CITY OF CALABASAS GENERAL PLAN:

COMMUNITY PROFILE

ENVIRONMENTAL HAZARDS

May 6, 1993

V. ENVIRONMENTAL HAZARDS

The Environmental Hazards section of the **Calabasas General Plan: Community Profile** provides the factual background and understanding necessary to meet the State's data and analysis requirements for Noise and Safety elements.

The Environmental Hazards Chapter includes the following major sections.

- Geology and Seismicity
- Fire Hazards
- Noise
- Hazardous Materials
- Disaster Response

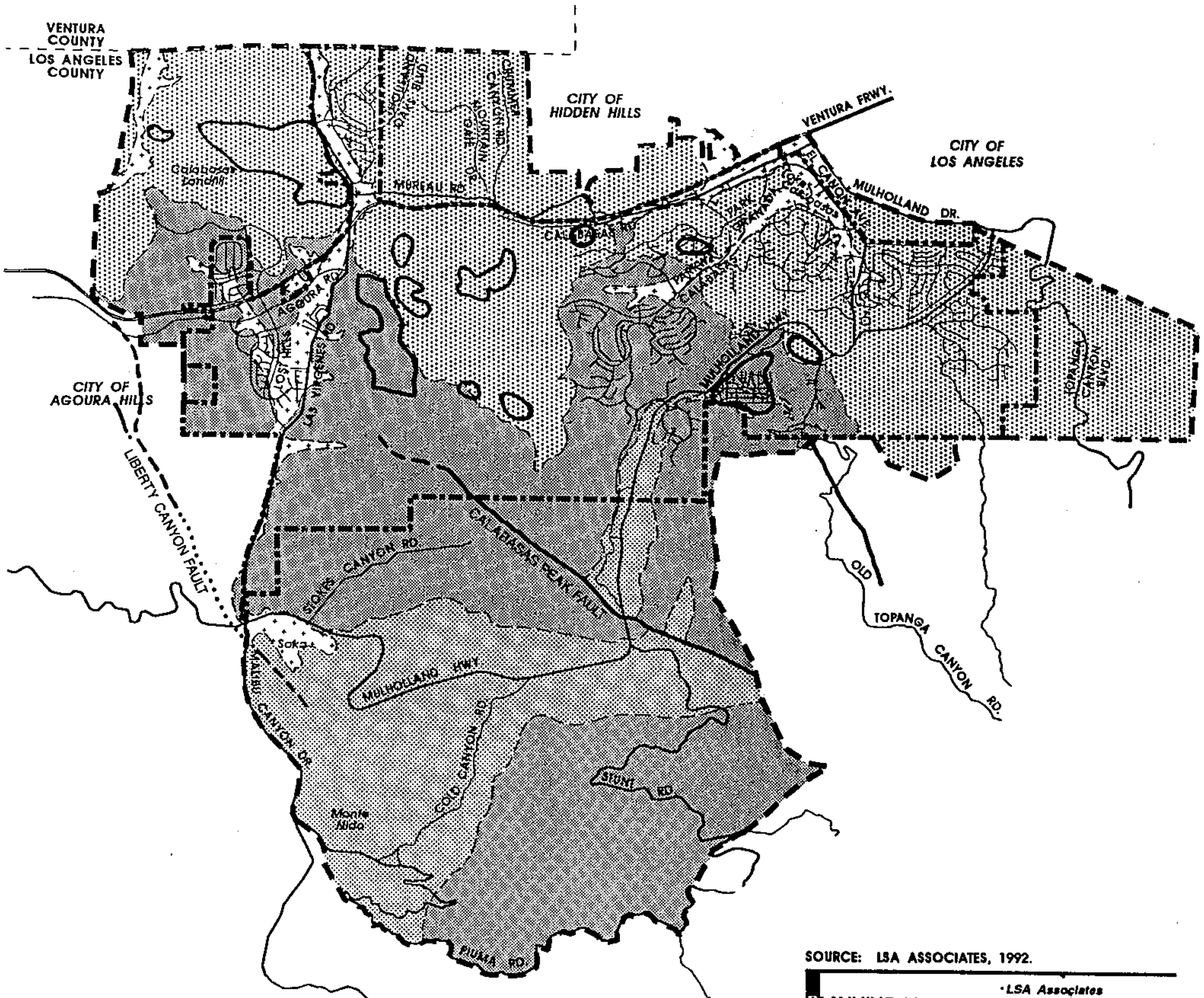
A. GEOLOGY AND SEISMICITY

The Calabasas General Plan study area is situated within the Transverse Ranges Geomorphic Province. This province covers the Transverse Mountain Ranges and structural basins that trend approximately east-west. This trend is unusual when compared with the majority of Southern California mountain ranges, which trend north-south. The tectonic forces that resulted in this mountain building are evident in the complicated geologic structure of the area.

MAJOR GEOLOGIC FORMATIONS

Local geological conditions within the Calabasas study area indicate a geology that is substantially diverse, as evidenced by the hillside and valley characteristics found throughout the study area. Four major geological formations are found within the study area boundaries as presented in Figure V-1. These include the Modelo Formation, the Topanga Formation (undifferentiated), the Conejo and other Volcanics Formation, and the Younger Alluvium Formation. Descriptions of these formations and their rock units are provided in Appendix D.

In the Calabasas region, the geology that has evolved includes mountains and the higher parts of hills representing structural highs, and valleys and the lower parts of hills reflecting structural lows. Overall, these conditions reflect the north to south stresses creating folds (a curve or bed in the strata) and accompanying thrust faults (a fault which results in movement of one rock unit over another). These stresses have been active at least since middle Miocene time (approximately twenty two and half million years ago), when major plate tectonic activity occurred. Plate tectonics is characterized on a global level and consists of large, broad, thick plates (plates composed of areas of both continental crust and ocean crust and mantle) each of which "floats" in the mantle and moves more or less independently of the other plates. Tectonic activity occurred after deposition of the Sespe Formation (a non-marine sandstone located in the Thousand Oaks area), and after encroaching seas had deposited the early Miocene Vaqueros Formation (which underlies the Topanga Formation in the Thousand Oaks area), and the earliest part of the middle Miocene Topanga Formation. The period of plate tectonic activity was accompanied by volcanic activity and may have included great offsets along major faults. Specific evidence for the plate tectonic activity does not seem to be present in the region.



City of Calabasas

GENERAL PLAN

FIGURE V-1

GEOLOGICAL FORMATIONS

LEGEND

- CITY LIMITS
- SPHERE OF INFLUENCE
- MODELO
- TOPANGA
- CONEJO AND OTHER VOLCANICS
- YOUNGER ALLUVIUM
- FAULT LOCATIONS
- POTENTIAL AREAS OF MASS WASTING / LANDSLIDES

0' 2,000' 4,000' 8,000'

NORTH

SOURCE: LSA ASSOCIATES, 1992.

PLANNING NETWORK
- LSA Associates
- Urban Research Associates
- Urban Design Studio

The final, known, widespread deposition of marine deposits in the region was during Delmontian time (about ten to nine million years ago). Subsequent to this period, uplift brought the entire region above sea level, and sculpturing of the modern topography began. Tectonic activity and uplift of the region, especially during middle Pleistocene time (about one million years ago), has further refined the geomorphic development. Broad valley areas, apparent terrace surfaces and benches between 900 and 1,400 feet in elevation in the Thousand Oaks area, similar in elevation to the highest coastal marine terraces, suggest further inundation by possible estuarine waters, possibly about 350,000 to 400,000 years ago (no fossil evidence for this inundation has been uncovered). Such waters undercutting slopes in the region may have triggered some of the still existing, large, ancient landslides. North to south tilting has caused the large landslides to occur on steepened north-facing slopes.

