MONO COUNTY GENERAL PLAN

NOISE ELEMENT

Adopted 1993
Updated 2015

TABLE OF CONTENTS

Including Tables and Figures

PURPOSE

The Noise Element of a General Plan provides a basis for comprehensive local programs to control and abate environmental noise and to limit community exposure to excessive noise levels. The fundamental goals of a Noise Element are[1]:

To provide sufficient information concerning the community noise environment so that noise may be considered effectively in the land use planning process.

To develop strategies for abating excessive noise exposure through cost-effective mitigation measures in combination with zoning, as appropriate, to avoid incompatible land use.

To protect those existing regions of the planning area whose noise environments are deemed acceptable and also those locations throughout the community deemed "noise sensitive."

To utilize the definition of the community noise environment, in the form of CNEL or Ldn noise contours as provided in the Noise Element, for local compliance with the State Noise Insulation Standards. To comply, Mono County utilizes worst-case daily Leq noise contours

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

A primary function of the Noise Element is to ensure that noise considerations are incorporated into the land use decision-making process. Development and implementation of policies in the Noise Element are closely related to the Land Use, Housing, Transportation, and Conservation/Open Space elements.

Land Use — Section 65302(f) of the General Plan Guidelines states, "The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise." Used in conjunction with information from the Noise Element, the land use element will show acceptable land uses in relation to existing and projected noise contours.

Housing — The Housing Element considers the provision of adequate sites for new housing and standards for housing stock. Since residential uses are the primary noise-sensitive uses within Mono County, the noise exposure information provided in the Noise Element is taken into account when planning the location of new housing.

Transportation — The transportation network is the primary source of noise within Mono County. Noise exposure is an important consideration in the location and design of new transportation routes and facilities, as well as in the mitigation of noise produced from existing roadways on existing and planned land uses.

Conservation/Open Space — Mono County's quiet, rural atmosphere is an important attraction for residents and visitors to the area**.** Excessive noise may also adversely affect biological resources. Potential noise impacts are a crucial consideration when considering the impacts of proposed development on surrounding biological resources and open space areas.

NOISE MEASUREMENT

Noise is measured using a variety of ratios, which account for both the magnitude of the noise and the time of day at which it occurs, in order to quantify human response and sensitivity to noise levels. A given level of noise may be more or less tolerable depending on the duration of exposure and the time of day during which

[1] State of California, General Plan Guidelines, Appendix C, Guidelines for the Preparation and Content of the Noise Element f the General Plan. 2003.

the noise is experienced. For example, noise that occurs at night tends to be more disturbing than that which occurs during the day. Various noise measurement terms are explained in the following section.

Due to the relatively limited amount of traffic along our highway system, the community noise metric used in this Noise Element is worst case daily Leq (see the following section for definitions). State airport noise standards utilize the CNEL metric; compliance with those standards necessitates use of the CNEL metric. The Ldn is a simplification of CNEL. It divides the day into two weighted time periods, rather than the three used in CNEL, with no significant loss of accuracy.

NOISE MEASUREMENT TERMINOLOGY

Ambient Noise: The background noise level at a given location. The ambient noise level constitutes the normal or existing level of environmental noise at a given location and is a composite of sounds from many sources, near and far. Isolated, identifiable noise sources, such as airplanes and heavy trucks, are not taken into account, nor is noise produced by an item or items of equipment at the location and approximate time at which a comparison with the equipment noise is to be made.

A-Weighted Level: The sound level in decibels as measured on a sound level meter using the A-weighting filter. The A-weighting filter de-emphasizes the very low and very high frequency components of sound in a manner similar to the response of the human ear and correlates well with subjective reactions to noise. Designated dB(A) or dBA.

Community Noise Level Equivalent (CNEL): Used to characterize average sound levels over a 24-hour period, with weighting factors included for evening and nighttime sound levels. Leq values (equivalent sound pressure levels measured over a one-hour period - see below) for the nighttime period (10 p.m. to 7 a.m.) are reduced by 10 dBA in residential and agricultural areas, and by 5 dBA in commercial and industrial areas. For a given set of sound measurements, the CNEL value will usually be about 1 dB higher than the Ldn value (average sound exposure over a 24-hour period). In practice, CNEL and Ldn are often used interchangeably.

