

Sonoma County General Plan 2020

NOISE ELEMENT

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NOISE ELEMENT

1. INTRODUCTION

1.1 PURPOSE

The Noise Element of GP 2020 is a planning document that provides a policy framework for addressing potential noise impacts encountered in the planning process. The Noise Element is intended to provide ways to reduce existing and future noise conflicts. It includes policies and measures to achieve noise compatibility between land uses.

In accordance with State law and guidelines, the Noise Element identifies noise sources and noise sensitive land uses. It quantifies noise levels using noise exposure contours for current and projected conditions within the county. Existing noise Levels are measured as Community Noise Equivalent Level (CNEL) or the Day-Night Average Level (Ldn), which are measurements of total noise exposure at a given location for an average day. This noise exposure information serves as a basis for achieving land use compatibility within each community and provides baseline levels and noise source identification for use in a noise control ordinance or during the review of proposed development projects.

1.2 RELATIONSHIP TO OTHER ELEMENTS

The Noise Element is related to the Land Use, Housing, Circulation and Transit, Open Space and Resource Conservation, and Air Transportation Elements of GP 2020. Recognition of the interrelationship of noise and these elements is necessary to prepare an integrated general plan. The relationship between these elements is briefly discussed below:

Land Use

An objective of the Noise Element is to provide noise exposure information for use in the Land Use Element. When integrated with the Noise Element, the Land Use Element will show acceptable land uses in relation to existing and projected noise levels.

Housing

The Housing Element considers the provision of adequate sites for new housing and standards for housing stock. Since residential land uses are noise sensitive, the noise exposure

information of the Noise Element must be considered when planning the locations of new housing.

Circulation and Transit

The circulation system, which is a major source of noise, must be correlated with the Land Use Element. This is especially true for roadways which carry significant numbers of trucks. Noise Exposure will thus be a decisive factor in the location and design of new transportation facilities, and in the mitigation of noise produced by existing facilities upon existing and planned land uses.

Open Space and Resource Conservation

Excessive noise adversely affects the enjoyment of recreational pursuits in designated open space, particularly in areas where quiet is a valued part of the recreational experience. Thus, noise exposure should be considered in planning for this kind of open space use. Conversely, open space can be used to buffer noise sensitive uses from noise sources by providing setbacks and visual screening.

Air Transportation

The Air Transportation Element (ATE) sets forth operating policies for the County owned Charles M. Schulz Municipal Airport, and establishes the Sonoma County Comprehensive Airport Land Use Plan (CALUP) as the primary policy document addressing land use compatibility and noise issues arising from the six public use airports in the County. The ATE and CALUP contain noise contours and noise standards applicable to proposed development in the vicinity of the airports.

1.3 SCOPE AND ORGANIZATION

The content of a Noise Element and the methods used in its preparation are requirements of California Government Code Section 65302 and the California General Plan Guidelines. The 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.

The Noise Element is organized into four major sections: 1) an introduction, 2) an overview of the existing and future noise environment, 3) noise issues, policies and standards, and 4) an implementation program.

According to the Government Code requirements, noise exposure information should be included in a Noise Element for the following major noise sources:

- Highway and freeways
- Primary arterial and major local streets
- Railroad operations
- Aircraft and airport operations
- Local industrial facilities
- Recreational, entertainment and special events
- Other stationary sources

Noise sensitive uses identified by the Government Code include the following:

- Residences
 - Schools
 - Hospitals, nursing homes
 - Churches, libraries
 - Long term medical or mental care facilities
 - Office building interiors
- Other uses deemed noise sensitive by the local jurisdiction

A Noise Element Technical Reference Document, on file in PRMD, describes in greater detail, the effects of noise on people and techniques for noise control and analysis. It also includes data from the community noise survey and highway noise evaluation. It is a reference for use by Sonoma County during the review of documents or proposals which refer to the measurement and affects of noise.