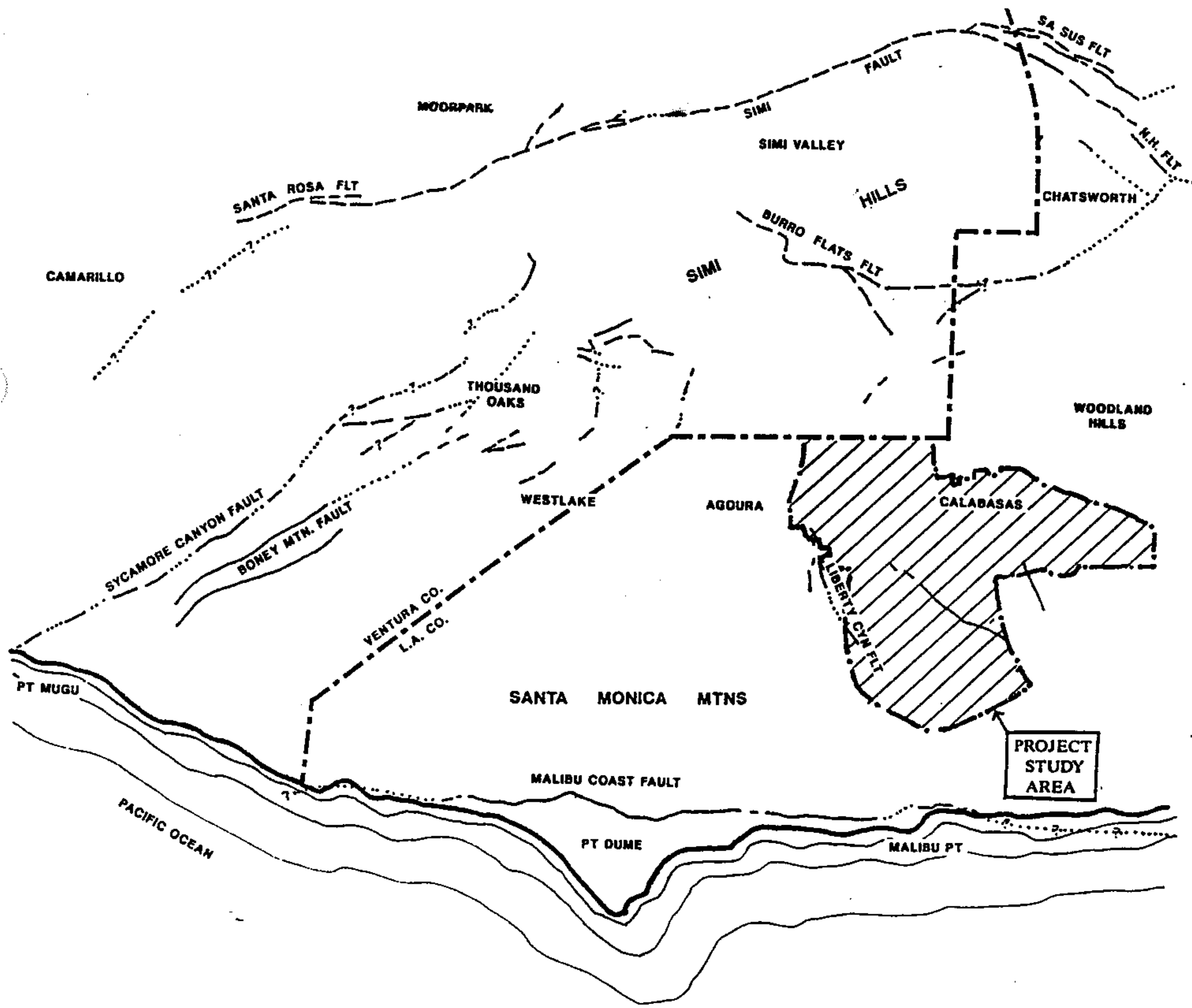
LOCAL FAULTS

Rocks of Miocene age and older in the Calabasas/West Los Angeles County area are cut by a complex system of faults (a surface or zone of rock fracture along which there has been displacement, from a few centimeters to a few kilometers in scale), of which none can be described as a "major fault." The two main fault zones (a fault that is expressed as a zone of numerous small fractures) in the area, are the Malibu coast fault zone, which lies to the south, and the Simi fault zone which lies to the north. Both systems are capable of producing moderate to large seismic events. A third regional fault zone, the Sycamore Canyon-Boney Mountain zone, which breaks up into shorter fault segments in the Thousand Oaks area, also affects the study area. One of the segments in this fault zone, the Boney Mountain Northeast fault, shows possible evidence of mid to late Quaternary displacement. Figure V-2 illustrates fault locations.

City of Calabasas

General Plan

FIGURE V-2
REGIONAL FAULT LOCATIONS



SOURCE: LSA ASSOCIATES, 1992.

PLANNING NETWORK

- LSA Associates
- Urban Research Associates
- Urban Design Studio

The principal faults and additional fault-related features in the area are described as follows:

- ***Sycamore Canyon-Boney Mountain Fault Zones*** Potentially active faults generally do not occur in the region, but small displacement of late Quaternary age possibly may have occurred along the Boney Mountain Northeast fault. Therefore, this fault possibly should be considered as a potentially active fault.

  The Sycamore Canyon-Boney Mountain fault zones may break up into shorter and weaker fault segments as the zones fade out to the northeast in the north part of the Thousand Oaks area.

- ***Liberty Canyon Fault Zone*** A north-trending fault concealed by alluvium has been mapped in Liberty Canyon. Indirect evidence also suggests that the fault may bend westward in the vicinity of the Ventura Freeway and fade out into bedding of the Topanga Formation.

- ***Possible Faults in North-South Canyons*** Possible north- to north-northeast-trending concealed faults may occur in Skeleton, Lindero, Las Virgenes and McCoy canyons according to the Division of Mines and Geology geology study.

- ***Calabasas (Red Rock) Fault*** This fault extends in a north-northwestward direction. No evidence for this fault in the study area could be found by the Division of Mines and Geology study.

- ***Lake Sherwood Fault*** Mapping for the Division of Mines and Geology geology study did not disclose evidence for this fault, which extends northeast from a point near Malibu Lake to a point near Liberty Canyon on the Calabasas U.S.G.S. quadrangle map.

- ***Other Regional Fault Systems*** Several other faults in the region may also affect the Calabasas study area, even though these faults may be a considerable distance for the City. These include the San Andreas Fault (approximately 40 miles from the study area), the Sierra Madre-San Fernando-Santa Susana Fault complex (approximately 15 miles from the study area), the Newport-Inglewood Fault system (approximately 20 miles from the study area) and the Malibu Coast Fault System (approximately 4-5 miles from the study area.

There are no known active faults within the Calabasas General Plan study area boundaries. Ancient inactive faults exist in various locations throughout the study area (as described above) but do not present significant hazards to planned land use or development. Nonetheless, insufficient data exists on a city-wide basis to unequivocally determine if the faults contained within or near the study area are potentially active. Therefore, where faults are known to extend into the study area, additional field investigations are required to determine the age of the earth material that is displaced on either side of the fault extension. Generally, if the displaced earth material is more recent than 11,000 years (Holocene period), the fault is considered active (and located in an Alquist-Priolo Special Studies Zone). Faults displacing material that is 11,000 years to 1.6 million years in age (the end of Quaternary period) are considered potentially active, and faults displacing material beyond 1.6 million years in age are inactive.

EARTHQUAKE MEASUREMENT

One method of measuring the magnitude of earth movement is the Richter Scale. This scale measures the magnitude (M) of energy released by an earthquake. The Richter Scale is a logarithmic scale whereby an increase of 1.0 on the scale represents an increase of about 32 times the amount of energy released. Thus, an M 6.0 earthquake releases 32 times as much energy as an M 5.0 event. This is the most common scale used to compare the "size" of earthquakes, as it is an objective measure based on the energy released by a particular earthquake.

