8.0 PUBLIC HEALTH AND SAFETY ELEMENT

8.0 PUBLIC HEALTH AND SAFETY ELEMENT

8.1 PURPOSE OF THE ELEMENT

The Public Health and Safety Element provides policies to protect the community from unreasonable health risks associated with air quality, noise, seismic and geologic hazards, flooding, and wildfire and hazardous materials accidents.

8.2 AIR QUALITY

Air quality is a regional issue, not just a local one. The climate and topography of the Bay Area influence and determine the way air pollutants are moved and dispersed. St. Helena is in the northern portion of the V-shaped Napa Valley framed by mountains to the east and west and the San Francisco Bay to the south. Typical north-south winds bring pollutants into the Valley where they can become trapped by atmospheric inversions and topography, creating conditions conducive to the formation of ozone. St. Helena is in a portion of the San Francisco Bay Area Air Basin where concentrations of ozone and particulate matter occasionally exceed health standards. The regional traffic that is attracted into the Valley by tourism and the wine industry contributes to the relatively high ozone and particulate concentrations in the Valley.

Regional planning efforts to achieve health-based ambient air quality standards are embodied in the 1991 Clean Air Plan, developed in accordance with the California Clean Air Act. This plan calls for increased regulation of stationary (industrial) sources of emissions and for implementation of transportation control measures intended to reduce emissions from mobile sources by significantly reducing the rate of increase in vehicle travel, and by achieving no net increase in vehicle emissions after 1997. The Bay Area Air Quality Management District is the agency with authority over permitting of stationary sources of air pollutant emissions.

The Clean Air Plan calls for greater participation by local agencies in controlling mobile source emissions through appropriate land use planning and through implementation of appropriate project-specific mitigation. Increased development in the City could result in increased emissions, which, in turn, could hinder regional efforts to achieve year-round healthful air quality.

Guiding Policies

8.2.1 Achieve and maintain clean, healthy air for the residents of St. Helena to preserve environmental quality and community health.

8.2.2 Support regional efforts to achieve and maintain state ambient concentration standards to protect public health, to reduce adverse plant effects, and to enhance the visual environment. In particular, provide local support for implementation of policies and measures set forth in the Napa County Congestion Management Program.

8.2.3 Urge and support effective regulation of those sources of air pollution, both inside and outside of St. Helena, which affect air quality, by implementing as many of the recommendations of the Napa County Congestion Management Plan as is feasible.

The Napa County CMP recommends a number of land use-based measures to manage traffic congestion, and thereby reduce auto emissions. The recommendations are organized into two categories:

Destination-based Strategies: 1) Concentrate major work locations in nodes or employment centers; 2) Encourage mixed-use development that allows people to combine or avoid vehicle trips; and 3) Require site design features that encourage transit use.

Origin-based Strategies: 1) Match housing opportunities to income levels; 2) Provide housing opportunities near employment centers; and 3) Require design features that encourage transit use.

8.2.4 Consider cumulative air quality impacts from proposed developments and promote balanced land use development.

8.2.5 Support a population and employment growth policy which will not exceed ABAG population and employment projections. This includes balancing the ratio of employment to population to protect, preserve and enhance the air quality within the area.

Implementing Policies

8.2.6 Minimize local adverse air quality impacts related to construction by requiring dust abatement procedures for local projects.

8.2.7 Develop an area bicycle plan and other bicycle-and-pedestrian-related facilities. To create a meaningful alternative to automobile usage for short trips, bicycle paths should connect home-to-work or home-to-local shopping locations (including bicycle storage racks). Link neighborhoods and commercial areas on a bike path system and encourage bicycle travel.

8.2.8 Encourage the use of EPA-approved wood stoves or fireplace inserts, rather than fireplaces, as a means of reducing emissions into the air.

8.2.9 Review project proposals for their potential to generate hazardous air pollutants.

8.2.10 Include buffer zones to shield residential uses and sensitive receptors from air pollutant sources such as highways, arterials, point sources, and hazardous material locations in future development plans.

8.2.11 Encourage and support regional efforts to displace motor vehicles off State Route 29 and onto alternative modes of transit.

8.2.12 Commit to implementing the employer-based trip reduction rule and indirect source control rule once these rules are established by the BAAQMD.

8.2.13 Develop a city-wide network through which commuters could arrange for carpooling.

8.2.14 Adopt the thresholds of significance contained in the BAAQMD's Guidelines for Assessing the Impacts of Projects and Plans for determining significance of project impacts under the California Environmental Quality Act.

8.3 NOISE

Government Code Section 65302(g) requires the General Plan to address existing and projected noise conditions in the community, and provide policies and programs for minimizing noise-related impacts. The General Plan provides a basis for establishing comprehensive local programs to control and abate environmental noise, and to protect citizens from excessive noise exposure. The fundamental goals relating to noise are:

- To provide sufficient information concerning the community noise environment so that noise may be effectively considered in the land use planning process. In so doing, the necessary groundwork will have been developed so that a community noise ordinance can be utilized to resolve noise complaints;

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

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

- To apply the State Noise Insulation Standards to all new residential construction. These standards mandate maximum allowable interior noise levels and therefore the amount of outdoor to indoor noise reduction required where the outdoor noise environment exceeds CNEL or Ldn 60 dBA.