2. EXISTING AND FUTURE NOISE ENVIRONMENT

2.1 METHODS OF NOISE ANALYSIS

Noise and Its Effects on People

Noise is often described as unwanted sound, and thus is a subjective reaction to the physical phenomenon of sound. Sound is variations in air pressure that the ear can detect. Noise has often been cited as a health problem because it inhibits general well being and contributes to undue stress and annoyance. Noise interferes with sleep, speech, recreation, and tasks demanding concentration or coordination. The result is an increase in public annoyance with the noise source and a decrease in environmental quality. The various noise exposure limits of different



State and Federal agencies range from 75 to 90 dB's to protect hearing over the long term. However, the EPA recommends a level of 55 dB L_{dn} to protect against non-auditory health effects such as hypertension, cardiovascular disease and nervous disorders.

In very quiet environments, virtually any change in local activities will cause an increase in noise levels and a loss of "peace and quiet". Such increases may be considered significant by residents in these areas, even if the measured increase is small

Measuring Sound Levels

Decibel (dB). The most common unit of sound measurement is the decibel, and is abbreviated as dB. The threshold of hearing is considered to be 0 dB, and the range of sounds in normal human experience is 0 to 140 dB.

Weighting Scales (dBA). Sound waves travel at different frequencies. Because the human ear is not as sensitive at some frequencies, different sound weighting scales have been developed. The "A" weighting scale is the most commonly used for environmental noise assessment, as it correlates well with human response to noise sources such as aircraft and traffic. To measure low frequency sound levels, such as blasting, the use of a "C" weighting scale may be more appropriate.

Typical Sound Levels. When an A weighting filter is used to measure sound pressure levels, the results may be expressed as dBA or dB(A) for clarity. Table NE-1 shows typical sound levels and relative loudness for various types of noise environments.

Table NE- 1 Examples of A-Weighted Sound Levels and Relative Loudness

Sound	Sound Level (dBA)	Relative Loudness (approximate)	Relative Sound Energy
Jet aircraft, 100 feet	130	128	10000000
Rock music with amplifier	120	64	1000000
Thunder, snowmobile (operator)	110	32	100000
Boiler shop, power mower	100	16	10000
Orchestral crescendo at 25 feet, noisy	90	8	1000
Busy street	80	4	100
Interior of department store	70	2	10
Ordinary conversation, 3 feet away	60	1	1

Quiet automobile at low speed	50	1/2	0.1
Average office	40	1/4	0.01
City residence	30	1/8	0.001
Quiet country residence	20	1/16	0.0001
Rustle of leaves	10	1/32	0.00001
Threshold of hearing	0	1/64	0

Source: (1) U.S. Department of Housing and Urban Development, "Aircraft Noise Impact -- Planning

Ambient Noise Levels. The ambient (or background or pre-project) noise level is defined as the noise from all sources near and far, and usually refers to the noise level that is present before a noise source being studied is introduced.

Sound Average Level Over Time (L_{eq} , CNEL and LDN). L_{eq} represents the average or equivalent measured energy from all noise events observed or measured during a specified interval of time. Noise exposure contours or noise contours are lines drawn about a noise source representing constant levels of noise energy or exposure. The CNEL and LDN descriptors are variations of the L_{eq} that represent the average noise level for a 24 hour day after including a 10 dB penalty for noise levels occurring at night between the hours of 10:00 p.m. and 7:00 a.m. The CNEL descriptor additionally includes a penalty of 5 dB for noise levels occurring during the evening hours of 7:00 p.m. and 10:00 p.m. The CNEL descriptor is required when preparing noise exposure maps for airports within the State of California. The L_{dn} descriptor has been used in this Noise Element to quantify noise from transportation noise sources. The CNEL and L_{dn} descriptors are generally considered to be equivalent to each other for most community noise environments within ± 1.0 dB.