SEISMIC SHAKING

In the Calabasas region, seismic shaking that can occur as a result of a large regional earthquake or of a great, relatively distant earthquake is considered potentially destructive. In Calabasas the most severe damage from shaking would result to structures located on fills not meeting engineering standards for compaction or foundation design. Severe seismic shaking could also activate landslides, especially during wet weather, and possibly trigger displacement along relatively minor faults.

Although the Calabasas-Agoura-Eastern Thousand Oaks area lies well within the region of Southern California where large earthquakes have taken place, the area has not been an epicenter of a large historic earthquake. Table V-1 provides an accounting of the seismic activity that has occurred in the region in recent historical times.

Table V-1
Regional Historic Seismic Activity

Earthquake Location	Intensity	Date of Occurrence
Pt. Mugu	5.7	1973
San Fernando	6.5	1971
Wheeler Ridge	7.7	1952
Santa Barbara	5.9	1941
Santa Barbara	6.3	1925
Newhall	± 6	1893

Source: LSA Associates, Inc., March 1993.

Based on historical records, major earthquakes most likely affect the area within the next 50 to 100 years would be one of the following:

- A magnitude six to seven earthquake on the potentially active Malibu Coast Fault system.
- A magnitude six to seven earthquake on the active Sierra Madre-San Fernando-Santa Susana fault complex.
- A magnitude six to seven earthquake on the active Newport-Inglewood fault system.
- A magnitude eight or greater on the San Andreas Fault system located to the northeast of the study area.

It is anticipated that these earthquakes could produce peak ground accelerations within the underlying bedrock materials on the strong motion scale of 0.1g (gravity) which is considered low to moderate intensity, to 0.4g which is considered moderate intensity. This falls within an intensity range which does not require unique or special foundation design or building construction techniques. Peak accelerations over 0.5g do require special structural augmentation.

The two faults closest to Calabasas on which moderate to large earthquakes might be expected to occur are the Simi fault zone to the north and the Malibu Coast fault to the south. These faults are similar to the San Fernando fault zone to the east (the site of the 1971 San Fernando earthquake) which also strikes roughly east and demonstrates reverse movement from north to south. Geologic mapping by the Division of Mines and Geology along this zone after the earthquake revealed previous thrusting of bedrock over older alluvium of late Quaternary, pre-Holocene age, as occurs along both the Malibu Coast and Simi fault zones.

Strong seismic shaking caused by an earthquake on the Malibu Coast fault might trigger ground breakage along small faults that are apparently unrelated to the causative fault of the earthquake. Strong shaking from such an earthquake would cause considerable heaving and probable liquefaction (a temporary transformation of earth material into a fluid mass caused by a collapse of the structure by shock or strain, e.g., by earthquake) and consequent settling or sliding of some water-soaked or partially wet colluvium, alluvium and artificial fill although the liquefaction potential in Calabasas is low. Some modern hillside fills on which residences are constructed might fail, as they did in the Granada Hills area during the San Fernando earthquake. If, at the time of an earthquake, the terrain were also soaked by heavy rains, renewed sliding of many older landslides probably would occur. Precariously perched boulders, in volcanic rock and Upper Cretaceous sandstone locations could shake loose and roll down slopes. Rock debris could shake down on steep slopes of resistant sandstone and cherty shale which overlie softer rocks. These slopes lie north of the Ventura Freeway to the west of Las Virgenes Canyon, and south of the freeway to the east of Las Virgenes Canyon.

An additional regional fault zone which may be potentially active is the Burro Flats-Reservoir fault zone, which lies about four miles north of Calabasas. This fault is significant because, along with the Northridge Hills and one additional northwest-tending fault, it may displace Upper Quaternary alluvial sediments in the northwest corner of the San Fernando Valley, and therefore could be potentially active. Portions of these faults are within a northeast-trending zone of seismic activity which extends from Point Dume on the southwest to Palmdale on the northeast. The zone, which is nearly four miles wide, extends from Liberty Canyon on the southwest to beyond Laskey Mesa on the northeast.

Evidence suggestive of movement along the Boney Mountain Northeast fault is a prominent northeast-trending escarpment 50 to 75 feet high, nearly two miles in length, in a southwest-trending tributary of Arroyo Conejo. An escarpment is described as a long, more or less continuous cliff or relatively steep slope facing in one direction, breaking the general continuity of the land by separating two level or gently sloping surfaces, and produced by erosion or faulting.

Most features of older construction that have led to earthquake damage, especially lack of reinforcement in adobe and brick buildings, are no longer permitted in new construction. Most of the construction in the Calabasas area has taken place since 1950, and is, therefore, subject to considerably less potential danger than areas with older construction. Most residential construction in Calabasas has occurred during an era when building codes required more earthquake resistant construction techniques and standards. This does not mean, however, that considerable damage would not occur in Calabasas during severe shaking caused by earthquakes even as far as 50 or more miles away. Nonetheless, there are portions of Calabasas that pre-date 1950, such as the north eastern portion of Calabasas near the Los Angeles City boundary, as well as other small pockets of development located primarily in the hillsides. These areas are more likely to contain structures that could be impacted by earthquake activity.

SEISMIC STUDY ZONES

The State Legislature enacted the Alquist-Priolo Special Studies Zones Act in 1972 as a result of concern about the public safety near hazardous faults. To assure that homes, offices, hospitals, public buildings, and other structures for human occupancy are not built on active faults, the Act requires a geological investigation before a local government can approve most development projects in special studies zones. The Act implies that a program for special studies zones must be incorporated into the General Plan as well as carried out through zoning laws, and local development standards.

The Act also requires that the State Geologist delineate special studies zones around all potentially and recently active traces of major faults in California. As addressed in the California Division of Mines and Geology Special Publication No. 42 (Fault Hazard Zones in California, Revised 1988), the Calabasas study area does not contain any of these zones and is free of fault zones that are subject to the Alquist-Priolo Act provisions. As stated above, there are no active faults known to be within the Calabasas study area boundaries. Therefore, the Calabasas General Plan is not required to contain a program to address the special studies zone issues.

MASS WASTING

Mass wasting is a general term for the dislodgement and downslope gravitational transport of soil and rock material. It includes such displacements as creep (the slow, gradual deformation of the rock materials under the gravitational stresses), solifluction (the slow, viscous, downslope flow of waterlogged soil), and rapid movements such as mud and debris flows, and landslides. Mud flows are described as a mass movement landform and a process characterized by a flowing mass of finely-grained earth material possessing a high degree of fluidity during movement. Debris flows are a high density mudflow containing abundant coarse-grained materials, and resulting from an unusually heavy rain. Landslides are generally defined as covering a wide variety of mass movement landforms and processes involving the moderately rapid to rapid downslope transport of soil and rock material by means of gravitational stresses.

The features of mass wasting in the Calabasas area range upward in magnitude from expansive and creeping soils and slope wash, to several relatively large, ancient, bedrock landslides. Most of the expansive soils and slope wash and the principal landslides occur in the lower and middle part of the Modelo Formation, and also include parts of the Topanga Formation. Features of mass wasting are common in most of the areas where these folded rocks are exposed, but are most common in the terrain of prominent hills cut by south-trending canyons such as Las Virgenes Canyon in Calabasas. Figure V-1 illustrates the locations in Calabasas that are subject to mass wasting and landslides.

Many deep-seated landslides are common in north- and east-facing slopes, mainly because of the influence of continued regional tilting upward to the north-northeast. This tilting has caused streams to gravitate toward south and west sides of canyon and valley bottoms, where they have undercut north-and east-facing slopes, and caused such slopes to be relatively steeper and more prone to sliding than slopes on the opposite sides of the affected valleys and canyons. In addition, the relatively greater amount of moisture retained on north-facing slopes has probably also influenced sliding.

One of the largest ancient landslide masses occurred on north-facing slopes northwest of Brents Junction in the Calabasas area. This landslide involves relatively contorted and generally folded, but mostly gently dipping shale bedrock of the lower part of the Modelo Formation.

