

Noise Technical Background Report

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I. INTRODUCTION

State law requires a Noise Element as part of all city and county General Plans. Noise Elements are required to identify noise problems in the community and work towards their resolution. The Marin County Noise Element was first adopted as part of the countywide plan in 1975. Since that time, the Noise Element has been revised once, as a part of the 1994 Countywide Plan update. As part of the update for the 1994 Noise Element, a comprehensive set of noise measurements was conducted throughout the county to provide information on the noise environment in the county at that time. The previous Noise Element update included current and projected future noise levels for major noise sources, including Highway 101 and major county roads, the heliport adjacent to Richardson Bay and the airport at Gnoss Field. The Noise Element also contained objectives, policies, and programs for controlling noise for existing and future development. As part of the 2001 Countywide Plan Update, the noise measurements conducted in 1987 have been repeated to assess the magnitude of changes in noise levels throughout the county. When the traffic analysis for existing and future conditions is completed, the noise contours for the county will be updated accordingly, as will any changes in the noise generated by Gnoss Field activity and the Richardson Bay heliport. Additionally, since adoption of the 1994 Countywide Plan, several new noise issues have been identified in the county, specifically, noise generated by the San Rafael Rock Quarry on Point San Pedro Road and jet aircraft overflights. This background report describes the current noise environment in the County of Marin and reviews existing Countywide Plan goals and policies to stimulate discussion as to whether changes should be made to county policies to reflect current issues.

II. REGULATORY FRAMEWORK

Government Code Section 65302(f) requires:

A noise element shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

- Highways and freeways.
- Primary arterials and major local streets.
- Passenger and freight on-line railroad operations and ground rapid transit systems.
- Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
- Local industrial plants, including, but not limited to, railroad classification yards.
- Other ground stationary sources identified by local agencies as contributing to the community noise environment.

Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day/night average level (L_{in}). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive.

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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.

The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

III. MEASUREMENT AND EFFECTS OF NOISE

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is the amplitude of sound waves combined with the reception characteristics of the ear. Loudness may be compared with the height of an ocean wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of ten decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its level. Each ten decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same



TABLE I DEFINITIONS OF ACOUSTICAL TERMS

TERM	DEFINITIONS
Decibel, dB	A unit 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 (20 micronewtons per square
	meter).
Frequency, HZ	The number of complete pressure fluctuations per
	second above and below atmospheric pressure.
A-Weighted Sound Level, dB	The sound pressure level in decibels as measured on a
	sound level meter using the A-weighting filter network.
	The A-weighting filter de-emphasizes the very low and
	very high frequency components of the sound in a
	manner similar to the frequency response of the human
	ear and correlates well with subjective reactions to noise.
	All sound levels in this report are A-weighted, unless
	reported otherwise.
$L_{01}, L_{10}, L_{50}, L_{90}$	The A-weighted noise levels that are exceeded 1%, 10%,
	50%, and 90% of the time during the measurement
	period.
Equivalent Noise Level, Leq	The average A-weighted noise level during the
	measurement period.
Community Noise Equivalent Level,	The average A-weighted noise level during a 24-hour day,
CNEL	obtained after addition of 5 decibels in the evening from
	7:00 pm to 10:00 pm and after addition of 10 decibels to
	sound levels measured in the night between 10:00 pm and
	7:00 am.
Day/Night Noise Level, Lan	The average A-weighted noise level during a 24-hour day,
	obtained after addition of 10 decibels to levels measured
	in the night between 10:00 pm and 7:00 am.
L _{max} , L _{min}	The maximum and minimum A-weighted noise level
	during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far.
	The normal or existing level of environmental noise at a
	given location.
Intrusive	That noise which 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 ambient
	noise level.