Sound Level Exceeded During Specified Percentage of Time. (L_{10} , L_{50} , L_{90} , L_{MIN} , L_{MAX} , etc.). If a noise source operates only a few hours a day, averaging the noise over 24 hours may under estimate its nuisance potential (example: amplified music, blasting, drag races). Because many industrial, or stationary, noise sources operate sporadically, the hourly L_{50} and L_{max} are more useful for predicting noise conflicts from such sources than is the L_{dn} . The L_{50} represents the median noise level or noise level exceeded 50% of the time. The maximum (L_{max}) noise level is the highest level observed. To describe less extreme variations in sound levels, other statistical descriptors may be used, such as the L_{10} and L_{50} and L_{90} .

Community Noise Survey

A community noise survey was conducted to document noise exposure in representative areas of the County containing noise sensitive land uses. The following noise sensitive land uses have been identified for the purpose of this survey.

- All residential uses
- Schools
- Long-term care medical facilities, such as hospitals, nursing homes, etc.
- Places of public worship
- Libraries

Noise monitoring sites were selected to be representative of typical conditions where such uses are located. The community noise measurements were conducted in July 2002, and indicate that typical cumulative noise levels in noise-sensitive areas range from 45 to 55 dB L_{dn} . The community noise survey results indicated that median (L_{50}) noise level values in most locations are relatively low, especially at night. The relatively low noise levels are typical of small communities and rural areas. In more developed areas, increased local traffic will result in higher noise levels, in the range of 55 to 65 dB L_{dn} . Noise level data collected during the community noise survey are summarized in the Technical Reference Document.

2.2 NOISE SOURCES IN SONOMA COUNTY

Overview of Sources

The noise exposure information developed during the preparation of the Noise Element does not include all conceivable sources of industrial or commercial noise within Sonoma County, but rather focuses on the existing sources of noise that have been identified by the County as being potentially significant. As the policies of this Noise Element are applied in the future, it is likely that other potentially significant sources will be identified.

The following potentially significant sources of community noise are addressed in this Noise Element and are shown on Figure NE-1:

- Traffic on State highways and major County roads
- Aircraft operations at public use airports
- Industrial and heavy commercial activities
- Northwest Pacific Railroad (NWPRR) line operations
- Infineon (Sears Point) International Raceway
- The Geysers geothermal power plants
- Solid waste landfills and transfer stations
- Concerts, special events and other activities generating amplified outdoor sound

Highways/Roadways

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model was used to develop L_{dn} contours for roadways in Sonoma County. The FHWA Model is the analytical method currently favored by most State and local agencies. Existing traffic volume data were

obtained from Caltrans and the Sonoma County Department of Transportation and Public Works. Truck volume estimates were based on the data provided by Caltrans, and upon BBA staff observations of relative truck mix on County roads. Future traffic volumes are from the Circulation and Transit Element, and were calculated for 2020 traffic volumes.

The most significantly noise impacted highways and roadways are shown on Figure NE-1 and represent future 2020 traffic volumes. The Technical Reference Document, on file with PRMD, lists the distances from roadway center lines to the existing and future 60 and 65 dB L_{dn} contours for State highways and County roads having average daily traffic volumes (ADT) greater than 5,000 vehicles per day.

Noise contours do not account for shielding caused by local buildings or topographical features and should therefore be considered as worst case estimates of noise exposure along roadways.

Airports

Noise exposure contours for the public use airports in the County have been prepared by the Sonoma County Airport Land Use Commission (ALUC) and represent future noise levels. The 55, 60, 65, 70 and 75 dB CNEL contours are contained in the CALUP, adopted in January 2001 and the Air Transportation Element Figures AT-4 through AT-9. Noise exposure contours for airports use the Community Noise Equivalent Level (CNEL) metric as required by California Airport Noise Regulations (CCR Title 21), and by the ALUC.

Railroads

The longest railroad route, Northwest Pacific Railroad (NWPRR), in Sonoma County roughly parallels Highway 101 the entire length of Sonoma County. There is also a short railroad segment from the Schellville area near the City of Sonoma connecting to the NWPRR near Port Sonoma. These segments are out of service at this time, though they have operated in recent years for freight service.