- To establish maximum allowable outdoor noise levels according to the CNEL or Ldn descriptors for new residences.

- To protect residences from intrusive or annoying noise due to the operation of machinery, motors, fans or other equipment.

Refer to Appendix B for background discussion of basic noise concepts underlying the discussion in this section and definitions of key terms.

Existing Regulations

State of California. Title 24, Part 2 of the California Code of Regulations contains requirements for construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings intended to limit the extent of noise transmitted into habitable spaces. These requirements are collectively known as California Noise Insulation Standards. For limiting noise transmitted between adjacent dwelling units, the Standards specify the extent to which walls, doors, and floor-ceiling assemblies must block or absorb sound. For limiting noise from exterior sources, the Standards set forth an interior standard of 45 dB, CNEL (or Ldn) in any habitable room, and require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than CNEL (or Ldn) of 60 dB.

If all doors and windows are required to be closed in order to meet the interior noise standards, then the Standard requires that the design of the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment. The ventilation system must not compromise the dwelling unit isolation from the exterior. Wall A/C units are not acceptable as a response to this requirement. If any portion of the dwelling must have closed windows, then the entire dwelling must satisfy this ventilation provision.

St. Helena Ordinance. City Ordinance No. 305 prohibits any noise which disturbs the public peace. This ordinance is intended to discourage unusually noisy activities in residential areas. It also specifically limits noise emissions by machinery between hours of 9 PM and 7 AM.

Existing and Projected Noise

The ambient noise environment over much of the City of St. Helena can be characterized as quiet and largely unaffected by man-made sources of noise. The major source of noise in the community is traffic noise. In areas near the primary transportation arteries, such as Main Street (State Route 29), the ambient noise environment is largely determined by motor vehicle traffic. Other noise sources in the community tend to be seasonal or intermittent in nature.

Intrusive noise sources, such as train operations and aircraft overflights, can be heard periodically above the generally quiet background noise environment. The Wine Train for instance currently (1993) makes a maximum of three trips per day through town. Noise levels rise sharply when the train is passing, but each pass-by event requires less than two minutes. Other noise sources such as agricultural operations (including vineyard frost fans, pumps in isolated areas, fixed machinery and heavy vehicle traffic around vineyards during harvest season) generate noise on a more seasonal basis. Additional

noise sources also include hot air balloon flyovers and construction activities. There are few industrial noise sources in St. Helena. The gravel mining operation on Sulphur Springs Creek is the major one. Noise from this operation consists of trucks entering and leaving the quarry, tractor loading operations, cement mixing hopper and front-end loaders, and a rock crusher.

Noise complaints received throughout Napa County indicate that motorcycles are by far the biggest source of noise complaints from all over the county. Other complaints are about vineyard wind machines and diesel pumps (although these were not considered "irritating"). The major type of complaints are typical residential noise sources, loud parties or music, motorcycles, barking dogs, hot air balloons, and occasional low aircraft or highway noise complaints. Local noise complaints have been made about the sand and gravel operations along Crane Avenue, mainly from early morning truck loading and truck traffic. A map showing major noise sources and noise-sensitive areas in the community is included in Appendix B.

Noise measurements were made at several locations in St. Helena to quantify noise levels related to traffic and to sand and gravel operations. A description of the results of these measurements, and the measurement locations are included in Appendix B.

The noise exposure contours for existing (1991) and future (2010) transportation-related noise are shown in Figure 8-1. The contours shown on Figure 8-1 correspond to Year 1991 conditions, but they also represent Year 2010 conditions since traffic contours would not be expected to change appreciably during the period 1991-2010. The road characteristics (volumes, speeds, and vehicle mix) for Years 1991 and 2010 used to develop these contours are given in Table 3 in Appendix B. (Table 4 in Appendix B presents peak-hour noise levels for the major roadways in St. Helena at a reference distance of 50 feet from the centerline of the applicable road for Years 1991 and 2010.) Table 8-1 contains distances to Ldn contours (1991 and 2010) for the roads illustrated in Figure 8-1 as well as for other roads for which contours are not shown due to practical considerations of scale on Figure 8-1.

The contours shown on Figure 8-1 and contained in Table 8-1 reflect an attenuation rate of 4.5 dBA per doubling of distance from a calculated noise level at a reference distance of 50 feet from the centerline of the roadway. Figure 8-1 and Table 8-1 were also developed following the general rule that, in areas where traffic is the major source of ambient noise, the peak-hour noise level is equivalent numerically to the Ldn at that location. The contour line estimates do not show the effect of existing noise barriers, intervening buildings or topography. Actual conditions may be quieter than shown. For example, a residential use between the 60 and 65 dBA contours may be exposed to lower noise levels if there are buildings between it and the roadway.