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TABLE 2

TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

At a Given Distance From Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
	140		
Civil Defense Siren (100')	130		
Jet Takeoff (200')	120		Pain Threshold
	110	Rock Music Concert	
Diesel Pile Driver (100')	100		Very Loud
	90	Boiler Room	
Pneumatic Drill (50')	80	Printing Press Plant	
Vacuum Cleaner (10')	70	In Kitchen With Garbage Disposal Running	Moderately Loud
	60	Data Processing Center	
Light Traffic (100')	50	Department Store	
Large Transformer (200)	40	Private Business Office	Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10 0		Threshold of Hearing

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acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq} . The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus one dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus one to two dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level, CNEL, is a measure of the cumulative noise exposure in a community, with a five dB penalty added to evening (7:00 pm - 10:00 pm) and a ten dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The Day/Night Average Sound Level, Lth, is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

A. EFFECTS OF NOISE

I. Hearing Loss

- Wile physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.
- The Occupational Safety and Health Administration (OSHA) has a noise exposure standard which is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

2. Sleep and Speech Interference

◆ The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA Ltm. Typically, the highest steady traffic noise level during the daytime is about equal to the Ltm and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12 to 17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA Ltm with open windows and

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65-70 dBA L_{in} if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to have their windows closed, those facing major roadways and freeways typically need special glass windows.

3. Annoyance

Attitude surveys are used for measuring the annovance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{in} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoved, the threshold for ground vehicle noise is about 55 dBA L_{th}. At an L_{th} of about 60 dBA, approximately 2 percent of the population is highly annoyed. When the L_{in} increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population. There is, therefore, an increase of about one percent per dBA between an L_{in} of 60-70 dBA. Between an $L_{\rm in}$ of 70-80 dBA, each decibel increase increases by about 2 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the L_{in} is 60 dBA, approximately ten percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about two percentage points to the number of people highly annoved. Above 70 dBA, each decibel increase results in about a three percent increase in the percentage of the population highly annoved.

IV. COUNTY NOISE EXPOSURE

By far, the most pervasive and significant noise source in Marin County is traffic noise. Highway 101 is a major noise source, but county roads also generate high levels of noise particularly close to the thoroughfares. In 1987 a noise survey was undertaken to quantify noise measurements at six locations. This study was repeated in 2001 and 2005. The following discussion describes the similarities and differences in the noise environments experienced over the last 18 years.

A. TRAFFIC NOISE

In July 2001 and July 2005, a noise monitoring survey was conducted at ten sites representative of noise sensitive locations throughout Marin County. The locations of these sites are shown in Exhibit 1. These locations consisted of sites along highways, freeways, primary arterials, and major local streets; the principal sources of noise in the county. Five of these measurements were conducted at the approximate locations of the six sites measured at in 1987. Four site locations were added based on recommendations of county staff. The other site (LT2) was in the vicinity of the 1987 location but in order to locate the noise meter in a secure location it had to be placed closer to Highway 101. The noise survey sites were selected to obtain noise measurements which reflect a range of land use, topographical, and traffic noise source conditions. These locations are listed in Table 3.



Noise contours depicting the existing noise exposure along the major roads in Marin County are shown in Exhibit 2.

In general, the highest noise levels were measured either in the late morning hours (7AM to 11AM) or the early evening hours (4PM to 6PM); during typical commute times. Table 4 lists the measured L_{in} for all sites.

1. Changes in the Traffic Noise Environment of Marin County Since 1987

By comparing noise level data collected in 1987 with the data collected from revisiting the sites in 2001 and 2005, it can be seen that noise levels have not increased significantly throughout the county. Hourly noise pattern trends have also remained similar over the past 14 years (Exhibit 3); however, noise levels in 2001 appear to start increasing earlier in the morning than in 1987. This could possibly be due to more early morning traffic and/or shift in commute trends.





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TABLE 3NOISE SURVEY LOCATION DESCRIPTIONS

Site Locations	Present Land Use	Topography	Noise Source
*LT-1: Hwy 37 at Atherton Rd.	Industrial, Commercial	Flat / Surrounded by Hills	Hwy 37 Railroad
*LT2: St. Vincent's Rd.	Agricultural, Residential, Institutional	Flat / Hill to the North	Hwy 101
*LT3: Sir Francis Drake Blvd. Near Woodacre	Residential, Commercial	Valley	Sir Francis Drake Blvd.
*LT4: Petaluma Point Reyes Road. South of Novato Blvd.	Industrial, Commercial	Valley	Pt. Reyes / Petaluma Rd.
*LT5: Hwy 1 South of Point Reyes Station	Residential, Commercial	Flat / Hills	Hwy 1
*LT6: Flea Market(87) / Shopping Center(01) Parking Lot off Hwy 101 in South Marin Co.	Commercial	Flat	Hwy 101
LT7: Lucas Valley Rd.	Residential, Commercial	Valley	Lucas Valley Rd.
LT8: Hwy 1 North of Stinson Beach	Residential, Commercial	Inlet	Hwy 1
LT9: Novato Blvd. Near Stafford Lake	Recreational, Residential	Hills	Novato Blvd.
LT10: Hwy 101 at Atherton Ave. Exit	Residential, Commercial, Recreational	Flat	Hwy 101 Frontage Rd.