Railroad operations in Sonoma County, during the last decade, consisted of sporadic through freight and local switching operations by the Northwestern Pacific Railroad. Noise levels from freight railroad operations were evaluated based upon the worst case assumption of two trains during daytime hours and two trains at night. The CNEL from this level of operation would exceed 60 dBA within about 300 feet of the tracks. At distances of about 100 feet from the tracks, maximum noise levels from trains would range from 80 to 90 dBA. L_{dn} contours for railroad operations are available at the Sonoma County PRMD.

The NWPRR railroad line is being studied currently for potential passenger rail service. On January 1, 2003 a new regional transportation district was established to oversee the development and implementation of passenger rail service in Sonoma and Marin Counties. Maximum noise levels due to passing trains at a distance of 100 feet may be as high as 88 dB

without the use of warning horns, and 101 dB with the use of the horn. The Sound Exposure Levels (SEL) for passing trains are expected to be in the range of 101 dB to 106 dB at 100 feet, depending on horn use.

Infineon (Sears Point) International Raceway

The Infineon Raceway (formerly Sears Point Raceway) is located on Highway 121, north of the intersection of Highways 37 and 121. Noise related activities at the racetrack are closely regulated by the conditions of approval for the current land use permit, which require continuous noise monitoring at three locations, and reporting on a quarterly basis.



Infineon Raceway has both road racing and drag racing. The facility has been in existence since 1968 and has operated pursuant to a use permit originally issued on December 21, 1967 which has been modified from time to time. The site is relatively distant from all but a few residential and related noise sensitive receptors.

The race schedule includes a variety of professional and amateur road races, motorcycle races, classic car meets, go-cart races, car club outings and drag racing. It also has a race driving school Monday through Thursday. Most racing events occur on weekend days.

Maximum noise level contours for worst case drag activities and the NASCAR have been prepared and studied. Of all the racing activities, drag racing is the noisiest. Control measures for drag racing are limited to shielding by barriers or topography, curfews or prohibition of racing.

For other types of racing, mufflers may be a viable means of noise control, if required on a regional or national basis. The SCCA and AMA, for example, impose muffler requirements on autos and motorcycles competing in events sanctioned by these bodies. As a result, it is very important to separate noise sensitive land uses from the Raceway.

The noise level data collected thus far indicate that noise sensitive land uses would not be compatible in close proximity to the racetrack. Future development proposals within the general area should be carefully evaluated for noise compatibility, including a review of the accumulated noise monitoring data.

The performance standards of this Noise Element included in Table NE-2 are not intended to apply to the raceway facility described as existing in the setting Section of the May 1999 Draft

Amended Environmental Impact Report for the Sears Point Raceway Revised Master Plan Project. Noise impacts from future new uses or changes in use at the Raceway, to the extent that such new or changed uses require a new or amended use permit, are intended to be subject to evaluation based on the performance standards in Table NE-2.

Heavy Commercial and Industrial

The production of noise is an inherent part of many industrial, commercial and agricultural processes, even when the best available noise control technology applied. Noise production within industrial or commercial facilities is controlled indirectly by Federal and State employee health and safety regulations (OSHA and Cal-OSHA), but exterior noise emissions from such operations have the potential to exceed locally acceptable standards at nearby noise sensitive land uses.

Noise exposure information for representative industrial noise sources is contained in the Noise Element Technical Reference Document.

Predicted distances to the 45 dBA and 50 dBA hourly L_{50} noise contours were prepared for representative industrial noise sources where such contours would extend offsite (Table 2-3 of the Technical Reference Document). These generalized contours should be used as a screening device to determine when potential noise related land use conflicts may occur, and when site specific studies may be required to properly evaluate proposed industrial noise at a given noise sensitive receiver location. Following are two examples of such representative sites:

Wood Remanufacturing Operation. Activities include lumber sawing and heavy truck operations. The approximate distances to the 45 and 50 dB hourly L_{50q} contours were 1,040 feet and 580 feet, respectively, measured from about 150 feet inside the main entry gate.