A second large landslide feature consists of a group of closely related landslides on the east side of the Las Virgenes Canyon, southeast of Brents Junction in Calabasas. These landslides extend westward, away from the steep cliff terrain which is characteristic of the outcrop of the siliceous shale of the lower part of the Modelo Formation, near where it overlies the Topanga Formation. Small landslides derived from these larger landslide masses occurred during the winters of 1968-1969 and 1969-1970.

Additional, relatively large landslide masses occur in the steep, west-facing slopes of Cheseboro Canyon and in the upper part of Las Virgenes Canyon just over the boundary into the Ventura County. A possible large ancient landslide may underlie part of the area on which Calabasas Highlands is developed, as indicated in the State Division of Mines and Geology Open File Report 84-1. This has been identified as a feature of approximately 50 acres on the southside of Dry Canyon that is suggestive of an ancient northwest-facing landslide. If the feature is a landslide, it may be partially stabilized at its toe in Dry Canyon by alluvium and fill buttressing of the canyon. According to the City of Calabasas Building Department, the area continues to be affected by unstable earth conditions.

B. FIRE HAZARDS

The City of Calabasas is contained in Fire Zone IV. This zone includes wildland fire hazard areas defined as watershed lands that contain native growth and vegetation. Development located in or within 500 feet of native vegetation is subject to special development provisions specified in the fire code. These provisions may require special roofing materials, chimney spark arrestors, and vegetation clear zone buffers. Development in Fire Zone IV may be considered a higher risk due to the wildland interface characteristics associated with locating development adjacent to open space lands. For this reason, Fire Zone IV requires adherence to the above special building provisions that are not required in the other fire zones.

C. NOISE

FUNDAMENTALS OF NOISE

Noise Definitions

Sound is technically described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale is usually used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Figure V-3 graphically illustrates some common noise sources and their instantaneous noise levels in terms of dBA.

Noise is defined as unwanted sound, and is known to have several adverse effects on people, including hearing loss, speech interference, sleep interference, physiological responses and annoyance. Based on these known adverse effects of noise, the federal government and the State of California have established criteria to protect public health and safety and to prevent disruption of certain human activities.

Noise Assessment Criteria

Several rating scales exist to analyze adverse effects of noise on the community. These scales include the Equivalent Noise Level (L_{eq}), Day-Night Average Noise Level (L_{dn}), and the Community Noise Equivalent Level (CNEL).

Equivalent Noise Level, $L_{eq,}$ is a sound energy level averaged over a specified time period (usually one hour). L_{eq} represents (in a single numerical value) the amount of variable sound energy received by a receptor over a time interval. For example, a one hour L_{eq} noise level measurement would represent the average amount of energy contained in all of the noise that occurred in that one hour. L_{eq} is an effective noise descriptor because of its ability to assess the total time varying effects of noise on sensitive receptors.

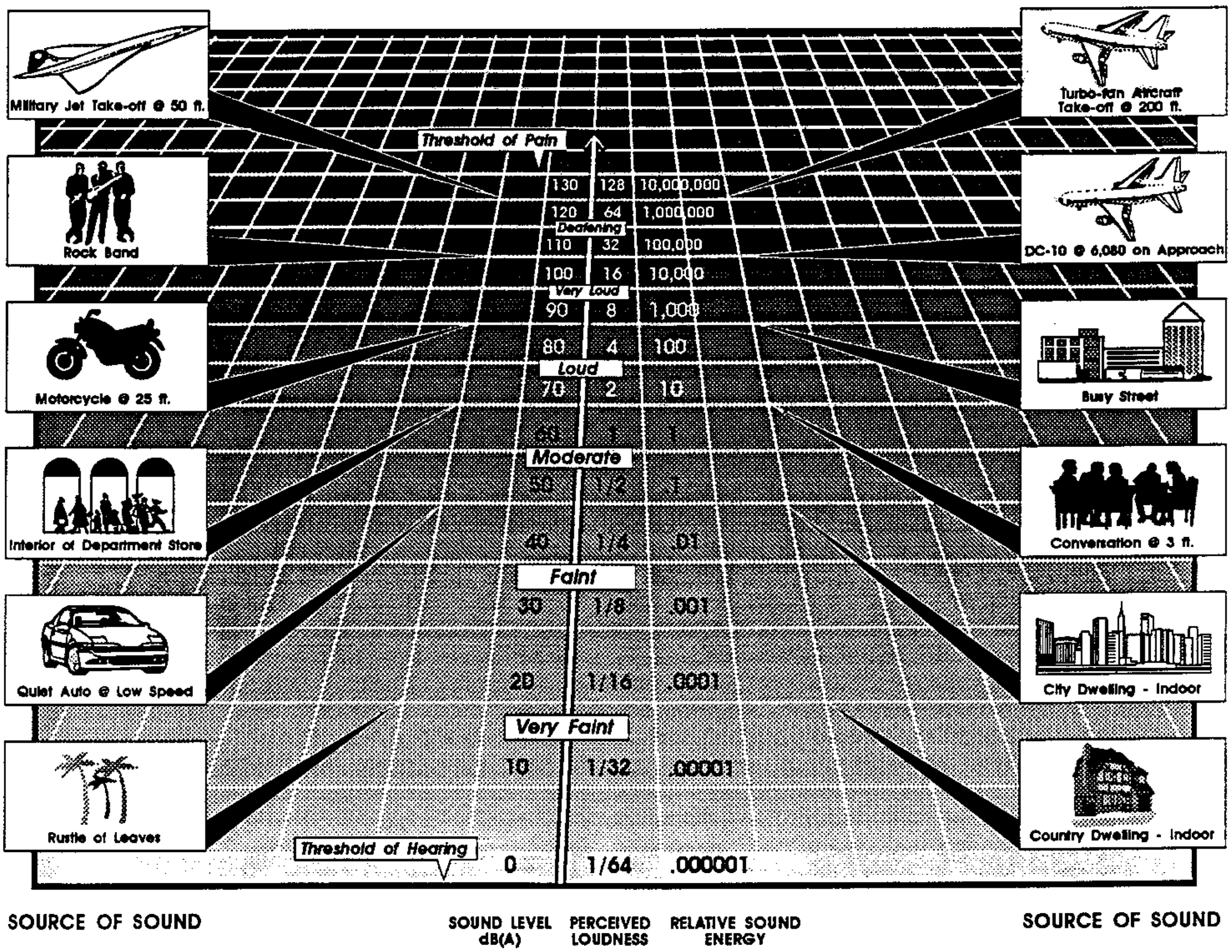
Unlike L_{eq}, the Day-Night Average, $L_{dn,}$ and Community Noise Equivalent Level, CNEL, are both based on 24 hours of measurement. L_{dn} and CNEL also differ from L_{eq} because they apply a time weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when sleep disturbance is a concern). "Time weighted" refers to the fact that L_{dn} and CNEL penalize noise that occurs during certain sensitive time periods. Noise occurring during the daytime period (7:00 a.m. to 7:00 p.m.) receives no penalty for either the L_{dn} or CNEL noise metrics. In the case of CNEL, noise during the evening time period (7:00 p.m. to 10:00 p.m.) is penalized by five dBA, while nighttime (10:00 p.m. to 7:00 a.m.) noise is penalized by ten dBA. The 24 hours of noise are then averaged on an energy (logarithmic) basis to obtain the CNEL value. The L_{dn} noise metric differs from the CNEL noise metric in that the duration of the daytime period is from 7:00 a.m. to 10:00 p.m., thus omitting the evening time period. L_{dn} and CNEL are the predominant criteria used to measure roadway noise affecting residential receptors. The highest instantaneous measurement during any period is referred to as L_{max}.

CITY OF CALABASA

GENERAL PLAN

FIGURE V-3

COMMON NOISE SOURCES AND NOISE LEVELS



SOURCE: COFFMAN AND ASSOCIATES, 1991.