* Indicates a site measured at in 1987

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Site Locations	Ldn Measured in 1987	Ldn Measured in 2001	Ldn Measured in 2005
*LT-1: Hwy 37 at Atherton Rd.	71	71	73
LT2: St. Vincent's Rd.	56	62	63
*LT3: Sir Francis Drake Blvd. Near	71	71 (August)	73
Woodacre		72 (December)	
*LT4: Petaluma Point Reyes Road.	67	67	68
South of Novato Blvd.			
*LT5: Hwy 1 South of Point Reyes	62	65	62
Station			
*LT6: Flea Market (87) / Shopping	75	76	76
Center(01) Parking Lot off Hwy 101			
in South Marin Co.			
LT7: Lucas Valley Rd.	Site not	70	72
	measured in		
	1987		
LT8: Hwy 1 North of Stinson Beach	Site not	60	61
	measured in		
	1987		
LT9: Novato Blvd. Near Stafford	Site not	64	65
Lake	measured in		
	1987		
LT10: Hwy 101 at Atherton Ave. Exit	Site not	70	69
	measured in		
	1987		

TABLE 4	
ROADWAY NOISE COMPARISON, 1987 AND 200	01

* The exact location of measurement LT2 in 1987 could not be repeated in 2001.





Location LT-2 - St. Vincents Drive off Hwy 101. Weekday Noise Levels Measured in 2001. Ldn - 62.









Location LT-4 - Petaluma Point Reyes Road. Weekday Noise Levels Measured in 1987 and 2001. 1987 Ldn - 67, 2001 Ldn - 67.



Location LT-5 - Hwy 1, South of Point Reyes Station. Weekday Noise Levels Measured in 1987 and 2001. 1987 Ldn - 62, 2001 Ldn - 65.



Location LT-6 - Flea Market / Shopping Center Parking Lot off Hwy 101. Weekday Noise Levels Measured in 1987 and 2001. 1987 Ldn - 75, 2001 Ldn - 76.



EXHIBIT 3: NOISE LEVEL TREND FROM MEASURED 24-HOUR NOISE DATA (cont'd.)



Location LT-8 - Highway 1 North of Stinson Beach. Weekday Noise Levels Measured in 2001. Ldn - 60.



Location LT-9 - Novato Blvd. Near Stafford Lake Bike Entrance. Weekday Noise Levels Measured in 2001. Ldn - 64.







EXHIBIT 3: NOISE LEVEL TREND FROM MEASURED 24-HOUR NOISE DATA (cont'd.)

Since the noise monitoring survey for this background report was completed in the summer it was decided to repeat one measurement in the winter when school was in session.

The additional noise measurement was made at the same site as LT-3; approximately 45 feet from the center line of Sir Francis Drake Blvd just east of the town of Woodacre. The 24-hour measurement was made over December 17-18, 2001, (Monday to Tuesday), while Marin County schools were in session. The results of this noise measurement compared to measurements made in the same location in 1987 and August 2001 are shown in Exhibit 3. In general, hourly noise levels for the December measurement were slightly higher than previous measurements. The resulting Ldn was 72dBA, compared to 71dBA measured in August and 1987. When repeating measurements, it is normal to have a variance of up to 2 dB. The 1 dB change measured at LT-3 is indistinguishable to the human ear and is insignificant.

The results of the noise monitoring survey, supplemented by traffic noise modeling, were used to prepare the existing traffic noise exposure contours in Exhibit 2. The contours give a visual representation of the current traffic noise exposure along the major streets and highways in the county. The noise contours can be used to evaluate proposed land uses for compatibility with Program N-1.1b "Noise Guidelines for New Projects Exposed to Transportation-Generated Noise." If a residential development is, for example, proposed within the 60 Lth noise contour shown on the noise contour map, then the general plan requires an acoustical analysis for this project showing how indoor and outdoor noise exposure will be controlled. The noise levels contained in the Noise Element Policies are the county's goals and the noise contour map is helpful for implementing the goals.

