Noise Element

INTRODUCTION

Purpose

701. Freedom from excessive noise is a major factor in the quality of life for Los Altos Hills residents. Noise can disrupt sleep, cause stress and tension, and interfere with conversation and many other aspects of day-to-day life. The Noise Element is intended to protect residents from unwanted noise, thereby assuring their continued enjoyment of the quiet, peaceful community envisioned in the Introduction to the General Plan.

> *Los Altos Hills should be a community dedicated to maintaining a semi-rural atmosphere, where people can live in the midst of open space, exposed to minimum noise, congestion, and confusion, and with sufficient space on each lot to allow activities such as gardening, cultivating vineyards and orchards, keeping horses, and enjoying outdoor recreation.*
>
> Community Goal 1
> Introduction to the General Plan

Scope

702. The Noise Element provides a basis for evaluating noise issues and limiting the exposure of the community to excessive noise levels. The Noise Element identifies current noise conditions and projects future noise conditions resulting from continued growth in Los Altos Hills and surrounding communities. It establishes policies and programs to mitigate the current and future potential impacts of noise. In addition, it provides direction for reviewing existing Town standards and establishing new standards and criteria, as appropriate, for the mitigation of noise impacts determined to be unacceptable.

State Requirements

703. State law requires every General Plan to have a Noise Element that identifies noise problems in the community and works toward their resolution. The State also provides guidelines for the preparation of the Noise Element. These guidelines were initially adopted by the Office of Noise Control, California Department of Health, in 1976. The Los Altos Hills Noise Element has been prepared in recognition of these guidelines and the requirements of State law.

Relationship to Other Elements

704. Since traffic is one of the major sources of noise, there is a direct relationship between the Noise Element and the Circulation & Scenic Roads Element. The Noise Element is also closely related to the Housing Element and the Open Space & Recreation Element, which address two of the Town's most noise-sensitive land uses—residential development and open space. All of these components are integrated in the Land Use Element, which provides for the compatibility of land uses.

NOISE BASICS

Subjective Factors

705. Defined simply as unwanted sound, noise is a subjective phenomenon that depends upon the listener's attitude toward the sound. The degree to which noise is irritating depends on a variety of factors, some independent of the noise source itself. Time of day, background sound level, the listener's activity, and surrounding land use can all influence the degree to which a particular sound is perceived as annoying. Value judgments also enter into tolerance for urban sound levels. Most people tolerate emergency sirens and loud lawnmowers because they represent necessary actions related to public safety and neighborhood upkeep. However, loud noises from cars with defective or modified mufflers are usually perceived as annoyances.

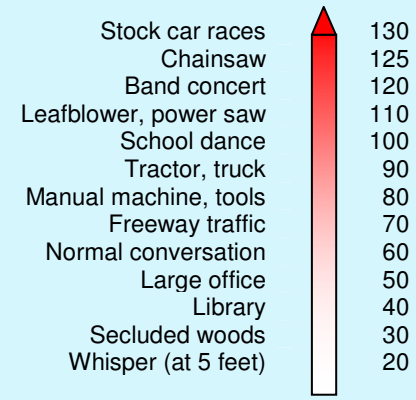
Noise Measurements

706. Three important characteristics of noise are its level of intensity or loudness, its frequency range, and the variation in noise level with time. Each of these factors is addressed in the following methods of measurement:

1. Noise levels are measured in **decibels (dB)**. A decibel is a unit for describing the amplitude of sound.

2. The **A-weighted filter network** adjusts the measured noise level to account for the frequency range of noise so that it most closely relates to human perception of loudness. The A-weight 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 gives good correlation with subjective reactions to noise. Typical sound levels measured in the A-weighted scale (**dBA)** are shown in Figure 7-1**.**

Figure 7-1
Typical sound levels
measured in dBA



Source: *Noise Levels in Our Environment,* League for the Hard of Hearing, 2007

3. The **Community Noise Equivalent Level (CNEL)** is the average equivalent A-weighted sound level during a 24-hour day, obtained after adding 5 decibels to sound levels in the evening from 7 pm to 10 pm, and 10 decibels to sound levels in the night from 10 pm to 7 am. The State has adopted the Community Noise Equivalent Level (CNEL) as the standard metric because it corresponds well to community annoyance over noise.