HUMAN REACTIONS TO SOUND

Sensitivity to noise varies widely from one individual to the next. Some people are acutely aware of very low levels of noise, while others seem oblivious to high noise levels. These variations may be attributed to temperament, prior "noise history" (the levels of noise to which the listener is accustomed), hearing impairment, and age.

Although there is wide variation in human response to noise, certain general statements may be made regarding noise impact upon the average person:

- 40 to 45 dBA (L_{eq})- Sleep interference may occur at or above these levels.
- 60 to 65 dBA (L_{eq})- Speech at normal conversation levels becomes difficult; speech intelligibility is impaired.
- 85 dBA (L_{eq})- Exposure to noise levels at or above 85 dBA for extended periods of time may lead to permanent hearing damage. Federal and state occupational safety and health laws are in place to protect individuals from excessive levels of noise in the workplace.

However, the level of noise may be reduced by distance, doubling the distance will reduce noise by 8 dBA. Other techniques such as sound walls and heavy landscaping may affect people's perception of how "loud" the noise seems.

LAND USE COMPATIBILITY WITH NOISE

The State of California's Office of Noise Control has established standards and guidelines for acceptable community noise levels based on the CNEL rating scale. The purpose of these standards and guidelines, summarized in Figure V-4, is to allow public agencies a framework in setting standards for human exposure to noise and preparing noise elements.

SENSITIVE RECEPTORS

Sensitive receptors are those land uses that require serenity or are otherwise adversely affected by noise events or conditions. In Calabasas, these land uses include, but are not limited to schools, libraries, churches, and residential uses.

Acceptable Exterior Noise Exposures

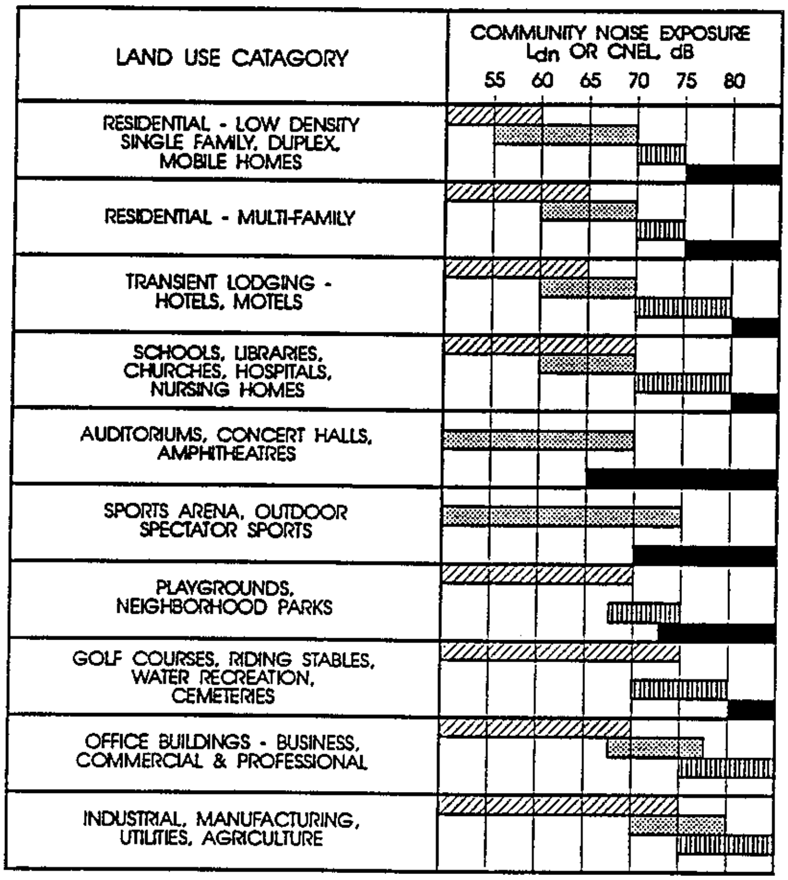
Figure V-4 illustrates the State of California, Office of Noise Control's Land Use Compatibility Matrix of community noise environments for various land use categories. As shown in this figure, a normally acceptable designation indicates that a specified land use achieves all noise reduction requirements with standard construction. By comparison, a conditionally acceptable designation implies that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use type is made, and the needed noise insulation features are incorporated by design. In general, sensitive land uses should not be exposed to noise levels indicated by normally unacceptable conditions, or clearly unacceptable conditions.

CITY OF CALABASAS

GENERAL PLAN

FIGURE V-4

LAND USE COMPATIBLITY FOR COMMUNITY NOISE ENVIRONMENTS



INTERPRETATION

NORMALLY ACCEPTABLE

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

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

SOURCE: OFFICE OF NOISE CONTROL, CALIFORNIA DEPARTMENT OF HEALTH.

As shown in Figure V-4, single family and multi-family residential uses, schools, libraries, and churches have a normally acceptable community noise exposure range of 60 dBA CNEL to 70 dBA CNEL. Most communities use 60 dBA CNEL or 65 dBA CNEL as their exterior residential noise standard. Office buildings are normally acceptable up to 70 dBA CNEL. Industrial and manufacturing land uses, being less sensitive to noise, are normally acceptable where the exterior noise levels are 75 dBA CNEL or less.

On the national level, the Federal Highway Administration places residences in Activity Category B, which specifies a maximum exposure level of 67 dBA L_{eq}.

Acceptable Interior Noise Exposures

The California Commission of Housing and Community Development adopted noise insulation standards for the state in 1974. On November 14, 1988, revisions to these standards (Title 24, Part 2, California Code of Regulations) were approved. The revised standards mandate that interior noise levels attributable to exterior sources not exceed 45 dBA L_{dn} or CNEL in any habitable room.

The Commission further specifies that an acoustical analysis shall be required for residential structures that are, or will be, located within the L_{dn} or CNEL contour of 60 dBA or greater where associated with an existing or proposed freeway, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial use. The analysis must show that the building will limit interior noise to a level of 45 dBA (L_{dn} or CNEL).