Bulk Landscape Supply Company. Typical operations include heavy truck operations and grinding of materials. The approximate distances to the 45 and 50 dB L_{50} contours are 1,340 feet and 750 feet, respectively, measured from about 250 feet inside the entry gate.

Potential new industrial noise sources other than wineries and similar agricultural processing facilities will be located in the areas designated for industrial use or heavy commercial as shown on the Land Use Plan. Projects in those locations and in adjacent residential areas will be reviewed for consistency with the performance standards in this Element, including the identification of low frequency noise sources (such as blasting) that may warrant the need for noise analysis using the "C" noise weighting scale.

Mineral Extraction

Mineral resource extraction and processing, which involves the use of noise producing machinery, is subject to the policies of the Aggregate Resources Management (ARM) Plan and Sonoma County Code Section 26A-09-010. These areas will be considered as potential noise sources during review of proposed nearby noise sensitive uses. Noise sources associated with mineral resource extraction include the use of heavy equipment and may involve blasting at hillside quarries.



Generally, mineral extraction and processing activities include the processing and loading of sand, gravel, concrete and rocks, serving anywhere between one and twenty semi trucks per day. Noise producing equipment operated at the facility includes conveyors, shakers, rock crushers, and loaders. Blasting operations may also occur. Representative measured noise levels were as high as an L_{eq} of 84.8 dB and an L_{max} of 93.8 dB (dominated by a truck exiting the site). Representative approximate distances to the 45 and 50 dB hourly L_{50} contours varied from 1,000 to 5,200 feet and 560 to 2,970 feet, respectively, measured from 100 to 500 feet inside the entry gate.

The ARM plan states that maximum acceptable noise levels for all aggregate operations shall be as set forth in the Noise Element of GP 2020. However, more stringent noise standards may be required when particular local circumstances warrant additional protection of potentially affected areas. New operations or expanded operations would be subject to Use Permit and environmental review.

Geothermal Development

Geothermal power plants are located in the Geysers area. The normal operation of geothermal power plants produces relatively constant noise levels from cooling towers, with occasional steam releases. The greatest potential for noise impacts occurs during site development, when drilling may result in an uncontrolled steam release, or when it is necessary to "blow out" steam lines during construction or maintenance. Temporary mufflers may be used to reduce steam release noise during construction, and permanent rock mufflers are frequently employed for routine steam releases during site operation. The remote location of the Geysers area, and the absence of nearby residential areas, limits the potential for noise related land use conflicts. In

addition, the County has set a noise limit of 65 dB at the boundaries of leaseholds. Noise standards are established through the Use Permit process for geothermal development projects.

Solid Waste Disposal

Solid waste operations are regulated by various State laws, including the requirement for each county to have an Integrated Waste Management Plan. The current Countywide Integrated Waste Management Plan (CoIWMP) was adopted on October 15, 2003. The EIR assessed noise impacts to surrounding noise sensitive land uses, and established mitigations that are operational conditions for the main landfill and various transfer stations.

Noise associated with solid waste disposal and transfer stations is produced by the use of engine powered equipment and by heavy truck movements. During operating hours, landfill operations involve the use of bulldozers, scrapers, compactors, loaders, and watering trucks. At transfer sites, noise is produced by the use of loaders and transient heavy trucks. The access roads for landfills and transfer stations usually experience a greater proportion of heavy truck traffic than otherwise similar roads. As a result, areas containing roads accessing solid waste facilities may experience higher traffic noise levels than other areas of the County.

Wineries

Noise produced at wineries can be of concern during the “crush” season, when trucks deliver grapes to the wineries, and forklifts transfer grapes into the wineries. Truck deliveries associated with bulk wine or bottled wine can also be a source of noise complaint from adjacent residential uses. Noise producing equipment used at wineries includes air compressors, grape presses, exhaust fans, chillers and bottling plants. Use of this equipment and other related activities may create noise levels above and different from the ambient noise environment. File data indicate that average hourly noise levels from properly muffled vehicles and equipment operating at wineries are typically less than 60 dB at a distance of 300 feet from the source. Nearby residents may complain about the noise from these activities, but given the seasonal nature of winery activities, noise impacts from normal winery operations are usually considered to be less than significant.

