cost

f. Periodically review and update the Noise Element to ensure that noise exposure information and specific policies are consistent with changing conditions within the community and with noise control regulations or policies enacted after the adoption of this Element.
Responsible Agency/Department: Division of Environmental Health
Time frame: Periodically
Funding: General fund