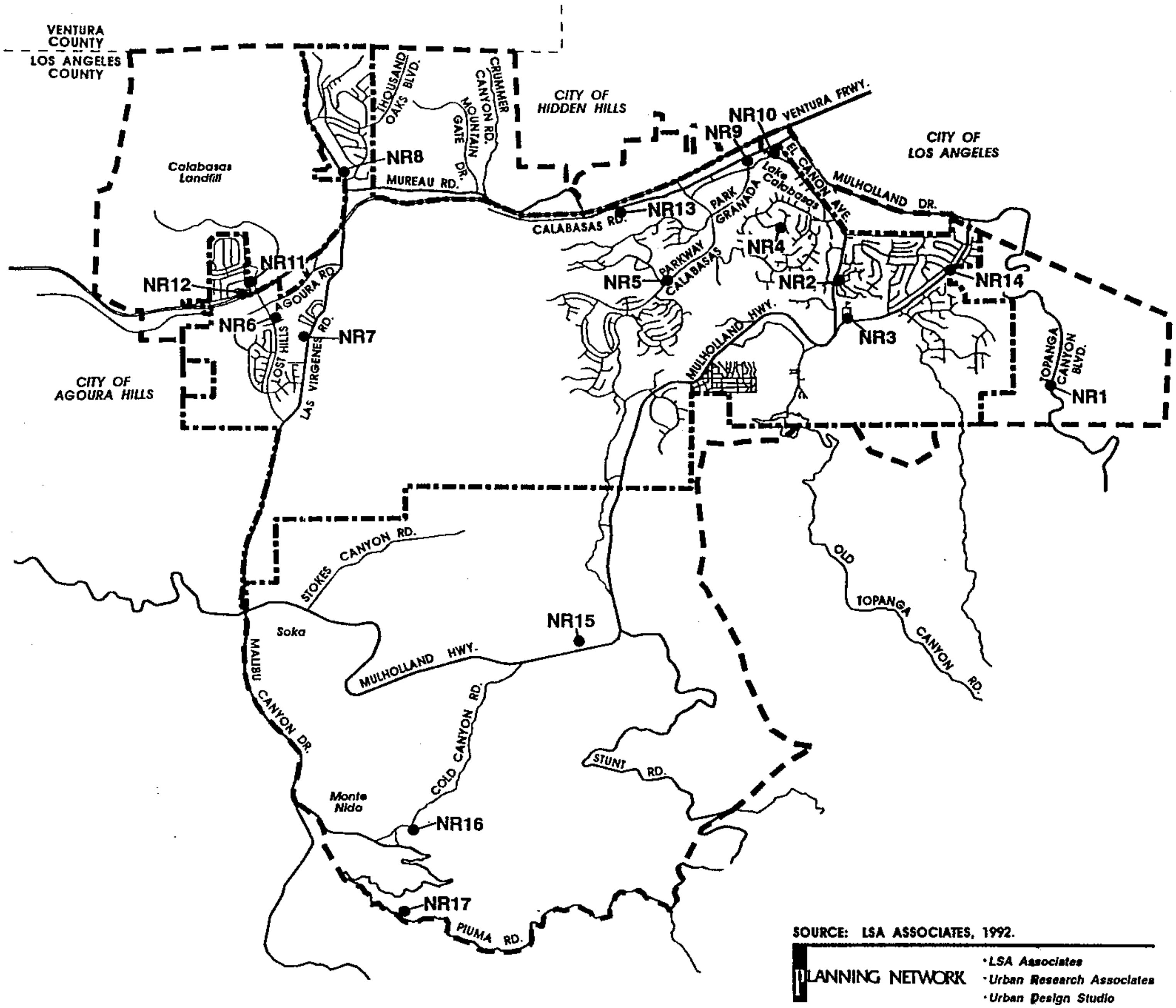
EXISTING NOISE ENVIRONMENT

Existing noise measurements were collected at representative noise sensitive receptors within the City and the City's General Plan study area. These measurement sites (shown in Figure V-5) were selected to determine the noise environment adjacent to roadways at representative land uses. These existing measured L_{eq}s are presented in Table V-2.

The noise measurements were conducted using a Metrosonics db-3100 Metrologger Sound Level Meter set for slow response on the A-weighted decibel (dBA) scale. To ensure accuracy, the Metrosonics was calibrated before and after each measurement using the Metrosonics cl-304 Calibrator. Measurements were ten minutes in duration, except at one site, NR5, where a five minute measurement was made.

Since the noise measurements were made as L_{eq}s, they are compared to the FHWA exterior noise standard of 67 dBA L_{eq}. This comparison is meant to be a point of reference only, and not as an absolute criterion of conformance to the FHWA standard. This is because the noise measurements are intended to give a "broad brush" impression of noise levels throughout the City, and are not intended to be a definitive study of any one area within the City of Calabasas.

Existing noise levels were also analyzed using a computer model based upon the Federal Highway Administration Traffic Noise Prediction Model (FHWA-RD-77-108) together with key roadway and site parameters. The computer model does not account for topographical shielding, and is thus a "worst case" analysis. The results of the existing noise modelling are presented in Table V-3 in terms of CNEL.



CITY OF CALABASAS
GENERAL PLAN

FIGURE V-5

NOISE RECEPTOR LOCATIONS

LEGEND

- CITY LIMITS
- SPHERE OF INFLUENCE
- NR1 NOISE RECEPTOR

NR 1	RURAL RESIDENTIAL
NR 2	SF RESIDENTIAL
NR 3	SCHOOL
NR 4	SF RESIDENTIAL
NR 5	GOLF COURSE/SF RESIDENTIAL
NR 6	OFFICE/SF RESIDENTIAL
NR 7	MF RESIDENTIAL
NR 8	MF RESIDENTIAL
NR 9	NEIGHBORHOOD COMMERCIAL
NR 10	COMMERCIAL
NR 11	SF RESIDENTIAL
NR 12	COMMUNITY PARK
NR 13	COMMERCIAL
NR 14	SF RESIDENTIAL
NR 15	RURAL RESIDENTIAL
NR 16	RURAL RESIDENTIAL
NR 17	STATE PARK

SOURCE: LSA ASSOCIATES, 1992.

PLANNING NETWORK
- LSA Associates
- Urban Research Associates
- Urban Design Studio

Table V-2
Noise Field Measurement Data Summary

Noise Receptor Site	Roadway	Land Use	Date	Time	Measured L_{eq}	Measurement Duration (Minutes)	Measured Lmax
NR 1	Topanga Canyon Road	Rural Residential	10/27/92	11:00	69.1 dBA	10	84.8 dBA
NR 2	Old Topanga Canyon Road	SF Residential	10/27/92	11:48	67.4 dBA	10	80.0 dBA
NR 3	Mulholland Highway	School	10/27/92	12:12	66.1 dBA	10	80.1 dBA
NR 4	Park Alisal	SF Residential	10/27/92	12:38	54.0 dBA	10	67.9 dBA
NR 5	Parkway Calabasas	Golf Course/SF Residential	10/27/92	13:15	66.2 dBA	5	81.4 dBA
NR 6	Lost Hills Road	Office/SF Residential	10/27/92	15:03	69.5 dBA	10	82.1 dBA
NR 7	Las Virgenes Road	MF Residential	10/27/92	15;30	68.7 dBA	10	77.3 dBA
NR 8	Las Virgenes Road	MF Residential	10/27/92	15:55	64.6 dBA	10	74.4 dBA
NR 9	Calabasas Road	Neighborhood Commercial	10/27/92	16:35	60.4 dBA	10	69.5 dBA
NR 10	Highway 101	Commercial	10/27/92	17:00	74.1 dBA	10	77.9 dBA
NR 11	Highway 101	SF Residential	10/28/92	11:40	74.1 dBA	10	78.8 dBA
NR 12	Canwood Street/Highway 101	Community Park	10/28/92	11:40	74.1 dBA	10	78.8 dBA
NR 13	Highway 101	Commercial	10/28/92	12:30	72.2 dBA	10	80.9 dBA
NR 14	Mulholland Highway	SF Residential	10/28/92	13:59	63.5 dBA	10	73.7 dBA
NR 15	Mulholland Highway	Rural Residential	10/28/92	14:30	65.5 dBA	10	84.3 dBA
NR 16	Cold Canyon Road	Rural Residential	10/28/92	14;59	64.2 dBA	10	80.6 dBA
NR 17	Piuma Road	State Park	10/28/92	15:25	50.0 dBA	10	68.8 dBA

Source: LSA Associates, Inc., December 1992.

Table V-3
Existing Noise Levels - Modelling Results

Roadway	Speed Limit (mph)	ADT	CNEL 100' from Centerline (dBA)	Distance to Contours 60 dBA (ft)	Distance to Contours 64 dBA (ft)	Distance to Contours 70 dBA (ft)
Ventura Freeway (Highway 101)						
Mulholland Dr I/C/Pkwy Calabasas I/C	55	157000	81.2	13058	4129	1306
Pkwy Calabasas I/C/Las Virgenes Rd I/C	55	152000	81.0	12642	3998	1264
Las Virgenes Rd I/C/Lost Hills Rd I/C	55	136000	80.5	11311	3577	1131
Lost Hills Rd I/C/Liberty Canyon Rd I/C	55	142000	80.7	11810	3735	1181
Lost Hills Road						
North of Highway 101	30	6700	58.9	78	25	8
Highway 101 Overcrossing	30	9800	60.6	114	36	11
Highway 101/Agoura Road	30	16300	62.8	189	60	19
Agoura Road/Malibu Hills Road	30	11900	61.4	138	44	14
Malibu Hills Road/Meadow Creek Lane	30	9000	60.2	104	33	10
North of Las Virgenes Road	30	7000	59.1	81	26	8
Las Virgenes Road						
North of Thousand Oaks Blvd	45	4200	61.2	130	41	13
Thousand Oaks Blvd/Morrison Ranch Rd	45	7400	63.6	230	73	23
Morrison Ranch Rd/Parkmor Road	45	9300	64.6	289	91	29
Parkmor Road/Mureau Road	45	13400	66.2	416	132	42
Mureau Road/Highway 101	45	15100	66.7	469	148	47
Highway 101/Agoura Road	45	27500	69.3	854	270	85
Agoura Road/Glen Street	45	17500	67.4	543	172	54
Glen Street/Meadow Creek Lane	45	16300	67.0	506	160	51
Meadow Creek Lane/Lost Hills Road	45	23400	68.6	727	230	73
Lost Hills Road/Mulholland Highway	50	18900	68.9	769	243	77
South of Mulholland Highway	50	20700	69.3	842	266	84
South of Piuma Road	50	20300	69.2	826	261	83