Day-Night Average Sound Level (Ldn): Average sound exposure during a 24-hour day, calculated from hourly Leq values, with the Leq values for the nighttime period (10 p.m. to 7 a.m.) decreased by 10 dB to reflect the greater disturbance potential from nighttime noises.

Decibel, dB: A unit of measurement describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals.

Equivalent Sound Level (Leq): The level of a steady-state sound that, in a stated time period and at a stated location, has the same sound energy as the time-varying sound (approximately equal to the average sound level). Leq is typically measured over 1-, 8-, and 24-hour sample periods. Leq measured over a one-hour period is called the hourly Leq or Leq(h).

Intrusive Noise: Noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence, and tonal or informational content as well as the prevailing noise level.

L10: The A-weighted sound level that is exceeded 10% of the time. Similarly L50, L90, etc.

Noise Contours: Lines drawn about a noise source indicating equal levels of noise exposure (typically 45, 55, or 65 Ldn). Noise contours are used to establish land use planning criteria for noise.

Noisiness Zones: Defined areas within a community where the ambient noise levels are generally similar (within a range of 5 dB, for example). Typically, all other things being equal, sites within any given noise zone will be of comparable proximity to major noise sources. Noise contours define different noisiness zones.

Sensitive Noise Receptors (or Noise Sensitive Land Uses): Sensitive noise receptors include residential areas, hospitals, convalescent homes and facilities, schools, libraries, community centers, certain recreational areas and parks, popular visitor destinations and cultural resource sites, certain natural areas and sensitive habitat areas and other similar land uses.

Worst Case Daily Equivalent Sound Level (WLeq): The level of steady-state sound for a 24-hour period based on the measurement of the maximum sound event in dB for a one-hour period, and calculated for the total number of sound events experienced during a 24-hour period. This parameter assumes all noise-creating events are equally loud.

NOISE EFFECTS

Noise has a significant effect on quality of life. An individual's reaction to a particular noise depends on many factors such as the source of the noise, its loudness relative to the background noise level, and the time of day. The reaction to noise can also be highly subjective; the perceived effect of a particular noise can vary widely among individuals in a community. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a three dB change in community noise levels is perceivable, while one to two dB changes generally are not perceived. Although the reaction to noise may vary, it is clear that noise is a significant component of the environment, and excessively noisy conditions can affect an individual's health and well-being. The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise on a community can be organized into six broad categories: noise-induced hearing loss; interference with communication; effects on sleep; effects on performance and behavior; extra-auditory health effects; and annoyance.

COMMUNITY NOISE ENVIRONMENT

The existing noise environment in the county is discussed in detail in the Mono County Master Environmental Assessment (MEA) and includes land ownership, non-transportation noise sources, noise-sensitive land uses, existing noise levels, and future noise levels.

In addition, ground stationary noise sources in Mono County include a military installation (the Marine Corps Mountain Warfare Training Center) and industrial uses like cement batch plants, woodlots, geothermal plants, mining operations, etc. Potential intrusive noise impacts are largely mitigated because these uses are located within an industrial district, on public land outside developed areas and away from sensitive receptors, and/or subject to permits that impose conditions of operation. Therefore, sources located in industrial districts and outside developed areas typically do not contribute to the community noise environment, and uses within communities are conditioned to minimize noise impacts and meet the policies of this element. Policies have been included for instances when specific noise impacts from these sources have been identified.

NOISE REGULATION

Noise exposure criteria are incorporated into land use planning to reduce future conflicts between noise and land use. This is achieved by specifying acceptable noise exposure ranges for various land uses throughout the county. The County uses the maximum allowable noise exposures listed in Table 1 and noise contours listed in Table 2 to determine the compatibility of land uses when evaluating proposed development projects.

Table 2 contains data for noise contour maps of individual communities, an example of which is provided in Figure 1.

A land use located in an area identified as "acceptable" indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can carry out outdoor activities with minimal noise interference. Land uses that fall into the "conditionally acceptable" noise environment should have an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with sleep, speech, or other activities characteristic of the land use. For land uses indicated as "conditionally acceptable," structures shall attenuate the exterior noise to the indoor noise levels as indicated in Table 1. For land uses where the exterior noise levels fall within the "unacceptable" range, new construction generally should not be undertaken.