Noise Terminology

707. The **ambient noise level** is the composite of noise from all sources near and far. The ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Noise attenuation is the reduction of sound intensity by various means.

THE NOISE ENVIRONMENT

708. Residents of Los Altos Hills enjoy a relatively quiet noise environment. Because the community is characterized by low-density residential development and has no industrial or commercial areas, a majority of noise-producing sources normally found in Bay Area cities are not located within its boundaries. Noise is not confined by city limits, however, and the community's noise environment is affected by noise-producing sources in neighboring cities. It is not possible to control all noise sources that affect Los Altos Hills, but the negative impacts of excessive noise can and should be mitigated to the greatest extent possible.

709. As in most Bay Area communities, motor vehicle traffic is the primary source of noise in Los Altos Hills. The level of noise produced by vehicular traffic generally fluctuates in relation to the volume of traffic, the percentage of trucks, and average traffic speed. Other sources of community noise include air traffic, construction activities, the use of home maintenance equipment such as chainsaws and gas-powered leaf blowers, and the operation of residential pool equipment and air conditioning units. The noise issues of greatest concern to the community are briefly described below, including suggestions for evaluating noise problems and mitigating their impacts.

Motor vehicle traffic

710. The Town is bisected by Interstate 280, which is the primary source of noise in the community. Freeway noise has often affected the normal use of residential properties and associated activities, both indoors and outdoors. In addition, it is likely that some property values have decreased as a result of freeway noise. Another major source of noise is traffic on Foothill Expressway and Arastradero Road, portions of which are maintained by Santa Clara County and the City of Palo Alto. The Town should continue to work with the appropriate agencies to minimize noise generated by Interstate 280, Foothill Expressway and Arastradero Road. To a lesser degree, traffic on local roadways also can be a significant source of noise for adjacent residents. Vehicle noise is regulated by the State's noise emissions standards, and cities are generally prohibited from applying stricter standards. The Sheriff's Department will continue to enforce the State's noise emission standards for all vehicles, including motorcycles.

711. Air traffic

Low-flying airplanes and helicopters are another significant source of noise. Most of the air traffic is generated by the San Francisco, Oakland and San Jose airports, as well as Moffett Field. In addition, medical transport airplanes and helicopters fly in and out of Stanford Medical Center. The Regional Airport Planning Commission (RAPC) serves as a public forum for issues such as airport noise. Town residents should continue to work with the RAPC and the Federal Aviation Administration to minimize air traffic noise and flight patterns that impact Los Altos Hills.

Schools, recreation facilities and other conditional uses

712. Public and private recreation facilities, schools, churches and other conditional uses can be a significant source of noise, particularly at peak-use periods. Noise generated by the use of these facilities can be disruptive to neighboring residents. The conditional use permits for these uses typically restrict the hours of operation and the use of loud speakers so that noise impacts are minimized.

Construction activities

713. Although construction noise usually lasts only a limited period of time, it can severely restrict the enjoyment of residential properties. Due to the topography of the community, noise from construction activities such as grading and the operation of other heavy equipment often carries for great distances. The Town's Municipal Code limits the hours and days of outside construction activities to 8:00 a.m. to 5:30 p.m. Monday through Saturday, with no construction allowed on Sundays or public holidays. (These restrictions do not apply to the use of domestic power tools by homeowners.) All construction equipment operating within the Town should be encouraged to be equipped with the most up-to-date muffling devices generally available.

Residential activities

714. Amplified music, loud parties and other social gatherings, barking dogs, crowing roosters, auto repair and the operation of power mowers, chainsaws, workshop equipment, home improvement tools and similar equipment are sources of potentially annoying noise. Under provisions of the Town's Municipal Code, homeowners are prohibited from keeping or permitting barking dogs, and the use of power tools is generally limited to the hours of 8:00 a.m. and sunset on weekdays and between 9:00 a.m. and sunset on weekends.