B. COMMERCIAL AIRCRAFT OVERFLIGHTS

Commercial aircraft overflight noise has become an issue of concern in Marin County. The California Division of Aeronautics is in charge of enforcing airport noise regulations for all airports within the State of California. Airports are not to expose residences to a community noise equivalent level (CNEL) of greater than 65 dB. The 65 dB CNEL noise contour for Oakland International and San Francisco



International Airports are not near Marin County. Nonetheless, aircraft overflight noise has been the subject of increased public awareness. Recently the County has undertaken efforts to dialogue with the Federal Aviation Administration to exam this problem. As a result of these efforts, it has been determined that there are flight paths over Marin County from both Oakland International Airport and San Francisco International Airport. Additionally, at the request of the County, San Francisco International Airport has conducted noise measurements at locations in Tiburon, Bolinas and Pt. Reyes to quantify aircraft overflight noise levels. These studies have shown that noise generated by individual jets reaches maximum overflight noise levels of 45 to 70 dBA at these locations. The aircraft-generated CNEL ranged from 27 to 39 dB in Pt. Reyes/Bolinas and from 19 to 44 dB in Tiburon. While these are not high noise levels, in the quieter areas of the County remote from traffic noise, the sound of aircraft overflights does stand out.

The noise generated by commercial aircraft in Marin County does not exceed any standards for health or land use compatibility. As far as can be ascertained from the literature, the noise generated by commercial aircraft overflights does not pose a threat to wildlife, although this issue has not been evaluated in Marin County.

C. STATIONARY SOURCES

The San Rafael Rock Quarry is an example of a significant stationary noise source in Marin County. The quarry has recently been the subject of complaints from the neighbors living in the vicinity. Noise measurements have indicated that the day/night average noise level at the closest residential development is about 49 dBA. This level is significantly below the level generally recommended as compatible with residential development but is an example of how even relatively low noise levels can generate adverse community response. In addition to the noise generated at the quarry site itself, the trucks to and from the quarry generate a significant amount of noise along San Pedro Road. The Lim outside the closest residences to San Pedro Road reaches 70 dBA. Truck volumes routinely reach 58 to 65 trucks per hour during quarry operating hours. Major truck activity to and from the quarry is confined to the hours of 6:00 AM to 3:00 PM.

D. OTHER SOURCES

In addition to the noise sources described above, there are other noise sources with more localized impact. These include Gnoss Field, Richardson Bay Heliport, and even more localized sources, such as dog kennels. The noise generated by Gnoss Field and the Richardson Bay Heliport was described in the 1991 Noise Element and has not changed noticeably since then.

V. COUNTYWIDE PLAN NOISE ELEMENT POLICY REVIEW

The existing Noise Element goals and policies detail the procedures to be followed to develop land uses that are compatible with the onsite noise environment, and set forth criteria for evaluating impacts of new projects on existing land uses. Table 5 provides a review of the policies and programs from the current Noise Element.



Areas where additional policy guidance in the Noise Element will be valuable are as follows:

- Consider developing a quantitative noise ordinance that would apply to existing noise sources in the County. It would be used to resolve disputes among neighbors and control noise intrusion from one property to another. There are pros and cons associated with having a quantitative noise ordinance and the development of any ordinance should include a public input process to arrive at the most appropriate ways to deal with noise disputes.
- Policy guidance would be useful for the control of aircraft overflight noise. The County is currently involved in negotiations with the FAA, defining the extent of overflight noise problems, and evaluating procedures that could minimize aircraft flyover noise. The Noise Element should reflect the County's position and contain information quantifying the extent of the aircraft overflight noise problem. One of the problems with dealing with aircraft overflights is that the noise generated by the aircraft is under control of the Federal Government. At best, the County can influence the decision-makers on flight paths and altitudes, but it cannot set a noise limit for aircraft overflights. Any policies pertaining to aircraft noise contained in the Noise Element of the Countywide Plan should be consistent with the policies currently under consideration by the Board of Supervisors for dealing with aircraft noise.
- ♦ Consider setting aside areas of the County as designated "quiet" areas where protection of existing quiet will be paramount and develop guidelines for enforcement. As far as can be determined from a review of other General Plan Noise Elements, this type of policy has not been implemented in California. Some effort would be required to identify the areas to be protected. The idea would be to provide areas where the only sounds heard are the natural sounds of the environment.
- Develop noise exposure information for alternative uses of the Northwestern Pacific Railway line to assist in the decision making process. A detailed noise assessment should be prepared for nay Commuter Rail project on the Northwestern Pacific Railroad right-of-way. Appropriate mitigation measures must be included in the ultimate transitway design. The analysis should address the County's noise standards and the Federal Transit Administration (FTA) guidelines.