Noise contours for the only major industrial source of noise in St. Helena, the gravel plant operation on Sulfur Springs Creek, are shown in Figure 8-2. Table 8-2 shows distances to various contour lines from the railroad assuming 12 train passbys per day. The background data for the railroad noise estimates are provided in Table 5 in Appendix B.

The future noise environment in St. Helena is projected to experience little change from 1991 conditions. The increases in traffic would generally result in increases in noise levels of less than one or two dBA. Highway 29 (Main Street) will continue to be the main source of traffic noise in the community. Train operations may increase from 30 train passby events per week to 84 train events per week which will generate a noticeable increase in train noise along the rail right-of-way. New traffic noise sources, however, will affect noise levels in areas which receive little traffic noise presently, such as along (future) Starr Avenue and east Adams Street (when extended to Silverado Trail) and other newly designated collector streets. Noise levels from these street extensions may not be compatible with designated land uses. Table 8-1 shows the distances to various Ldn contours along major roadways in 2010.

Significance Criteria

Typically, a change in noise levels of less than 3 dBA is not discernible to the general population. Increases in average noise levels of from 3 to 5 dBA are clearly discernible to most people. An increase in the noise environment of 5 dBA or greater is considered to be subjectively significant and to constitute noise impact by the noise source in question.

Noise Compatible Land Use Planning

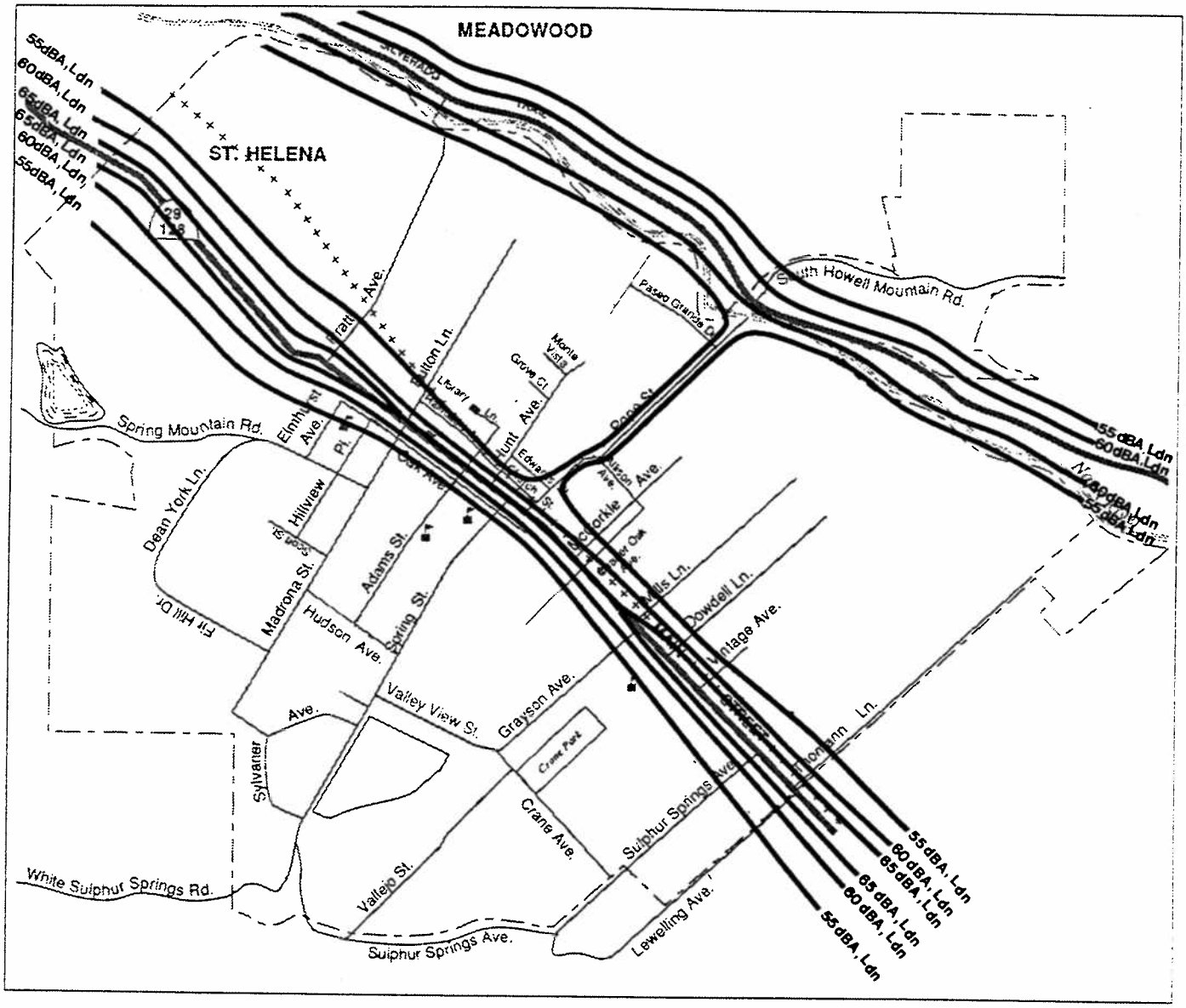
The objective of the noise and land use compatibility guidelines is to identify acceptable community noise environments. The compatibility guidelines should be used in conjunction with noise exposure assessments and noise contour maps to identify projects or activities which may require special treatment to minimize noise exposure. Table 8-3 presents noise compatibility guidelines for the City of St. Helena relative to the long term average noise level descriptor of CNEL or Ldn.