Los Altos Hills Municipal Code
Sec. 6-1.510. Barking dogs

It is unlawful for any person to keep, maintain or permit in or upon any premises within the Town any barking dog that is under the control of that person. "Barking dog" means a dog that barks, bays, cries, howls or makes any other noise continuously and incessantly for a period of ten (10) minutes within a fifteen (15) minutes period to the disturbance of any other person. The issuance of a citation shall be within the discretion of the Animal Control Officer or other enforcement person.

Air conditioning units and pool equipment

715. The operation of heating, ventilating and air conditioning (HVAC) units, pool equipment, generators and similar equipment can be noisy. The recent trend to construct larger homes has in some cases involved the installation of commercial-scale equipment, which is even more likely to annoy neighbors. To protect them from excessive noise, the Town does not allow HVAC or pool equipment to be located in setback areas. HVAC equipment, pool equipment, generators, and similar types of equipment should be enclosed as much as possible, and the enclosures should be insulated to minimize noise impacts. Specific standards for this type of equipment should be developed and implemented through the Town's planning and building permit process.

The Noise Ordinance

The Town's Noise Ordinance identifies a series of noise sources and specifies the maximum decibel levels for day and night (defined as the period between sunset and 7:00 a.m.). Violation of these standards constitutes a public nuisance and is subject to nuisance abatement. Exceptions are made for alerting persons to the existence of an emergency and the performance of emergency work, neither of which are subject to the maximum noise levels established in the ordinance. The Noise Ordinance should be periodically reviewed and updated to ensure that the noise standards are appropriate and attainable.

Los Altos Hills Municipal Code
Title 5, Chapter 2

Noise Contours

716. The noise environment for Los Altos Hills can be described with noise contour maps that have been developed for land use planning purposes. Noise contours define areas of equal noise exposures based on noise measurements at given locations. Figures N-2 and N-3 are noise contour maps for present-day conditions (Year 2007) and future conditions (2030) based on projected local and regional growth.