In addition to the maximum allowable noise levels delineated above, the County implements additional noise regulations depending on the noise source and land use.

Noise Ordinance (Mono County Code, Chapter 10.16) — Defines limits for excessive noise and sets noise level limits for land uses.

Airport Land Use Compatibility Plans (ALUCP) for Bryant Field, Lee Vining Airport, and Mammoth Yosemite Airport — Regulate development with airport planning boundaries in order to minimize exposure to airport noise.

California Noise Insulation Standards (California Code of Regulations, Title 24) — Residential insulation standards implemented during the building process.

TABLE 1: MAXIMUM ALLOWABLE NOISE EXPOSURE BY LAND USE EXTERIOR NOISE LEVELS

Land Use	Noise Level (CNEL)						
	45-50	51-55	56-60	61-65	66-70	71-75	76+
Residential — Low-Density Single Family, Duplex							
Residential — Multiple Family, Mixed Use							
Transient Lodging							
Public Uses — Schools, Libraries, Hospitals, Community Centers, Senior Centers							
Passive Recreational Areas, Cultural Resource Areas, Natural Habitat Areas							
Community Parks and Athletic Fields							
Commercial Uses, Offices, Retail							
Light Industrial Uses							
Industrial Uses, Utilities, Mining, Ranching, Agriculture							

	ACCEPTABLE — Specified land use is satisfactory, based on the assumption that any structures involved are of normal, conventional construction, without special noise-insulation requirements.
	CONDITIONALLY ACCEPTABLE — New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary and, if so, those measures have been included in the project design.
	UNACCEPTABLE — New construction or development should not be undertaken.

TABLE 2: EXISTING AND FUTURE NOISE CONTOUR TABLES

Lee Vining		
Max Meter dB 72 @ 30'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2013 AADT 3730)	Projected (2033 AADT 4120)
60 dB	14'	14'
55 dB	24'	25'
50 dB	42'	44'
45 dB	74'	78'

Bridgeport 1 (395 & School)		
Max Meter dB 62 @ 25'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2013 AADT 3200)	Projected (2033 AADT 3540)
60 dB	4'	4'
55 dB	7'	7'
50 dB	12'	13'
45 dB	21'	22'

Bridgeport 2 (182 JNO 395)		
Max Meter dB 67 @ 25'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2015 AADT 1155)	Projected (2025 AADT 1733)
60 dB	4'	5'
55 dB	7'	8'
50 dB	12'	14'
45 dB	21'	25'