Standards and Adjustments for Intrusive and Intermittent Noise

Non-Residential Receptors. Maximum interior noise level criteria for intermittent noise sources relative to non-residential receptors are to be as given in Table 8-4.

Residential Receptors. Some noise sources which are not continuous are considered to be intrusive by nature of either their intermittent behavior, or their intrusion above existing ambient noise levels. These sources are particularly problematic in otherwise quiet rural communities. These noise sources are not accurately assessed through the long term averaging of the CNEL or Ldn descriptors. They require analysis, on the basis of the time period in which the noise is generated, relative to the local ambient conditions in the absence of the intermittent noise source during the same time period.

Standards for intrusive and intermittent noise shall be applied as stated in Table 8-5.



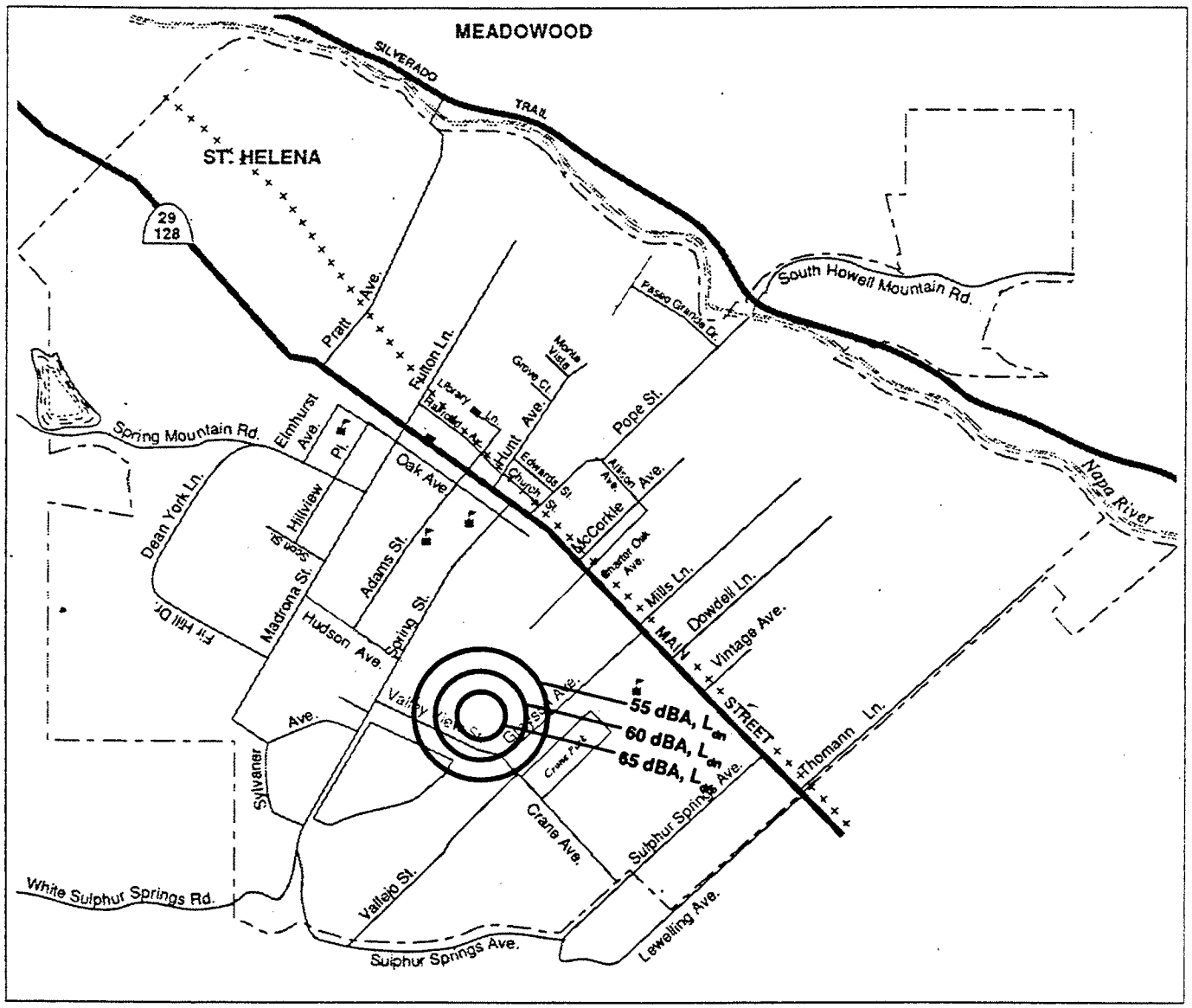
Source: Environmental Science Associates, Inc.