Special Events

Special events, both single and ongoing, include such activities as festivals and concerts, which may include the use of amplified sound systems. Often located at wineries, these activities can produce unacceptable noise levels, especially during evening hours, and the associated traffic problems may heighten public concern about the noise producing activity.

Given the potential conflicts due to noise associated with events, concerts, and other such activities, noise will continue to be considered in the review process for proposals which allow special events.

3. NOISE ISSUES, POLICIES AND STANDARDS

3.1 LAND USE COMPATIBILITY AND PROJECT REVIEW

Noise level performance standards in Table NE-2 are to be applied as performance standards for noise producing land uses which may affect noise sensitive land uses and new noise sensitive land uses proposed near noise generating land uses.

Infrequent single events such as passage of a train, truck, or airplane may interfere with adjacent uses even though the cumulative noise exposure is within acceptable limits. These events call for a single event noise standard. The potential for sleep disturbance is often the main concern in these cases.

- GOAL NE-1:** **Protect people from the adverse effects of exposure to excessive noise and to achieve an environment in which people and land uses may function without impairment from noise.**
- Objective NE-1.1:** Provide noise exposure information so that noise impacts may be effectively evaluated in land use planning and project review.
- Objective NE-1.2:** Develop and implement measures to avoid exposure of people to excessive noise levels.
- Objective NE-1.3:** Protect the present noise environment and prevent intrusion of new noise sources which would substantially alter the noise environment.
- Objective NE-1.4:** Mitigate noise from recreational and visitor serving uses.

The following policies shall be used to achieve the above objectives:

Policy NE-1a: Designate areas within Sonoma County as noise impacted if they are exposed to existing or projected exterior noise levels exceeding 60 dB Ldn, 60 dB CNEL, or the performance standards of Table NE-2.*

Policy NE-1b: Avoid noise sensitive land use development in noise impacted areas unless effective measures are included to reduce noise levels. For noise due to traffic on public roadways, railroads and airports, reduce exterior noise to 60 dB Ldn or less in outdoor activity areas and interior noise levels to 45 dB Ldn or less with windows and doors closed. Where it is not possible to meet this 60 dB Ldn standard using a practical application of the best available noise reduction technology, a maximum level of up to 65 dB Ldn may be allowed but interior

noise level shall be maintained so as not to exceed 45 dB Ldn. For uses such as Single Room Occupancy, Work-Live, Mixed Use Projects, and Caretaker Units, exterior noise levels above 65 dB Ldn or the Table NE-2 standards may be considered if the interior standards of 45 dB Ldn can be met. For schools, libraries, offices, and other similar uses, the interior noise standard shall be 45 dB Leq in the worst case hour when the building is in use.*

Policy NE-1c: Control non-transportation related noise from new projects. The total noise level resulting from new sources shall not exceed the standards in Table NE-2 as measured at the exterior property line of any adjacent noise sensitive land use. Limit exceptions to the following:

- (1) If the ambient noise level exceeds the standard in Table NE-2, adjust the standard to equal the ambient level, up to a maximum of 5 dBA above the standard, provided that no measurable increase (i.e. +/- 1.5 dBA) shall be allowed
- (2) Reduce the applicable standards in Table NE-2 by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises, such as pile drivers and dog barking at kennels
- (3) Reduce the applicable standards in Table NE-2 by 5 decibels if the proposed use exceeds the ambient level by 10 or more decibels
- (4) For short term noise sources which are permitted to operate no more than six days per year, such as concerts or race events, the allowable noise exposures shown in Table NE-2 may be increased by 5 dB. These events shall be subject to a noise management plan including provisions for maximum noise level limits, noise monitoring, complaint response and allowable hours of operation. The plan shall address potential cumulative noise impacts from all events in the area.
- (5) Noise levels may be measured at the location of the outdoor activity area of the noise sensitive land use, instead of the exterior property line of the adjacent noise sensitive land use where:
 - (a) the property on which the noise sensitive use is located has already been substantially developed pursuant to its existing zoning, and
 - (b) there is available open land on those noise sensitive lands for noise attenuation.