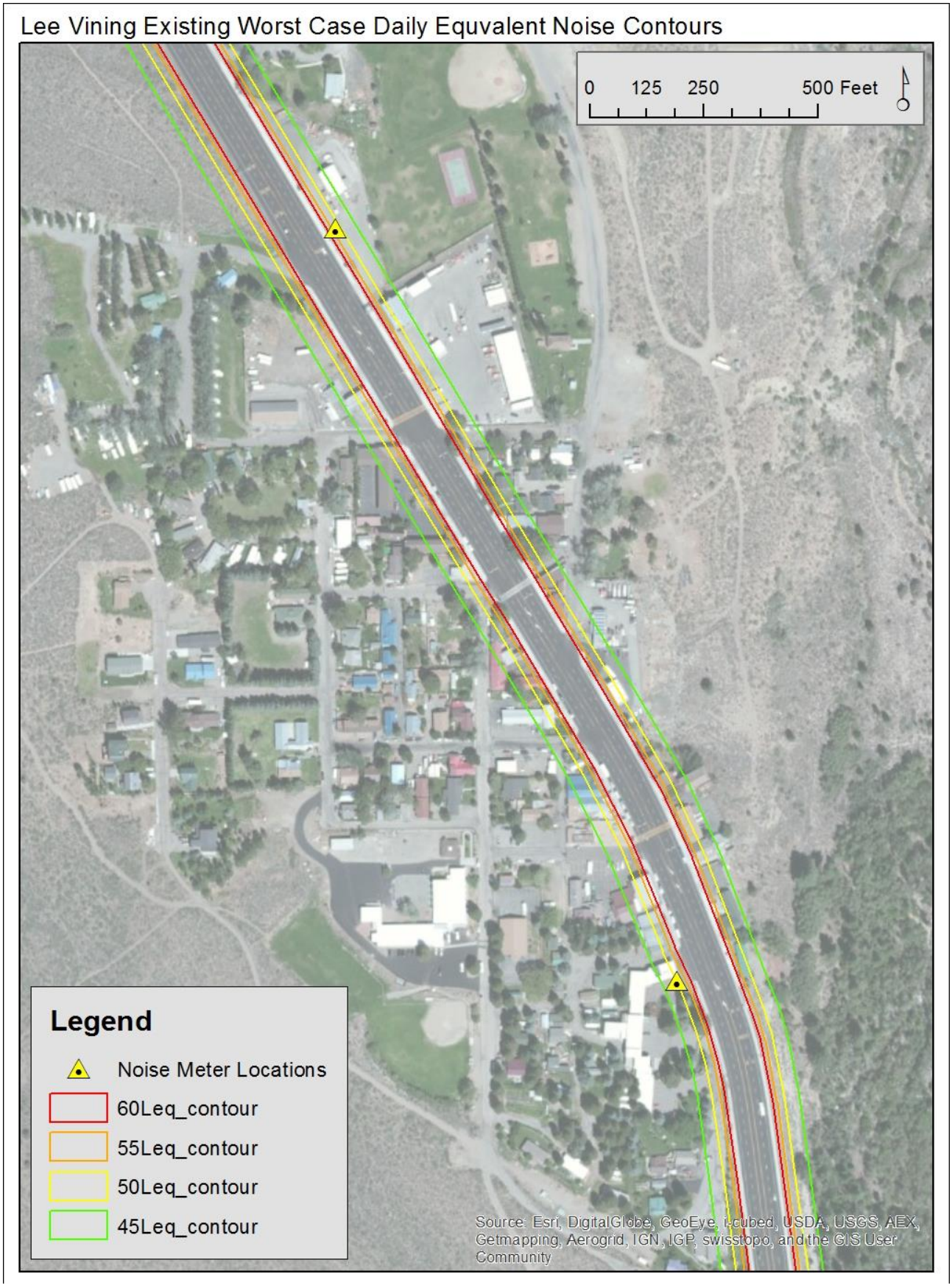
Antelope 1 (395 @ Larson)		
Max dB 76 @ 25'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2015 AADT 3530)	Projected (2025 AADT 3890)
60 dB	16'	17'
55 dB	29'	30'
50 dB	51'	54'
45 dB	91'	95'

June Lake 1 (395 Down Canyon)		
Max dB 70 @ 15'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2012 AADT 1172)	Projected (2032 AADT 1295)
60 dB	3'	3'
55 dB	6'	6'
50 dB	10'	10'
45 dB	17'	18'

Hammil Valley		
Max dB 75 @ 15'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2007 AADT 1100)	Projected (2027 AADT 1220)
60 dB	5'	6'
55 dB	9'	10'
50 dB	16'	17'
45 dB	29'	30'

Long Valley 1 (395 @ Crowley Lake Dr)		
Max dB 67 @ 210'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2013 AADT 7020)	Projected (2033 AADT 7760)
60 dB	67'	71'
55 dB	119'	127'
50 dB	212'	225'
45 dB	378'	400'

FIGURE 1: EXAMPLE OF COMMUNITY NOISE CONTOUR MAP BASED ON TABLE 2.



POLICIES

GOAL 1. Preserve the county's quiet, rural atmosphere by maintaining existing ambient noise levels and preventing incompatible land uses from encroaching upon existing and planned land uses.

Objective 1.A.
Protect the existing noise quality by ensuring noise compatibility.

Policy 1.A.1. The County shall consider the compatibility of proposed land uses and the noise environment when preparing or revising General Plan and community plan documents and when reviewing development proposals. Noise levels for proposed land uses should be consistent with the Maximum Allowable Noise Exposure by Land Use (Table 1); the total noise level resulting from new sources and ambient noise shall not exceed the standards in this Element and in the Mono County Noise Ordinance (Mono County Code, Chapter 10.16).