St. Helena
General Plan Update

Transportation-Related Noise Level Contours (dBA, Ldn), 1991

Wallace Roberts & Todd

Figure 8-1



Source: Environmental Science Associates, Inc.

St. Helena
General Plan Update

Industrial Noise Sources
Noise Level Contours (dBA, L_{dn})

Wallace Roberts & Todd

Figure 8-2

TABLE 8-1: DISTANCE TO Ldn CONTOUR LINES

	Distance to contour from centerline (feet)							
	70 dBA, Ldn		65 dBA, Ldn		60 dBA, Ldn		55 dBA, Ldn	
Road Segment	1991	2010	1991	2010	1991	2010	1991	2010
Main Street - North of Pratt	70	70	140	160	310	340	660	730
Main Street - Pratt to Fulton	50	50	100	110	220	240	470	530
Main Street - Fulton to Pope	30	30	60	60	130	130	270	290
Main Street - Pope to Sulfur Springs	50	60	110	120	230	270	500	570
Main Street - South of Sulfur Springs	70	80	150	180	340	380	720	830
Oak Avenue - Madrona to Spring Street	-	-	-	-	30	40	70	80
Silverado Trail - Pope to Deer Park	50	60	110	130	230	270	490	580
Pope Street - Main to Starr	-	-	-	-	30	30	60	60
Pope Street - Starr to Silverado	-	-	20	20	50	60	100	110
Madrona St. - Hudson to Main Street	-	-	-	-	30	30	50	50
Spring Street - Valley View to Main Street	-	-	-	-	30	30	50	50
Adams Street - Main Street to Starr	-	-	-	-	-	30	40	60
Adams Street - Starr to Silverado	-	-	-	-	-	-	-	40
Pratt Avenue - Main Street to Silverado	-	-	-	-	30	30	50	50
Starr Avenue - Pope to Adams	-	-	-	-	-	-	-	40
Fulton Lane - Main St. to eastern terminus	-	-	-	-	-	-	20	50

/a/ Ldn based on peak-hour noise levels. An attenuation rate of 4.5 per doubling of distance was used to estimate noise levels relative to a reference noise level at 50 feet. Shielding by intervening buildings is not factored into these estimates.
(-) denotes that either the road does not exist or that the contour line would be located on the shoulder or on the pavement of the road.

SOURCE: Environmental Science Associates, Inc.

TABLE 8-2: TRAIN-RELATED Ldn NOISE CONTOURS IN ST. HELENA, 1991

Segment of Track	Distance to noise contour from tracks (feet)/a/ 70 dBA, Ldn65, dBA, Ldn60 dBA, Ldn55 dBA, Ldn			
Fulton Lane to Pope Street/a/	-	-	25	50
South of Pope Street/b/	30	70	120	200

/a/ This table was developed for the current three trains per day condition (i.e. six passby events) using information contained in Table __ in Appendix B which illustrates the impact of the train at two different reference distances under five different conditions (for a proposed six train per day condition (i.e.12 passby events per day): locomotives and rolling stock, locomotives/rolling stock/whistle (not directly at the crossing), locomotives/rolling stock/whistle (at the crossing), locomotives/rolling stock/horn (not directly at the crossing), locomotives/rolling stock/horn (at the crossing).
/b/ Includes locomotive/rail car/whistle noise. Assumes six train passby events per day.
/c/ Includes locomotive/rail car/horn noise. Assumes six train passby events per day.

SOURCE: Environmental Science Associates, Inc.

TABLE 8-3: NOISE/LAND USE COMPATIBILITY GUIDELINES

	Community Noise Exposure (dBA, Ldn or CNEL)			
Land Use Category	/a/ Completely Compatible	/b/ Tentatively Compatible	/c/ Normally Incompatible	/d/ Completely Incompatible
Residential	less than 55	55 to 60	60 to 75	greater than 75
Commercial/Office	less than 65	65 to 75	75 to 80	greater than 80
Industrial/Agricultural	less than 70	70 to 80	80 to 85	greater than 85
Public Use:				
Schools, libraries, churches, hospitals	less than 65	65 to 70	70 to 80	greater than 80
Playground, neighborhood park	less than 67	67 to 70	70 to 75	greater than 75

/a/ Completely Compatible: the noise exposure is such that both the indoor and outdoor environments are pleasant, as long as noise sources do not cause the ambient noise to increase more than 5 dBA, and in the absence of intrusive and intermittent noise.
/b/ Tentatively Compatible: the noise exposure is great enough to be of concern, but common building construction practices will make the living indoor environment acceptable, even for sleeping quarters, and the outdoor environment will be reasonably pleasant for recreation and play.
/c/ Normally Incompatible: the noise exposure is so severe that unusual and costly building construction is necessary to ensure some tranquillity inside one's home, and barriers must be erected between the site and prominent noise sources to make the outdoor environment tolerable.
/d/ Completely Incompatible: the noise exposure at the site is so severe that construction costs to make the indoor living environment acceptable would be prohibitive and the outdoor environment would still be intolerable.