TABLE 5 EVALUATION OF EXISTING COUNTYWIDE PLAN NOISE POLICIES AND PROGRAMS

NOISE	COMMENTS
Policy N-1.1 Use Noise Level Guidelines-New Development. The County shall use noise level guidelines contained in this element to direct the siting, design, and insulation of new commercial and residential development.	Needs Refinement The County should consider designating "Quiet Areas" and setting goals for these areas accordingly. Applicable
Program N-1.1a Use the CEQA Process and Discretionary Review to Minimize Exposure to Excessive Noise Levels. Both CEQA and discretionary review of new development shall	Still Applicable

NOISE	COMMENTS
ensure that new development is protected from excessive noise levels. Potential noise impacts and mitigation measures shall be evaluated through discretionary review procedures such as environmental view, master plans, design review, and use permits.	
Program N-1.1b Noise Guidelines for New Projects Exposed to Transportation-Generated Noise Table N-2, "Land Use Compatibility for Community Noise Environments" and the noise contours shown in Appendix N-1 shall be used as a guide for determining the appropriate type of new development and its relation to ambient noise level.	Still Applicable
An acoustical analysis shall be performed for new residential development in areas with greater than 60 dBA outdoor L _{in} to determine the appropriate mitigation measures for meeting an exterior noise level of 60 dBA, measured at the property line, and an interior noise level of 45 dBA. The threshold for performing an acoustical analysis shall be 65 dBA existing outdoor Ldn for office and retail commercial development and 70 dBA existing outdoor L _{in} for industrial commercial development. The acoustic analysis shall determine ambient noise level conditions and mitigation measures necessary to minimize the exposure of residents and/or workers to excessive levels of noise.	
Program N-1.1c Noise Guidelines for New Projects Exposed to Stationary Source Noise Generators. Table N-3 shall be used as a guide for establishing allowable noise levels produced by stationary noise generators.	Still Applicable
An acoustical analysis shall be performed for new residential projects and other noise-sensitive uses proposed near stationary source noise generators in order to determine the appropriate mitigation measures for conforming to the standards in Table N-3. Effective mitigation measures shall be incorporated into the new development to reduce exposure to noise at or below the standards shown in Table N-3.	
Program N-1.1d Noise Guidelines in the Gnoss Field Environs. The County Community Development Agency will review new development proposals within two miles (referral area) of Gnoss Field for consistency with the noise criteria set forth in the adopted Airport Land Use Plan.	Still Applicable



NOISE	COMMENTS
Policy N-2.1 Use Noise Level Guidelines – Existing Development. The County shall use noise level guidelines contained in this element to protect existing land use from noise generated by new development.	Needs Refinement – This policy could be fleshed out to include the designation of "quiet" areas if the County so desires.
Program N-2.1a Use the CEQA Process and Discretionary Review to Protect Existing Land Uses from Significant Noise Impacts Due to New Development. Both CEQA and discretionary review of new development shall determine the noise impacts of new development. Potential noise impacts and mitigation measures shall be evaluated through environmental review, master plans, design review, use permits, and other discretionary permits in cases of significant increases in noise levels.	Still Applicable
Program N-2.1b Noise Guidelines to Protect Existing Land Uses from Transportation-Generated Noise Due to New Development. Table N-2 shall be used as a guide to establish allowable noise levels. Where the existing noise level is rated "Normally Acceptable", if new development raises the L _{th} by more than 5 dBA but the noise level still remains in the "Normally Acceptable" category, it is considered a significant impact. In areas where the existing noise level is "Normally Acceptable", if new development raises the L _{th} by more than 3 dBA and the noise level exceeds the "Normally Acceptable" standard, it is considered a significant impact. In areas that already exceed the "Normally Acceptable" noise level, if new development raises the L _{th} by more than 3 dBA, it is considered a significant impact. When a significant impact occurs, mitigation measures shall be required.	Still Applicable
Program N-2.1c Noise Guidelines to Protect Existing Land Uses from Stationary-Source Noise Generated by New Development. Table N-3 shall be used as a guide to establish allowable noise levels. New noise-generating development proposed near existing residential or other noise-sensitive land uses shall have an acoustical analysis performed to determine the appropriate mitigation necessary to conform to the standards in Table N-3. Effective mitigation measures shall be incorporated into the new development to reduce exposure to noise levels at or below the standards shown in Table N-3.	Still Applicable
Table N-2 shall be used to determine allowable noise levels for commercial, industrial, agricultural or other less noise-sensitive land uses exposed to stationary source noise generated by new development.	