Action 1.A.1.a. Assess the frequency and severity of noise complaints during the annual General Plan review process.

Action 1.A.1.b. Revise the county Land Use Maps to show noise sources (e.g., highways, airports, helipads, industrial), as well as noise-sensitive areas (e.g., residential areas, schools, hospitals, libraries, certain natural areas, sensitive habitat, certain parks, recreational and cultural areas).

Action 1.A.1.c. Compliance with the standards in this Element and in the Mono County Noise Ordinance will substantially mitigate noise effects when applied to future projects, unless substantial new information indicates otherwise.

Policy 1.A.2. New development within Airport Planning Boundaries established in the Airport Land Use Compatibility Plans for Bryant Field Airport, Lee Vining Airport, and Mammoth Yosemite Airport shall comply with the requirements of those plans and shall be compatible with the noise levels identified in those plans.

Policy 1.A.3. As early as possible in the project design and review process, the County shall work with developers to attenuate noise impacts through the use of site planning, architectural layout, the use of noise reducing building materials, and other appropriate tools. Projects shall be designed to avoid short- and long- term noise impacts or reduce those impacts using the following methods, or similar methods, as appropriate.

- Avoid placement of noise-sensitive uses within noisy areas.
- Use open space as a buffer.
- Increase the distance between noise generators and noise-sensitive uses through the use of increased building setbacks and/or the dedication of noise easements.
- Place noise-tolerant land uses such as parking lots, maintenance facilities, and utility areas between noise generators and receivers.
- Use noise-tolerant structures, such as garages or carports, to shield noise-sensitive areas.
- Restrict the placement of multistory units within fixed distances of major roads unless setbacks are increased and additional insulation is used.
- Orient buildings so that the noise-sensitive portions of a project, including outdoor areas, are shielded from noise sources.

- Use berms and heavy landscaping to reduce noise levels.
- Use sound-attenuating architectural design and building features.
- Employ alternative technologies when appropriate that reduce noise generation (e.g., alternative pavement materials on roadways).

Policy 1.A.4. Where possible, less-intrusive noise mitigation (e.g., landscaped berms, open space buffers) should be encouraged rather than sound walls to preserve view corridors. Where the use of a sound wall cannot be avoided, require a combination of walls and earth berms to reduce noise and the use of vegetation or other visual screening methods to soften the visual appearance of the wall and further reduce noise.

Policy 1.A.5. Projects where existing and/or project-related noise levels exceed County noise standards shall provide a project-specific acoustical analysis as part of the project application. The analysis shall:

a) be the responsibility of the applicant;

b) be prepared by a qualified acoustical consultant;

c) be subject to review and approval by Mono County;

d) assess the existing noise environment in the general project vicinity;

e) describe the noise generation potential of the proposed project within the project site and on surrounding areas and compare the noise generation potential of the project to the adopted standards in this Element and in the Mono County Noise Ordinance (Mono County Code, Chapter 10.16);

f) recommend noise control measures to avoid or mitigate noise impacts and to ensure compliance with this Element and the Mono County Noise Ordinance; and

g) outline a mitigation monitoring program that provides noise abatement for the project and that evaluates the effectiveness of proposed mitigation measures.

Policy 1.A.6. Incorporate the noise standards of adjacent jurisdictions into the evaluation of a proposed project when it has the potential to impact the noise environment of that jurisdiction.

Policy 1.A.7. The County shall work with applicable agencies and organizations, such as local and regional transit agencies and/or other jurisdictions, to address, regulate and/or minimize regional noise impacts, such as regional traffic noise and other sources of noise in the county.

Objective 1.B.
Protect the existing noise quality through abatement.

Policy 1.B.1. The County shall enforce the requirements in the Mono County Noise Ordinance (Mono County Code Chapter 10.16), which is being updated concurrently with this Element.

Action 1.B.1.a. Review the county Noise Ordinance (Mono County Code Chapter 10.16) annually and update as needed.

Policy 1.B.2. The County shall enforce State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code.

Policy 1.B.3. The County shall actively support the California Highway Patrol and Sheriff's Office in their enforcement of California Vehicle Code sections relating to vehicle noise emissions, including cars, off-road vehicles, and boats.