SOURCE: Napa County, amended 1990, Napa County General Plan; Office of Planning and Research, 1987, General Plan Guidelines.

TABLE 8-4: RECOMMENDED MAXIMUM INTERIOR NOISE LEVEL CRITERIA FOR INTERMITTENT NOISE FOR NON-RESIDENTIAL RECEPTORS

Land Use	Maximum Intermittent Noise Level (dBA)	Basis for Criteria
Public Use/Educational Facilities:		
Concert Hall	25	Intrusion of noise may spoil artistic effect
Theater	30	Intrusion of noise may spoil artistic effect
School Auditorium	35	Minimize Intrusion into artistic performance
School Classroom	55	Speech communication - 20 feet - raised voice
School Laboratory	60	Speech communication - 6 ft. - normal voice
Church Sanctuaries	45	Speech communication - 50 ft. - raised voice
Library	55	Speech communication - 3 ft. - normal voice

SOURCE: Adapted from Table 2 in "Noise Insulation Problems in Buildings," Paul S. Veneklasen & Associates, 1973; Napa County, 1982, Noise Element of the Napa County General Plan.

TABLE 8-5: STANDARD AND ADJUSTMENTS FOR DETERMINING IMPACT OF INTRUSIVE NOISE FOR RESIDENTIAL RECEPTORS

STANDARD

The L_{eq} over a 10 minute period of time at the relevant time of day (or night) of maximum potential impact shall be the noise level descriptor used to determine the impact of intrusive, continuous or intermittent noise. The L_{eq} of the noise source of concern shall be compared with a similar L_{eq} of the ambient noise alone at the same time. Measurements are to be taken at the nearest receiver property line or at the nearest affected exterior location which is deemed appropriate. The ambient noise level shall be a measure of the composite of noises which occur normally at the given location.

Once the L_{eq} of the potentially intrusive source is determined, it shall be corrected as indicated below.

If, after the corrections are made, the potentially intrusive noise source would cause the exterior noise levels at the receiver position to exceed the measured ambient noise levels by more than 5 dBA, mitigation measures shall be developed to reduce the projected noise increase to be less than 5 dBA above ambient levels.

In addition to the above, the maximum noise level (Lmax) of any impulsive noise shall not exceed the ambient by more than 10 dBA.

Corrections for Intrusive or Intermittent Noise

Type of Correction	Circumstances of Correction	Correction[1]
Seasonal	Summer or year around operation	0 dBA
	Winter Only (or windows always closed)	-5 dBA
Tone or Impulse Characteristics	No Pure Tone or Impulsive Character	0 dBA
	Pure Tones[2] Present	+5 dBA
	Impulsive Tones[3]	+5 dBA

Notes:

[1] Correction to be added to the measured or predicted 10 minute L_{eq} of the potentially intrusive noise source.

[2] Tonal element exists when the 1/3 octave noise level of the tone is 5 dB greater than the average level of the two adjacent 1/3 octave noise bands.

[3] Repetitions of noise with a period of less than 2 seconds or for a series of events with a duration less than 2 seconds.

Noise Impact Inventory

Based on the assessment of existing noise levels in the City of St. Helena and the guidelines contained in Tables 8-3, 8-4, and 8-5, the following residential areas are considered noise-impacted: residences adjacent to State Route 29, residences that front onto Pope Street, residences along the railroad right-of-way, and residences within 700 feet of the Harold Smith gravel plant operation along Sulphur Springs Creek.

Guiding Policies

8.3.1 Maintain a city-wide noise environment that balances various City objectives while minimizing the impact of highway, railroad, and industrial noise on the public, while recognizing the agricultural basis of the community.

8.3.2 Discourage noise-sensitive land uses from locating in areas with inappropriate or high noise levels based on the land use compatibility guidelines, interior noise level criteria, and the noise contour maps.

The City of St. Helena is committed to protecting the ongoing operation of certain activities such as agriculture and the gravel quarry on Sulphur Springs Creek. Noise-sensitive uses such as residential uses should not be sited in such a manner that they would contribute to the premature termination of uses that are important to the community. As recommended in Implementing Policy 2.6.60, new homeowners in areas affected by agricultural and industrial operations should be required to sign a "right to farm" disclosure form acknowledging the potential for noise disturbances.

8.3.3 Require new residential developments to implement noise mitigation measures when built in close proximity to noise sources such as Highway 29, the railroad tracks, and the Harold Smith & Sons gravel quarry. These developments should consider the resulting exterior as well as interior noise environment.

8.3.4 Discourage the use of machinery and other noise making equipment and sources in residential areas whose impact would be considered intrusive to adjacent residential property.

Implementing Policies

8.3.5 Continue to consider the environmental impact of transportation-related noise and other noise sources in the review and approval of subdivision plans and requests for changes in the zoning ordinance.

8.3.6 Adopt the Title 24 interior noise level standard of 45 dBA, Ldn in all habitable rooms for all dwelling units. Adopt a maximum allowable noise level standard of 60 dBA, Ldn for residential exterior activity areas such as patios, back yards or recreational areas.