This exception may not be used on vacant properties which are zoned to allow noise sensitive uses.*

Table NE- 2 Maximum Allowable Exterior Noise Exposures for Non-transportation Noise Sources

Hourly Noise Metric ¹ , dBA	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
L50 (30 minutes in any hour)	50	45
L25 (15 minutes in any hour)	55	50
L08 (4 minutes 48 seconds in any hour)	60	55
L02 (72 seconds in any hour)	65	60
¹ The sound level exceeded n% of the time in any hour. For example, the L50 is the value exceeded 50% of the time or 30 minutes in any hour; this is the median noise level.		

Policy NE-1d: Consider requiring an acoustical analysis prior to approval of any discretionary project involving a potentially significant new noise source or a noise sensitive land use in a noise impacted area. The analysis shall:

- (1) Be the responsibility of the applicant,
- (2) Be prepared by a qualified acoustical consultant,
- (3) Include noise measurements adequate to describe local conditions,
- (4) Include estimated noise levels in terms of Ldn and/or the standards of Table NE-2 for existing and projected future (20 years hence) conditions, based on accepted engineering data and practices, with a comparison made to the adopted policies of the Noise Element. Where low frequency noise (ex: blasting) would be generated, include assessment of noise levels and vibration using the most appropriate measuring technique to adequately characterize the impact,
- (5) Recommend measures to achieve compliance with this Element. Where the noise source consists of intermittent single events, address the effects of maximum noise levels on sleep disturbance,
- (6) Include estimates of noise exposure after these measures have been implemented, and
- (7) Be reviewed by the Permit and Resource Management Department and found to be in compliance with PRMD guidelines for the preparation of acoustical analyses.*

Policy NE-1e: Continue to follow building permit procedures to ensure that requirements based upon the acoustical analysis are implemented.

Policy NE-1f: Require development projects that do not include or affect residential uses or other noise sensitive uses to include noise mitigation measures where necessary to maintain noise levels compatible with activities planned for the project site and vicinity.

Policy NE-1g: Enforce the State Noise Insulation Standards (Title 24, Part 2, California Administrative Code and Appendix Chapter 12 of the California Building Code) concerning new multiple occupancy dwellings.*

Policy NE-1h: Prepare and consider a noise control ordinance to regulate existing noise sources as follows:

- (1) The draft ordinance shall be prepared by County Counsel with the assistance of the Public Health Department, the Sheriff's Department, and PRMD.
- (2) Consider ONC guidelines and ordinances of other counties.
- (3) The intent of the ordinance shall be to protect persons from existing or future excessive levels of noise which interfere with sleep, communication, relaxation, health or legally permitted use of property.
- (4) Excessive levels of noise shall be defined as levels which exceed the standards of Table NE-2 and other policies of the Noise Element.
- (5) In unincorporated areas of the County, it shall be unlawful to create noise which exceeds the standards of Table NE-2, as measured at the exterior of any noise sensitive use.
- (6) The noise ordinance may contain maximum allowable levels of interior noise created by exterior sources.
- (7) The ordinance may exempt or modify noise requirements for agricultural uses, construction activities, school functions, property maintenance, heating and cooling equipment, utility facilities, waste collection and other sources.
- (8) The ordinance shall include responsibilities and procedures for enforcement, abatement and variances.*

Policy NE-1i: County equipment and vehicles shall comply with adopted noise level performance standards consistent with the best available noise reduction technology.

Policy NE-1j: Encourage the California Highway Patrol to actively enforce sections of the California Vehicle Code relating to adequate vehicle mufflers and modified exhaust systems.