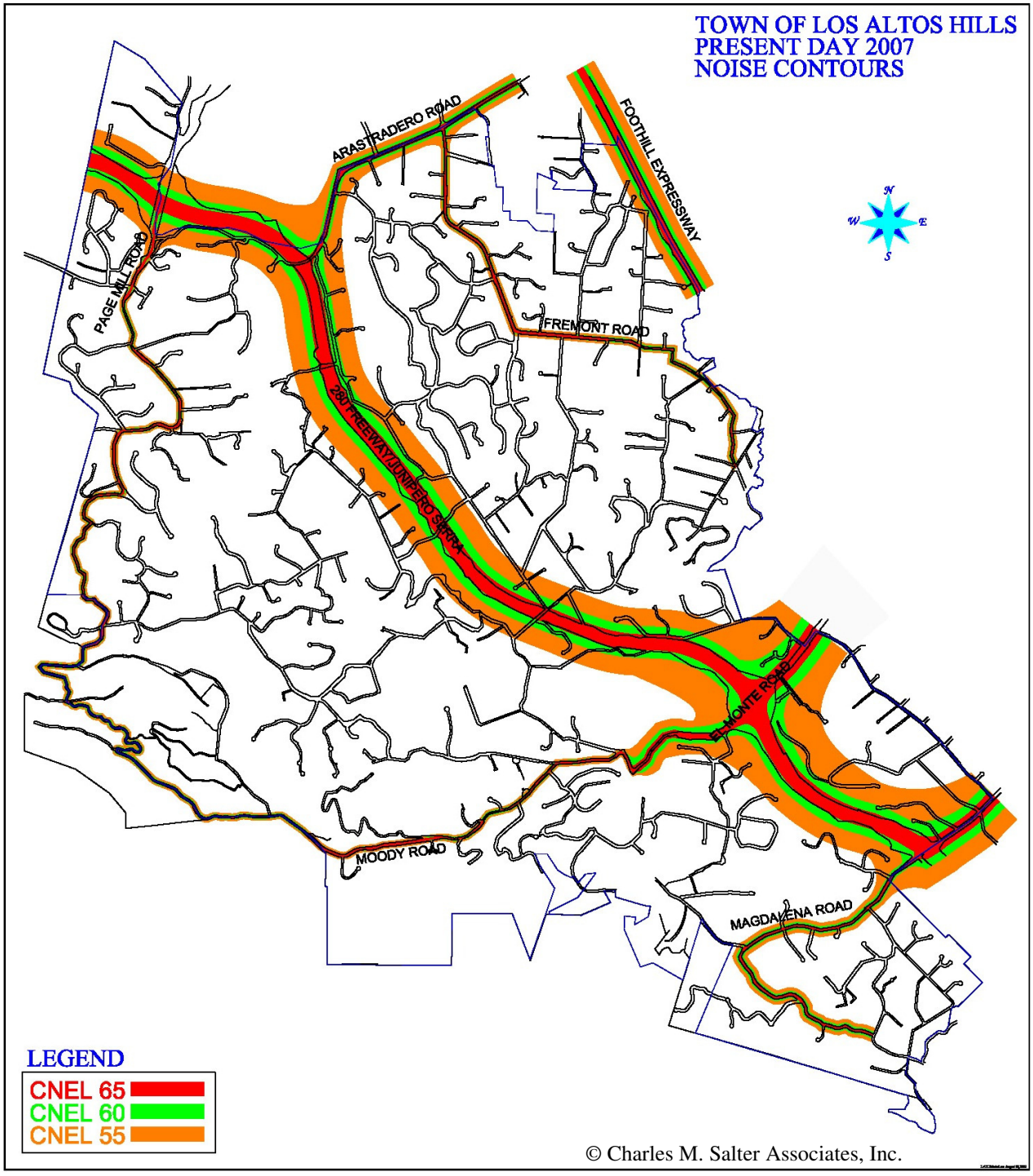
Existing Conditions

717. Larger roadways such as Interstate 280, Foothill Expressway and Arastradero Road are corridors with high noise levels generated by heavy volumes of traffic. As shown on Figure 7-2, the high-noise contours extend a considerable distance beyond the roadways, indicating greater noise impacts on residents living within those contours. In contrast, residents who live farther away from the roadways and outside the high-noise contours experience a significantly quieter environment, with CNELs in the low 50s and 40s and noise levels sometimes dropping down to 30 dbA at night. Roadways that were not modeled for noise contours also experience traffic noise, with noise levels along local streets expected to be similar or quieter than those on modeled streets.