8.3.7 Continue to enforce Title 24 standards for all new residential construction.

8.3.8 Adopt a standard for maximum allowable interior noise levels for bedrooms at a maximum hourly L_{eq} of 35 dBA.

8.3.9 Adopt a standard as given in Tables 8-4 and 8-5 which limit intrusive and intermittent noise for residential receptors.

8.3.10 Require an acoustical study, prepared by a qualified acoustical consultant, for: a) all proposed projects that are likely to be exposed to noise levels greater than the standards, b) all proposed projects that would generate noise whose impacts on other uses would be greater than the standards, c) any project exposed to outdoor noise at or above Ldn 60 or for any noise source that could create such outdoor noise levels for adjacent uses, and d) for any project exposed to or which creates noise which exceeds the standards of Tables 8-4 or 8-5.

8.3.11 Require construction operations to use noise suppression devices and techniques and limit noisy construction activities to the least noise-sensitive times (8 am to 5 pm, Monday through Friday).

8.3.12 Include appropriate noise attenuation techniques in the design of all new arterial streets. Such techniques would include the use of site planning, building orientation, buffer distances and the use of correctly engineered acoustical barriers and berms where deemed necessary.

8.3.13 Modify existing or adopt ordinances to deal with intrusive noise sources such as the use of machinery and equipment, animals, vehicles and motorcycles, and idling buses in or near residential areas.

8.3.14 Incorporate "right to farm" law provisions relative to noise in all newly created deeds where agricultural activities may pose noise impact in the future. Require similar verbiage in deeds for properties similarly impacted by the Harold Smith & Sons gravel plant operations.

8.4 SEISMIC AND GEOLOGIC HAZARDS

Considering its location in "earthquake country", St. Helena is generally not faced with the significant threat of geologic or seismic hazard that many communities in California are. That is not to say that St. Helena is safe from earthquakes. While the Napa Valley area does not experience many significant earthquakes, there have been three major (VII

or more on the Mercalli Scale) earthquakes in St. Helena's recorded history. None of the earthquakes, which occurred between 1891 and 1906, had it epicenter in the Valley, but each resulted in considerable structural damage in the Valley.

The closest active fault that has been identified is the West Napa Fault which extends up the valley floor approximately along the alignment of Highway 29. The alignment of the fault has only been traced as far north as Yountville. Based on fault length it is estimated that the fault is capable of producing earthquakes with a Richter Magnitude of up to 6.75. Such an earthquake, which is considered a moderate-sized event, is capable of producing a substantial amount of damage, even to wood framed structures.

In the event of an earthquake, the level of geologic hazard in St. Helena will be moderated by the relatively stable geology in the area. The majority of St. Helena is situated in the level bottom lands of the Valley, with very low density residential development in the hillside areas on either side of the valley. Although the steepness of the slopes in the hill areas creates more potential for slope failure or other geologic hazard, County and U.S. Geological Survey maps generally classify the slopes within the City as being "low slide occurrence" areas. The deep alluvium of the Valley floor suggests the potential for earthquake damage as a result of liquefaction, however, there is no historical data that indicates a significant problem.

Probably the greatest potential safety hazard related to seismic activity is the failure of unreinforced masonry buildings during an earthquake. St. Helena has many such buildings that were developed during the 19th century. Adding to the potential safety risk, over half of these structures are located in the downtown where they are actively used by the public. A major earthquake during business hours could result in a significant loss of life. For further discussion of these structures and policies and programs to address their seismic safety, refer to the Historic Resources Element.

Guiding Policies

8.4.1 Restrict the intensity of development and the level of land form alteration in the hillside areas in order to minimize the potential for slope failure.

Implementing Policies

8.4.2 Require a soils and geologic report to be submitted for developments in hillside areas prior to the issuance of grading and building permits and submission of final maps.

8.4.3 Prohibit any development -- including any land alteration, grading for roads, and structural development -- in areas of slope instability or other geologic concerns until mitigating measures are taken to limit potential damage to levels of acceptable risk.

8.4.4 Require prompt revegetation of development areas on slopes prone to instability. Native and drought-tolerant plant species shall be used for landscaping on slopes where excess watering might induce landslides and/or erosion.

8.5 FIRE AND HAZARDOUS MATERIALS

Fire protection in St. Helena has two aspects: wildland fires and structural fires. St. Helena responds to both with a volunteer department that consists of 25 firefighters and a fire chief. While service levels are adequate within the City limits, the hillside areas on the perimeter of town provide the greatest service challenge. The heavily wooded hillside areas of St. Helena have a very high potential for wild fires. The combination of highly flammable vegetation, long and dry summers (and a drought), rugged topography, and the presence of people who live, work, and recreate in the hillside areas results in a potentially dangerous situation. Not only is human life and property at risk, but wildlife, watershed, flood control, and soils are also threatened by the effects of wildfire. The County's Wildland Fire Hazard Map indicates that the hillside areas on either side of town have a "high" fire hazard potential, whereas the valley has a low potential. In order to minimize the fire hazard, the General Plan limits the development potential in the hillside areas through general plan designations and zoning standards.