MARIN COUNTYWIDE PLAN

NOISE	COMMENTS
Policy N-2.2 Minimize Noise Impacts From Possible Future Transitway. If a transitway is developed along the Northwestern Pacific right-of-way, the noise impacts of transit vehicles on existing development should be minimized.	Still Applicable
Program N-2.2a Quantify Noise Levels Form Possible Future Transitway. When sufficient information exists to quantify noise levels generated by vehicles traveling along the Northwestern Pacific right-of-way, the noise contours should be incorporated into this Element.	Still Applicable
Program N-2.2b Develop Mitigation Measures to Minimize Impacts of Possible Future Transitway. Based on information generated through implementation of Program N-2.2a, mitigation measures shall be develop to ensure that existing developed areas are not subject to excessive noise levels from the proposed transitway.	Still Applicable
Policy N-2.3 Oppose Sound Walls Along Highway 101. The County of Marin opposes sound walls as a means of noise mitigation along Highway 101.	Applicable? - If the County chooses to keep this policy, site planning, building construction, and distance from the highway are the tools that can be used to mitigate noise for new developments. Without sound walls, development must generally be kept much farther from the road to achieve acceptable outdoor noise levels.
<i>Program N-2.3a Coordination with Caltrans.</i> The County will work with the California Department of Transportation to ensure that adequate studies are prepared and alternative noise mitigation measures are considered. The County will also request that Caltrans consult with local officials and with residents outside the noise impact boundary defined by Caltrans.	Still Applicable
Policy N-2.4 Minimize Impacts from Excessive Noise Levels Due to Construction Activity. During all phases of construction, measures should be taken to minimize the exposure of neighboring properties to excessive noise levels from construction-related activity.	Still Applicable



NOISE	COMMENTS
Program N-2.4a Limit Construction Hours. The Planning Department reserves the right to set hours for construction- related activities involving the use of machinery, power tools, or hammering. The type of construction, site location, and noise- sensitivity of nearby land uses will determine the hours of construction. The conditions of approval will specify hours for staging and type of construction activities. Special consideration shall be given to homeowners who perform their own work.	Still Applicable
Policy N-2.5 Minimize Noise Impacts from Temporary Land Uses. The permit review process for land uses of a temporary nature, such as fairs or exhibits, should include mitigation measures to minimize their noise impacts on surrounding areas. The L_{Im} from the temporary use should be in conformance with the noise level guidelines for nearby land uses.	Still Applicable
Policy N-2.6 Coordinate With Other Public Agencies. The County shall work with other public agencies to address both existing and potential noise impacts resulting from public agency activities. The County shall cooperate with other public agencies in determining the appropriate mitigation measures necessary to meet County noise guidelines.	Still Applicable

VI. FINDINGS

The following summarizes the noise issues in Marin County:

- The primary source of noise in Marin County has been and continues to be vehicular traffic. Highest noise levels are received along the highways and major streets in the county.
- Noise levels have not increased significantly in the last 14 years, although there has been a trend for increased noise levels during the early morning hours due to the change in commute patterns.
- There is currently a heightened sensitivity to aircraft flyover noise in Marin County and this is an issue that is receiving and will require more attention.
- Noise will continue to be an important factor in the planning process as pressure increases to develop properties exposed to high noise levels and/or noisy activities closer to noise sensitive receptors.