Future Conditions

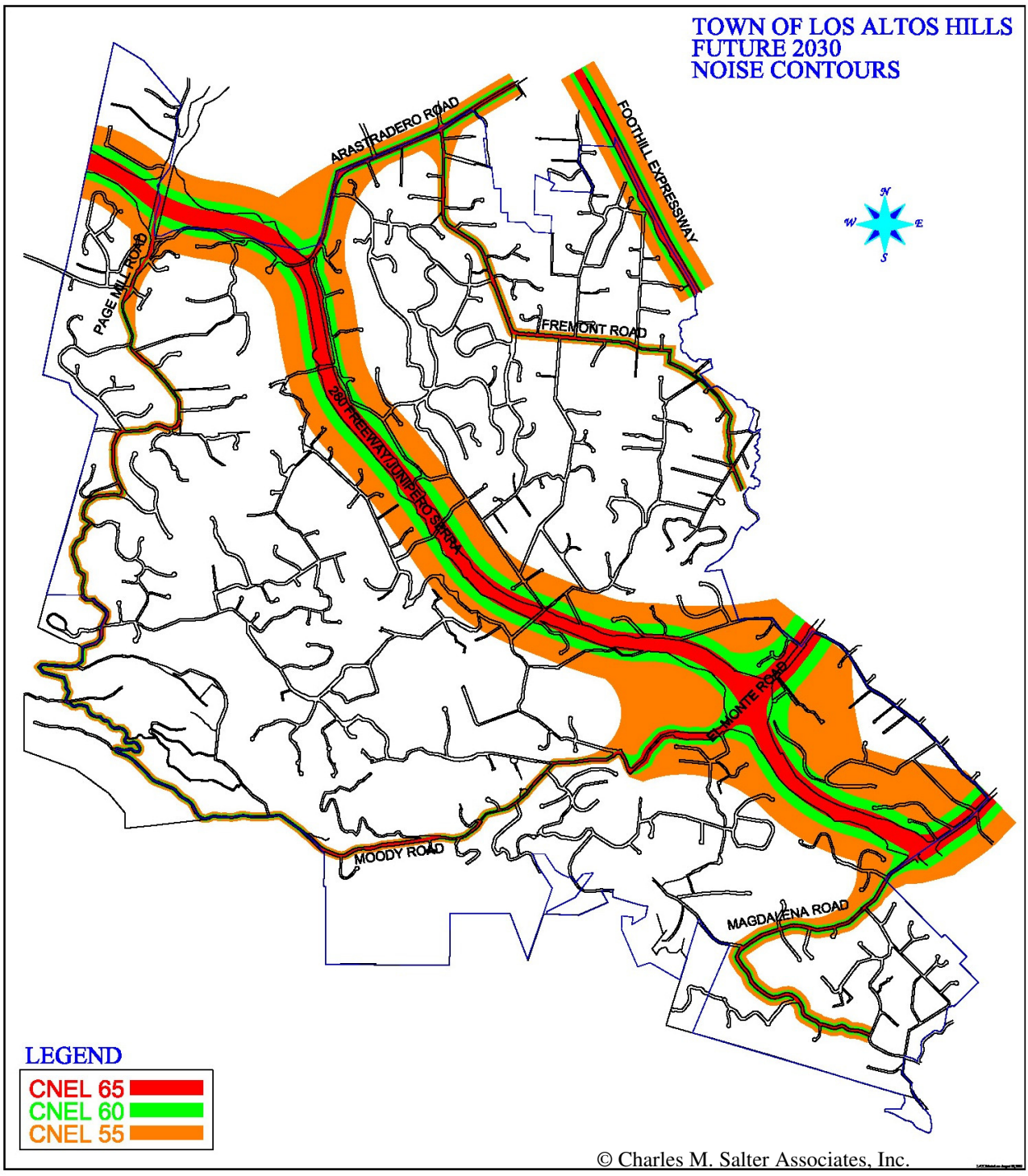
718. Figure 7-3 shows the noise contours projected to 2030 based on traffic growth projections by the Santa Clara Valley Transportation Authority and the Metropolitan Transportation Commission. The projected contours are similar to existing noise conditions, with significant increases in noise levels occurring at major freeway intersections, especially at El Monte Road. The increase in traffic will result primarily from regional growth, over which the Town has no control. However, the Town can and should require new development in high-noise contours to include noise mitigation measures.

Figure 7-2



NOTE: Community Noise Equivalent Level (CNEL) is the average equivalent A-weighted sound level during a 24-hour day, obtained after adding 5 decibels to sound levels in the evening from 7 pm to 10 pm, and 10 decibels to sound levels in the night from 10 pm to 7 am.

Figure 7-3



NOTE: Community Noise Equivalent Level (CNEL) is the average equivalent A-weighted sound level during a 24-hour day, obtained after adding 5 decibels to sound levels in the evening from 7 pm to 10 pm, and 10 decibels to sound levels in the night from 10 pm to 7 am.

GOAL 1

Minimize noise levels so that residents may enjoy the amenities of living in a quiet, semi-rural community.

Policy 1.1 **Noise levels shall be compatible with the Town's semi-rural atmosphere and consistent with Town standards.**

Policy 1.2 **All appropriate methods for reduction of noise at the source (i.e. automobile, aircraft, etc.) shall be supported.**

Policy 1.3 **Individual use of noise-generating equipment should not interfere with the normal use and enjoyment of outdoor or indoor areas on surrounding properties.**

Policy 1.4 **Noise generated by construction equipment shall be attenuated to the maximum extent possible. Hours of construction activity shall be regulated to minimize the impact of noise on surrounding residential properties.**

Program 1.1 Update the Noise Ordinance to provide for clear interpretation of the regulations and effective enforcement of appropriate standards based on the A-weighted scale in order to protect residents from unwanted noise, thereby ensuring their continued enjoyment of the quiet, peaceful community envisioned in the Introduction to the General Plan.

Program 1.2 Continue to restrict the hours of non-emergency grading and construction activities to specified days of the week and times of day to minimize noise impacts on neighboring residents and other sensitive land uses.