Policy 1.B.4. Regularly take noise data readings to update this Element and associated ordinances as necessary to ensure that noise abatement policies and procedures remain up-to-date and appropriate for noise sources in the county.

Policy 1.B.5. Provide sufficient resources within the county for effective enforcement of County codes and ordinances.

Objective 1.C.
Address specific noise sources in Mono County to protect the existing noise quality.

Policy 1.C.1. Projects that propose General Plan amendments that increase the average daily traffic beyond what is anticipated in this General Plan shall not increase cumulative traffic noise to off-site noise-sensitive land uses beyond acceptable levels.

Policy 1.C.2. Developments that may impact noise-sensitive land uses shall include, as appropriate, traffic calming design, traffic control measures, and low-noise pavement surfaces in order to minimize motor vehicle traffic noise.

Policy 1.C.3. Locate new or expanded roads designated in areas where the impact to noise-sensitive land uses would be minimized.

Policy 1.C.4. Coordinate with the California Department of Transportation (Caltrans), the Town of Mammoth Lakes, the Inyo National Forest, the Humboldt-Toiyabe National Forest, the Bureau of Land Management, the Bridgeport Indian Colony, and the Benton Paiute Reservation, as appropriate, for early review of proposed new and expanded highways and road improvement projects in order to design transportation facilities to avoid or minimize impacts to noise-sensitive land uses and to include noise abatement measures in the projects, as necessary, to avoid or minimize impacts to noise-sensitive land uses.

Policy 1.C.5. Minimize noise impacts in areas where recurring intermittent noise may not exceed noise standards but may have other adverse effects.

Action 1.C.5.a. Identify areas where recurring intermittent noise may not exceed noise standards but may have other adverse effects; update this Element and the Noise Ordinance to address those issues, if necessary.

Policy 1.C.6. Work with appropriate agencies to minimize noise impacts from aircraft in areas outside of established airport planning boundaries.

Action 1.C.6.a. Consider collecting noise data for more frequently utilized helipads in the county.

Action 1.C.6.b. Work with the Marine Corps Mountain Warfare Training Center (MCMWTC) to reduce noise impacts from military aircraft and helicopters, particularly over the Antelope Valley.

Action 1.C.6.c. Work with the MCMWTC to reduce the impact of low flying aircraft over significant public use areas, such as Mono Lake and Bodie State Historic Park.

Policy 1.C.7. The County should seek opportunities to inform existing residents and new developments of agricultural-related noises and the County's policies pertaining to the preservation of agriculture in the

county in compliance with the county Right-to-Farm Ordinance (Chapter 24 of the Land Development Regulations).

Action 1.C.7.a. The County should coordinate with appropriate entities to provide technical assistance to agricultural users on abating or eliminating unnecessary noise associated with agricultural production.

Policy 1.C.8. Use Federal Transit Authority (FTA) Guidelines on Noise and Vibration to limit exposure of sensitive land uses to groundborne vibration from transportation sources, construction equipment, and other sources.

Policy 1.C.9. Projects where existing and/or project-related noise levels exceed County noise standards shall provide a project-specific acoustical analysis as part of the project application. The analysis for projects involving blasting and/or vibration shall:

a) be the responsibility of the applicant;

b) be prepared by a qualified acoustical consultant;

c) be subject to review and approval by Mono County;

d) assess the existing noise environment in the general project vicinity;

e) describe the noise generation potential of the proposed project within the project site and on surrounding areas and demonstrate that the amplitude of air blasts and ground-borne vibrations comply with standards in the Mono County Noise Ordinance (Mono County Code, Chapter 10.16). The analysis shall take into consideration site-specific conditions such as the impact on adjoining land uses (including significant wildlife habitat), ground impedance, atmospheric conditions, timing and scheduling of blasting, appropriate notice requirements, and other variables associated with sound and vibration transmission;

f) recommend noise-control measures to avoid or mitigate noise impacts and to ensure compliance with this Element and the Mono County Noise Ordinance; and

g) outline a mitigation monitoring program that provides noise abatement for the project and that evaluates the effectiveness of proposed mitigation measures.