Maintaining adequate emergency response times is a fire service issue in the community that is affected by tourism. The peak period traffic congestion that occurs along Highway 29 can significantly delay response to an emergency. The difficulty in crossing Highway 29 during such periods affects both the time it takes firefighters to get from their homes to the station and the time it takes to get from the station to the fire. Similarly, traffic congestion can complicate the Department's ability to effectively respond to other emergency situations. Trucks and tankers hauling hazardous and flammable materials through town on Main Street/Highway 29 pose a potential service problem for the Department. The traffic congestion on Highway 29 not only makes circulation more difficult, but also increases the potential for accidents involving the hazardous materials.

Guiding Policies

8.5.1 Limit development in hillside areas where wildfire hazard is high to very low intensity or maintain as open space in order to prevent the loss of lives, injuries, and property damage due to wildfires.

8.5.2 Protect St. Helena residents from health and safety impacts related to the use, storage, manufacture or transport of hazardous materials.

8.5.3 Discourage new uses that rely extensively on the use of hazardous materials.

Implementing Policies

8.5.4 Require all new development in high wildfire hazard areas to be constructed with fire-retardant roofing and automatic sprinkler systems.

8.5.5 Require all new development in high wildfire hazard areas to maintain a clearance of flammable vegetation from around structures, and to use fire-resistant groundcovers.

8.5.6 Require all new development to meet the minimum fire flow rates specified by the City's Fire Code.

8.5.7 Ensure that all streets and roads are adequate in terms of width, turning radius, and grade to facilitate access by City firefighting apparatus, and to provide alternative emergency ingress and egress.

8.5.8 Require all new development plans to be approved by the Fire Department prior to issuance of building permits, grading permits, or final map approval.

8.5.9 Review all new development proposals for their potential to introduce the production, use, storage, and/or transport of hazardous materials, and require reasonable controls on such hazardous materials.

8.5.10 Adopt a "fire sprinkler" ordinance for all new construction and for existing structures as determined to be appropriate.

8.6 FLOOD HAZARDS

As shown on the Land Use Map, flood hazard areas extend west from the Napa River anywhere from a hundred feet to more than 2,400 feet at the north end of town. The flood hazard areas are the areas subject to inundation during a "100-year" storm event. The periodic inundation of flood hazard areas can result in the loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

Flood Hazard Areas are generally unsuitable and sometimes hazardous for intensive urban development. Attempts to reclaim these areas for intensive development through major local channel improvements or realignment generally cannot be accomplished without creating adverse impacts on downstream properties. For this reason, the General Plan considers these areas most suitable for most agricultural uses, some recreational uses, and open space uses of a similar nature. The stream channels and immediately adjacent areas generally support valuable riparian habitat and, at most, are recommended for passive recreational uses.

Guiding Policies

8.6.1 Prohibit the introduction of intensive urban development into designated Flood Hazard Areas.

8.6.2 Uses vulnerable to floods, including public facilities and infrastructure, shall be protected against flood damage at the time of initial construction.

8.6.3 Prohibit the construction of structures or flood barriers which would unnaturally divert flood waters or would increase flood hazards in other areas.

8.6.4 Require a grading permit for any filling, grading, or dredging that may increase potential for flood damage.

8.6.5 Restrict the alteration of natural flood plains, stream channels, and natural protective barriers which help accommodate or channel flood waters.

8.6.6 Prohibit the siting of uses within Flood Hazard Areas that could result in health and safety hazards due to the release of chemicals or other substances as a result of inundation or erosion.

8.6.7 Encourage the use of Flood Hazard Areas within new development areas for open space and recreation uses, including parks and greenbelts.

8.6.8 Ensure that any new development that is allowed within the floodplain is constructed so that the lowest floor elevation is at least one foot above the 100-year flood level.

Implementing Policies

8.6.9 Revise the Special Flood Plain District zoning to include more specific development standards relating to permitted development intensities, construction methods, site planning, setbacks, etc.

8.6.10 Coordinate with County Flood Control District to ensure that stream channels are routinely cleared of vegetation and debris which could impede stormwater flows, while protecting riparian habitat values.

8.6.11 Require developers with land adjacent to the Napa River to construct or contribute a fair share toward the construction of necessary flood control improvements.

8.7 DISASTER PLANNING

The potential for disaster related to an earthquake, wildland fire, flooding, or other emergency requires the City to plan how, as a community, all parts of the community will work together to meet the challenge. The City's Police Department maintains an emergency response plan that assigns responsibilities and prescribes evacuation routes in the event of a disaster. This document serves as the foundation for the City's disaster planning.

Guiding Policies

8.7.1 Ensure that City emergency procedures are adequate in the event of potential natural or man-made disasters.

Implementing Policies

8.7.2 Maintain and periodically update the City's Emergency Response Plan.

As part of the periodic update, the City should review County and State emergency response procedures that must be coordinated with City procedures, and coordinate with other Napa Valley communities to ensure that emergency response procedures are compatible.

8.7.3 Conduct periodic emergency response exercises to test the effectiveness of City emergency response procedures.