Program 1.3 Encourage construction contractors to use construction equipment that incorporates the best available noise control technology.

Program 1.4 Continue to prohibit the location of heating, ventilating and air conditioning (HVAC) equipment, pool equipment, pumps and similar equipment in setbacks. Develop siting and noise attenuation standards for HVAC equipment, pool equipment, pumps and similar equipment. Standards should be more stringent for these types of equipment that produce continuous noise than for sources that emit noise occasionally.

Program 1.5 Encourage the use of quiet pavement materials in repaving projects including the repaving of Interstate 280.

Program 1.6 Work with appropriate State, regional and local agencies such as Caltrans, Santa Clara County and the City of Palo Alto to reduce noise from roadways adjacent to Los Altos Hills.

Program 1.7 Work with the Federal Aviation Administration, the Regional Airport Planning Commission and other appropriate agencies to reduce noise levels generated by aircraft flying over Los Altos Hills.

Program 1.8 Continue to address potential noise impacts when reviewing applications for new or renewed conditional use permits.

Program 1.9 Make residents aware of noise limits by providing a copy of the Town's Noise Ordinance to all applicants for site development permits. In addition, provide a copy of the Town's construction hours to all residents and contractors who obtain building permits.

LAND USE COMPATIBILITY

719. In larger cities, many undesirable noise effects can be reduced or avoided if noise conditions are considered when assigning uses to specific parcels of land. In Los Altos Hills however, there is limited opportunity to address land use compatibility in this manner because the community is almost fully developed, little growth is anticipated, and major land uses are primarily single-family residential, open space and recreation, and institutions such as schools and churches. The community has no commercial or industrial uses. Moreover, the Town has little or no control over major sources of noise generated by motor vehicle traffic on Interstate 280, Arastradero Road and the Foothill Expressway.

720. Compatibility of land uses in Los Altos Hills is best achieved through analysis of each proposed use on a case-by-case basis through the site development review process. To ensure that new development is not adversely impacted by noise sources, or is itself a source of noise, the Town uses land use compatibility guidelines as part of planning and site development review. Figure N-2 summarizes the compatibility of specific land uses with various noise levels. Given the semi-rural nature of the community, the Town may adopt more restrictive standards as part of the Noise Ordinance.

Mitigation Measures

721. The potential impacts of traffic noise and other unwanted sound should be identified and mitigation measures required as needed to meet the Town's noise standards. The most effective measures for noise attenuation include the following:

- Site planning that is sensitive to potential noise impacts
- Careful orientation of buildings and placement of windows
- Increased setbacks
- Buffers consisting of earthen berms and landscaping
- Sound proofing and double-glazed windows
- Use of acoustically treated or quiet-design equipment such as furnaces, fans, motors, compressors, generators, pool equipment and air conditioning units