Table V-3
Existing Noise Levels - Modelling Results

Roadway	Speed Limit (mph)	ADT	CNEL 100'from Centerline (dBA)	Distance to Contours 60 dBA (ft)	64 dBA (ft)	70 dBA (ft)
Agoura Road						
West of Lost Hills Road	45	1600	57.0	50	16	5
Lost Hills Road/Las Virgenes Road	45	8800	64.4	273	86	27
Mureau Road						
East of Las Virgenes Road	35	3700	57.9	62	20	6
Mountain Gate Dr/Crummer Canyon Rd	35	3400	57.5	57	18	6
North of Calabasas Road	35	6200	60.1	103	33	10
Calabasas Road						
Mureau Road/Parkway Calabasas	40	6600	61.8	152	48	15
Parkway Calabasas/Park Granada Blvd	40	12500	64.6	289	91	29
Park Granada Blvd/Mulholland Drive	25	16500	61.0	127	40	13
Parkway Calabasas						
Calabasas Road/Park Granada Blvd	40	7300	62.3	169	53	17
Park Granada Blvd/Park Entrada	40	8900	63.1	206	65	21
Park Entrada/Paseo Primaro	40	6200	61.6	143	45	14
Paseo Primaro/Camino Portal	40	3700	59.3	85	27	9
Camino Portal/Palmilla Drive	40	1500	55.4	35	11	3
South of Calabasas Road	40	11700	64.3	270	85	27

Source: LSA Associates, Inc., 1993.

Based on existing noise measurements and modelling, the primary source of noise in the City is traffic on the Ventura Freeway, regional highways (Las Virgenes Road, Mulholland Highway, Topanga Canyon Boulevard) and on major and secondary city streets. Consequently, land uses (particularly sensitive receptors) located adjacent to roadways may be affected to a lesser or greater extent, depending on proximity to the roadway. The City of Calabasas has pursued and will continue to pursue the construction of sound walls, where necessary, along the Ventura Freeway and other major roadways as a means of noise mitigation. Other means of traffic noise mitigation which are less visually imposing than sound walls include increased setbacks, landscaped berms, and acoustic site planning as a means of noise mitigation.

Freeway and Highway Noise

Four noise measurements were taken along the Ventura Freeway, two along Las Virgenes Road, three along Mulholland Highway, and one along Topanga Canyon Road. The highest noise levels in the City were measured along the Ventura Freeway, as shown in Table V-2. Noise levels along the Ventura Freeway were in excess of the FHWA's noise standard of 67 dBA L_{eq}, ranging from 72.2 dBA L_{eq} to 74.1 dBA L_{eq}. Noise levels along Topanga Canyon Road and Las Virgenes Road south of the Ventura Freeway were also in excess of the FHWA standard. Noise levels along Mulholland Highway, and Las Virgenes Road north of the Ventura Freeway were below the FHWA noise standard of 67 dBA L_{eq}.

The noise modelling results shown in Table V-3 largely confirm the findings of the field measurements. The CNEL at 100 feet from the centerline of the Ventura Freeway is predicted to range from 80.5 dBA CNEL to 81.2 dBA CNEL. High traffic volumes along Las Virgenes Road south of the Ventura Freeway result in high noise levels there, ranging from 67.0 dBA CNEL to 69.3 dBA CNEL at 100 feet from the centerline. Noise levels along Las Virgenes Road north of the Ventura Freeway are considerably lower, ranging from 61.2 dBA CNEL to 66.7 dBA CNEL; noise levels on Mulholland Highway range from 57.7 dBA CNEL to 66.2 dBA CNEL; and a noise level of 65.1 dBA CNEL along Topanga Canyon Road.

Major and Secondary Street Noise

As shown in Table V-3, noise measurements were taken along Old Topanga Canyon Road, Parkway Calabasas, Lost Hills Road, Calabasas Road, Cold Canyon Road, Park Alisal, and Piuma Road. The noise levels adjacent to Old Topanga Canyon Road and Lost Hills Road were 67.4 dBA L_{eq} and 69.5 dBA L_{eq}, respectively, exceeding the FHWA noise standard of 67 dBA L_{eq}. Noise levels adjacent to the other roadways in the noise survey were below the FHWA standard, ranging from 54.0 dBA L_{eq} to 66.2 dBA L_{eq}.

Results of noise modelling for these major and secondary street is shown in Table V-3. Old Topanga Canyon Road is predicted to have existing CNEL noise levels at 100 feet ranging from 56.2 dBA to 62.4 dBA. Parkway Calabasas is predicted to have CNEL's at 100 feet of between 55.4 dBA and 64.3 dBA, while Lost Hills Road ranges from 58.9 dBA CNEL to 62.8 dBA CNEL. Calabasas Road is predicted to range from 61.0 dBA CNEL to 64.6 dBA CNEL at 100 feet from the roadway centerline.

Commercial/Industrial Noise

Noise from the commercial and industrial land uses in the City of Calabasas is not an existing, significant concern. This is due primarily to the small percentage of these uses existing in the City, as well as their location adjacent to the Ventura Freeway and local arterials. Nonetheless, at the interface of these land uses with existing sensitive receptors, including residential uses, a potential noise conflict may exist. Intermittent noise from truck deliveries may result in occasional disruption of nearby residents. Through reviewing the data on the existing noise conditions (Tables V-2 and V-3), it appears that the predominance of noise is generated from vehicular traffic utilizing the Ventura Freeway (SR-101) and the arterial roadways that carry traffic through the City of Calabasas to the Malibu coast. Consequently, noise generated by commercial and industrial uses in the City does not appear to adversely affect adjacent sensitive ~~residential and other sensitive uses~~ when compared with the roadway noise.

Aircraft Noise

Occasional noise from aircraft overflight does occur, but, as a result of the high altitudes, the noise levels are relatively low in Calabasas. Aircraft that may fly over the study area include those originating/terminating at the Van Nuys Airport, located approximately 10 miles from Calabasas, and the Burbank-Glendale Airport, located approximately 17 miles from Calabasas. Aircraft using the Van Nuys Airport typically are smaller, private aircraft, with the exception of occasional military flight activity. Those using the Burbank-Glendale Airport include a broader mix, including the larger regional commercial commuter jets flying at high altitudes.

Discussions with the City planning staff indicate that the primary community complaints regarding aircraft are from residents near the Sheriff's Station located on Agoura Road, where Sheriff's Department helicopters make occasional takeoffs and landings.

Generally, aircraft noise in Calabasas has not been a significant problem for the overall community. The long distance to the nearest airports and high altitude of flights above the City are factors that minimize the aircraft noise exposure in Calabasas.

Construction Noise

The hillside residential areas which constitute much of Calabasas contain large homes whose residents have pursued the serenity and isolation of these locations. Construction noise could affect this serenity where noise is projected into residential neighborhoods. Some noise disturbance in areas adjacent to construction sites is to be expected. These disturbances are due to demolition, grading, construction of new buildings, and relocation activities. Construction typically requires the use of heavy earth moving equipment and occasional blasting where hard rock is encountered.