Policy NE-1k: Incorporate into the Development Code the standards and policies of the Noise Element, where appropriate.*

Policy NE-11: Review and update the Noise Element to ensure that noise information and policies are consistent with regulations and conditions within the community.

Policy NE-1m: Consider requiring the monitoring of noise levels for discretionary projects to determine if noise levels are in compliance with required standards. The cost of monitoring shall be the responsibility of the applicant.*

3.2 MANAGEMENT OF TRANSPORTATION RELATED NOISE

Transportation sources are by far the most significant sources of environmental noise in Sonoma County. They include vehicular traffic, especially trucks, rail operations, and aircraft overflights in the approach areas to airports. Figure NE-1 shows major highways, railroads, and public use airports. An important part of planning for a healthful environment is the avoidance of unnecessary transportation noise. The Circulation and Transit Element includes policies intended to reduce traffic



congestion and keep traffic flowing smoothly, thereby helping lower expected future noise levels. The Air Transportation Element includes policies limiting noise exposure from aircraft operations.

GOAL NE-2: **Confine the noise impacts from transportation facilities to the smallest feasible land areas and to assure that any development therein be compatible with the level of noise exposure.**

Objective NE-2.1: Design and manage transportation systems to produce the lowest feasible noise levels and impacts on noise sensitive land uses.

Objective NE-2.2: Provide highway, railroad, and air transportation systems and services so that the extension of the boundaries of projected 60 dBA noise contours for 2020 is discouraged.

The following policies, in addition to those of the Air Transportation and Circulation and Transit Elements, shall be used to achieve these objectives:

Policy NE-2a: Make available to the public all maps or data on hand concerning the existing or future noise levels generated by transportation sources.

Policy NE-2b: When not in conflict with Scenic Resource policies, encourage installation of sound barriers, noise reducing pavement types, or other noise reducing solutions on roadways in non industrial urban areas where an exterior noise level of 65 dB Ldn or more is attained and residences or other noise sensitive uses exist. Encourage installation of sound barriers or other sound mitigating structures adjacent to roadways in other areas where significant noise sensitive land uses exist.*

Policy NE-2c: Consider using truck routing, speed limits, signal timing and other traffic control measures to reduce impacts on noise sensitive uses.

Policy NE-2d: Consider measures to reduce peak traffic volumes as a means to reduce highway related noise.

Policy NE-2e: Where practical, select route alignments for new roadways and major improvements to existing highways to avoid or minimize noise impacts on noise sensitive land uses.

Policy NE-2f: Where practical, include noise control measures (based on vehicular volume and speed) in County funded construction of new roadways and additional through travel lanes to maintain noise compatibility with noise sensitive land uses. The goal of these measures shall be to prevent the road project from causing the total exterior noise level to increase above 60 dBA Ldn, as estimated adjacent to dwellings and other noise sensitive primary uses. Where full implementation of such measures is not possible, desirable or appropriate, the reasons for that determination shall be stated clearly by County decision makers.

4. NOISE ELEMENT IMPLEMENTATION PROGRAM

Noise Program 1: Incorporate Noise Analysis into the Permit Review Procedures

Program Description: Special permit review procedures will be established for projects which involve generation of significant noise levels and projects which are located in noise impacted areas. Acoustical reports may be prepared and mitigating measures required for projects. Noise attenuation measures may be included in the design review manual (Policy reference: NE-1b, 1c, 1d, 1f, 1m).

Noise Program 2: Adopt a Noise Ordinance*

Program Description: Preparation of draft ordinance by County Counsel, PRMD, Sheriff, and Health Services. The ordinance is to include noise performance standards expressed in Table NE-2 and others as appropriate. Exemptions, measurement methods, and procedures for variances and enforcement are to be included (Policy reference: NE-1h).

Noise Program 3: Develop a Public Noise Education Program

Program Description: Develop informational handouts for display in the Customer Service area, and for distribution to applicants, that provide information to the public and applicants about practices that will reduce noise impacts (Policy reference: NE-2a).