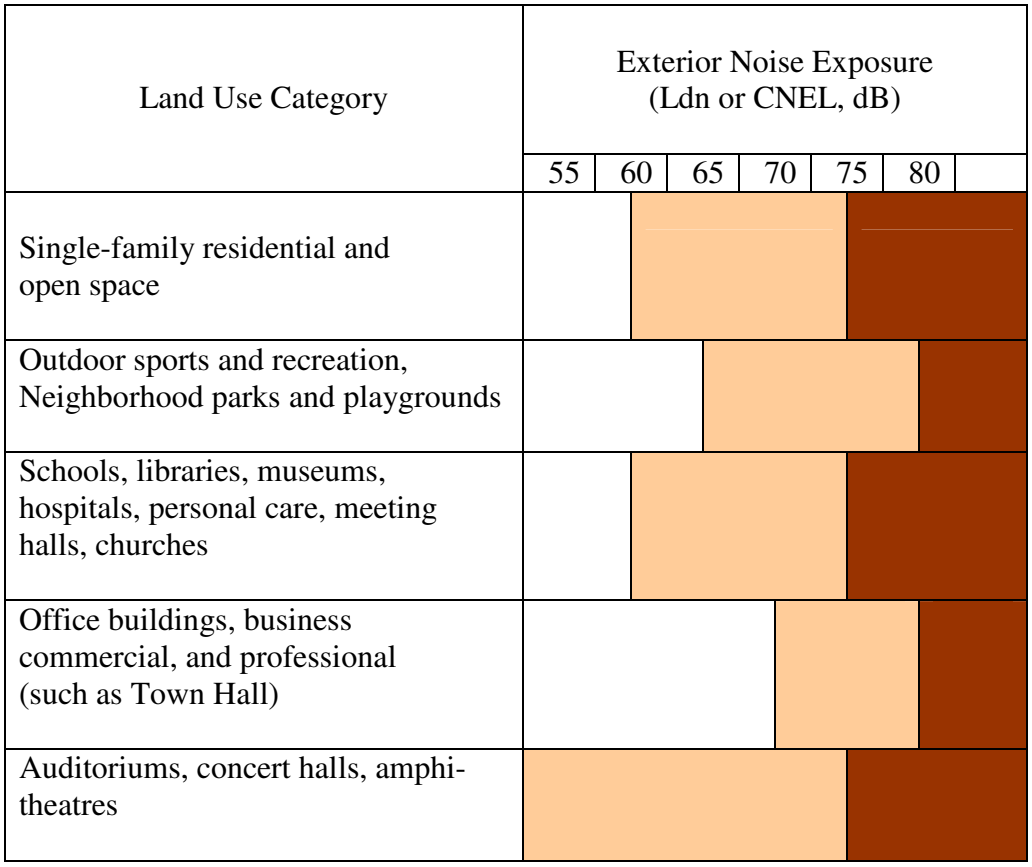
722. In determining the best combination of noise attenuation techniques for a specific project, noise mitigation measures should be weighed against other community values such as open space and aesthetics. Noise mitigation is usually less expensive and more effective if it is included during the design phase of a project rather than as an after-thought.

Sound Walls

723. In many communities, sound walls are used to reduce freeway noise impacts on adjacent residences. In Los Altos Hills, however, sound walls are prohibited on private property adjacent to Interstate 280, primarily because they block views of surrounding countryside and tend to bounce sound to other locations. Although the Town has no authority to prohibit the construction of sound walls in the State right-of-way, it should convey its sound wall policy to Caltrans. In the event that sound walls are constructed, the Town should work with Caltrans to ensure that the walls are screened with evergreen trees, vines and other landscaping to soften their visual impact.

Figure 7-4

Land Use and Noise Compatibility Guidelines



NORMALLY ACCEPTABLE Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements.

CONDITIONALLY ACCEPTABLE Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.

UNACCEPTABLE New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.

Source: Adapted from *General Plan Guidelines*, Office of Planning and Research, Appendix C, 2003.

GOAL 2

Provide compatible noise environments for new development.

Policy 2.1 **All development adjacent to Interstate 280, Arastradero Road or Foothill Expressway should be designed so as to minimize the impacts of noise generated by traffic movement.**

Policy 2.2 **Residential construction in high-noise-level areas shall include provisions for structural insulation as necessary to ensure maximum possible noise attenuation, with the objective of ensuring a maximum of CNEL 45 dB.**

Policy 2.3 **Mitigation measures such as site planning, building orientation, window placement, increased setbacks, landscaped berms, and sound-proofing shall be required in new development when necessary to reduce the impacts of noise.**

Policy 2.4 **The construction of sound walls on private property adjacent to Interstate 280 and within the State right-of-way shall be discouraged.**

Policy 2.5 **The potential for new development to generate noise levels higher than Town standards shall be evaluated, and significant impacts shall be appropriately mitigated.**

Policy 2.6 **Work with adjoining municipalities and public and private landholders to assure noise-compatible land uses across jurisdictional boundaries.**

Program 2.1 Evaluate noise impacts on surrounding land uses during the site development review and permitting process.

Program 2.2 Utilize the Land Use and Noise Compatibility Guidelines as a basis for determining the compatibility of land uses.

Program 2.3 To determine noise exposure, use the noise contour maps or more detailed noise analysis if appropriate.

Program 2.4 Require the mitigation of all significant noise impacts as a condition of project approval.

Program 2.5 Convey the Town's sound wall policy to Caltrans and work with the agency to develop more acceptable alternatives such as landscaped berms along Interstate 280.