Although construction noise will be a short-term impact, there is the potential for disruption of nearby residents if steps are not taken to limit the intensity and duration of their noise exposure. The City has temporarily adopted the County of Los Angeles Noise Ordinance, which limits any construction related activity to between the hours of 6:30 a.m. and 6:00 p.m., Monday through Saturday. However, the City is investigating revisions to construction noise provisions which could establish a new period for construction activities from 7:00 a.m. or later to 5:00 p.m. during weekdays. Weekend construction activities may be prohibited. Compliance with noise ordinance restrictions on construction activities will help minimize potential short-term construction impacts.

D. HAZARDOUS MATERIALS

The accidental release of any hazardous material is a potentially serious incident, which is addressed under the County of Los Angeles "Hazardous Waste Management Plan", and has been adopted by the City of Calabasas. This plan addresses hazardous material accidents based on State guidelines as developed by the State Office of Emergency Services. Developed in response to the passage of a State law requiring each county in California to deal with the management of hazardous waste, the purpose of the County Hazardous Waste Management Plan is to provide a more effective framework for managing the County's hazardous waste consistent with State law and requirements of the State Department of Health Services.

DEFINITION OF HAZARDOUS MATERIALS

A hazardous material is defined as any injurious substance, including pesticides, herbicides, toxic metals and chemicals, volatile chemicals, explosives, and nuclear fuels and materials. The use of hazardous materials is commonplace in modern industrial and agricultural activities. Because these materials are increasingly used in urban and rural settings, and because they represent such a serious potential threat to human health and safety, strict laws and regulations have been developed to control their use, storage, disposal, and transport.

Hazardous materials can be classified into four general categories: explosives, flammables, irritants, and toxins. Explosives can produce rapid chemical reactions causing damage due to blast and flash fire. Flammables are dangerous because of their low ignition temperature and rapid burning characteristics. Some flammable materials burn so violently that they cannot be extinguished, and must be allowed to burn out naturally. Irritants can cause inflammation or destruction of living tissue with effects ranging from mild to severe, based on the degree of exposure and type of material involved. Toxins include various poisons which are harmful or fatal if swallowed, inhaled, or ingested through the skin. Because of their widespread use, many types of hazardous material are transported through, used, or stored, to some degree, within the City of Calabasas.

TRANSPORT OF HAZARDOUS MATERIALS

The transport of hazardous materials by truck or rail is regulated by the United States Department of Transportation through National Safety Standards. The federal safety standards are also included in the California Administrative Code, Environmental Health Division. The California Health Department regulates industrial hazardous waste haulers only.

The California Highway Patrol is responsible for the general enforcement of motor carriers hauling hazardous wastes. The major transportation artery within the study area is Highway 101. Three basic methods of enforcement are employed, as follows:

- Truck scales issue "compliance ratings", which monitor maintenance, vehicle code, safety, and cargo compliance with federal, state and local laws.

- The California Highway Patrol Motor Carrier Safety Unit conducts inspections at "terminals," which are generally areas or yards where trucks are parked and/or operated from, for example, school bus terminals, truck stops/yards; and

- A "Mobile Road Enforcement Program" is employed, which utilizes two officers to patrol roadways with the authority to set up lane inspections on city and county roadways, as well as on state highways.

STORAGE AND USE OF HAZARDOUS MATERIALS

The City of Calabasas experienced rapid residential growth prior to the City incorporation. Along with this growth, the potential for growth in hazardous materials storage and transportation has increased to some extent. Regulations and enforcement of safety measures for the storage and use of hazardous materials is the responsibility of many agencies, including local fire agencies. National, state, and local fire codes act as a guideline for local enforcement.

The Environmental Protection Agency (EPA) ensures that containers of hazardous materials are properly labeled with instructions for use. The California Department of Industrial Relations, Cal-OSHA Division, regulates the proper use of hazardous materials.

Because Calabasas is primarily a residential community, large areas of industrial/commercial activities do not currently exist. However, there are some commercial and industrial uses in the study area that use hazardous materials, which could pose a threat. Due to the small number and size of these facilities in Calabasas, it is unlikely that large amounts of hazardous materials are used or stored in the City.

DISPOSAL OF HAZARDOUS WASTES

Currently, there are no active landfills operating in Los Angeles County which accept hazardous wastes. Hazardous wastes generated within the County, which are disposed off-site, are transported to Kettleman Hills Landfill in Kern County and to Casmalia Landfill in Santa Barbara County. Both facilities are considered to be active "Class One" landfills, capable of handling all types of urban wastes, including toxic and hazardous materials (except explosives and radioactive materials).

E. DISASTER RESPONSE

An Emergency Preparedness Committee has been formed in City of Calabasas for the purpose of identifying and planning for various local emergency conditions. The committee has developed an Emergency Preparedness Plan which addresses policies and procedures to be implemented in the event of an emergency situation or disaster. This plan is currently in a draft stage, and has not yet been adopted by the City of Calabasas.

The City recently established an emergency operating communications center at City Hall. The Center is equipped with modern communications equipment to assist in coordinating with emergency response agencies (e.g., County Sheriff's and Fire Departments) during an emergency condition. They rely on amateur band radios and transmitters to communicate with these agencies.

As identified by the plan, the most probable emergency situations the City will face would be landslides, flooding, hazardous materials spills, or managing resources in the aftermath of an earthquake.

Three key factors in dealing with an emergency or natural disaster situation are as follows:

- ***Damage Assessment:*** It is critical that a realistic survey, utilizing City staff and Calabasas Emergency Relief, be made to assess the damage that has occurred. This will help to control rumors and assure that accurate information is given out to the media, and State and Federal Disaster Assessment teams, and also provides the Director of Emergency Services a basis upon which to make judgements as far as allocation of resources.

- ***Communication:*** In a crisis situation, the City will need to utilize every available resource, primarily radio and telephone communication. In any emergency situation, the information from the field will need to be relayed on an on-going basis to the Emergency Operating Center. The citizen leaders within the City and/or City staff will report to the Emergency Communication Center. The Director of Emergency Services will need to be kept up to date at all times.

- ***Documentation:*** Documentation will relate to keeping track of work time, use of City owned or rental equipment, and work locations. During the height of an emergency, it will likely be difficult to document these items, but this is the only way that disaster reimbursement can take place, and can make the difference in how much reimbursement the City can receive after the emergency has passed.

EMERGENCY OPERATING CENTER

The Emergency Operating Center will serve the following purposes:

- Serve as a clearing house to collect and plot damage assessment information;

- Allow the City of Calabasas to coordinate the best use of resources in an emergency situation;
- Provide a central location for distributing public information; and
- Provide a central location to check in and assign volunteer disaster service workers.

In most cases, the emergency situation will be handled by the police, fire, and public works crews in accordance with established departmental procedures and response capabilities. However, when necessary, the Emergency Center will be activated.

TEMPORARY SHELTERS

Temporary shelters to house evacuated persons are considered to be as specified by The American Red Cross. Activation and staffing of evacuation centers will be handled by The American Red Cross, upon direction by the Director of Emergency Services.

FLOOD/MUDSLIDE WATCH

This would be a situation where existing conditions and expected rainfall, as well as ground saturation could combine to make a flood possible. City forces would be notified by radio or other media that local weather conditions are expected which could cause flooding.

The Los Angeles County Sheriff or Fire Department would declare a flood alert situation. In addition the Fire Department would provide assistance in the placement of sandbags where personnel are available, and after higher priorities such as fire, rescue, medical aid, evacuation have been met.

The County Fire Department also has emergency response procedures (standard operating procedures) to guide the Fire Department in major disaster and emergency situations. For example, in the event of a major earthquake, the county dispatches their fire fighting units to conduct a visual check, then report back to the battalion for additional instructions.