FINAL REPORT

SAFETY ELEMENT
CITY OF SARATOGA, CALIFORNIA

BACKGROUND REPORT AND
GOALS, POLICIES, AND IMPLEMENTATION MEASURES

PREPARED FOR:
CITY OF SARATOGA

OCTOBER 7, 1987
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PREPARED FOR:
CITY OF SARATOGA

PREPARED BY:
CITY STAFF AND TECHNICAL REVIEW COMMITTEE

OCTOBER 7, 1987
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PURPOSE AND GOAL OF SAFETY ELEMENT

The Safety Element is a mandatory element of the General Plan required by SB 351, an act which became law on February 23, 1971. Originally addressed in two separate elements of the General Plan, the Safety Element and the Seismic Safety Element are combined into one element, the Safety Element, under California Government Code Article 5-65302 (1986).

The purpose of the Safety Element of the General Plan is to protect the community from any unreasonable risks associated with fire, geological activity and instabilities, flooding, combinations of these hazards, and the ability of manmade structures to withstand these conditions. The element also addresses dangers which might result from poor emergency service, difficult access, and lack of preparedness or public information. Existing emergency services are assessed and criteria for types and intensities of land use in undeveloped areas are recommended.
HAZARD IDENTIFICATION

The identification of hazards that affect the City is the initial step in the safety planning process. It is also the most important stage in this process since inaccurate hazard identification and the formulation of inadequate safety land use policies could result in unnecessary loss of life, injury and property damage.

The natural hazards that have affected Saratoga in the past and those that may affect it in the future can be identified with a high degree of accuracy. Geologic, flood and fire hazards have all caused considerable damage within the community in the past, while recent earthquakes have been minimal in their damaging effects. Although the future extent of natural hazards is unknown, in all probability the future will include the same types of hazards as have occurred in the past. Accurate hazard identification is an accounting of historical information to be used as the basis for the evaluation of the future and the risks involved in relation to current and proposed land uses.

HAZARD OF LAND INSTABILITY

The physical and geologic characteristics of Saratoga have the potential to produce geologic related problems for land development. Land development in areas of geologic instability can subject life and property to hazards caused by both seismic and non-seismic conditions. Many hazards occur when property is developed in ways which are unsuitable to geologic conditions in the area. When structures or roads are built on geologically unstable land, such as landslide areas or unstable slopes and soils, there is a definite risk to the community.

Geologic hazards are unavoidable in California. However, some geologic conditions represent greater hazards than others. Faulting and unstable bedrock present great risks, while surface instabilities can often be engineered to make construction safe. When unstable soil combines with steep slope, development can be hazardous and the environment is endangered by potential landslides. Recognizing and delineating the geotechnical hazards which could result in injuries, property damage and economic or social dislocations is an important function of the city planning process to protect the public health, safety and welfare of the community.

The background geotechnical data for the Safety Element of the City of Saratoga’s General Plan is contained in the Saratoga Geotechnical Report (1974); the Ground Movement Potential Maps and Geologic Hazard Analysis of the Upper Calabazas Creek Watershed and of the Congress Springs Study Area by William Cotton and Associates (1980); and also in the Geologic Hazards Analysis of the Lower Saratoga Hillside Area by Terratech (1985). Included here is a summation of that data, and additional geotechnical information which has been compiled from more recent site-specific geotechnical investigations.

General Geology and Physical Characteristics

Topography: The topography of Saratoga includes the low-lying relatively fat valley floor and the northwestern foothills. Outside the city limits, but within Saratoga’s Sphere of Influence, are the Castle Rock portions of the Santa Cruz Mountains. These mountains are very rugged, comprised of steep canyons and sharp to rounded ridge tops.
Vegetation: The mountain areas in the Sphere of Influence have a solid cover of vegetation. Hardwood trees of oak and madrone are abundant in this area, as well as redwood and douglas fir. The canyon floors near streams are covered with sycamore, elder and maple trees. Much of the area is densely covered with chaparral, with only a few areas covered with grass.

Geology: The dominant geologic feature within Saratoga’s Sphere of Influence is the San Andreas fault zone, bisecting the mountainous portion of the terrain. The fault zone determines the geology and topography of the area by separating two different rock assemblages and their associated erosional characteristics. The fault zone is composed of a complex system of fault traces and fractured rock.

The rock formations to the east of the San Andreas fault are composed of sandstone, shale, volcanic rocks, some diabase and gabbro and also large shear zone areas. The mountain area is separated from the flat area within the city limits by the Santa Clara Formation composed of unconsolidated to semi-consolidated gravel, sand and clay.

The valley floor of Saratoga is comprised of several alluvial fan deposits from the creeks and streams flowing from the mountainous area. The alluvium is composed of unconsolidated particles consisting of clay, silt, sand and gravel. This is class I and II agricultural soil and is considered fertile by the United States Conservation Service.

Geotechnical Terrain Units and Related Hazards

There are large areas of the City and its Sphere of Influence which have similar bedrock and soil characteristics. These areas of similar geotechnical characteristics are designated geotechnical terrain units. There are five such terrain units in Saratoga and its Sphere of Influence (Map 1: Geotechnical Terrain Units): San Andreas Rift (I), Foothills (II), Saratoga Mountain (III), Skyline (IV) and Valley Floor (V).

The following conclusions can be made based on an evaluation of the geotechnical data for each terrain unit:

1. Terrain Unit I (not shown) cannot support urban residential development but can support very limited rural residential development in accordance with site-specific geotechnical studies. The Santa Clara County General Plan states that specific hazard areas within this terrain unit must be placed in permanent open space.

2. Terrain Unit II can support both controlled urban residential development and rural residential development in accordance with site-specific geological and soils investigations.

3. Terrain Unit III cannot support urban residential development but can support rural residential development in accordance with site-specific geological and soils investigations.

4. Terrain Unit IV cannot support urban residential development but can support rural residential development
5. Terrain Unit V can support urban residential development. Geological investigation is not necessary, but soil analyses should be required.

Additional data on each terrain unit is available in the 1974 Geotechnical Background Report. This data is supplemented by the Geology and Soils section of the Northwestern Hillside Specific Plan (adopted in 1981).

**Landslide and Slope Instability**

Although most landslides are natural occurrences, some damaging landslides are the result of human carelessness or haphazard construction. When construction is allowed in areas where landslides exist or where landslide susceptibility is high, the potential for substantial property loss and human endangerment increase. The potential public costs for the repair of roads and utilities or disaster relief make it imperative that the city restrict development in geologically hazardous areas.

Most sloping land has some potential for land sliding. Slope stability is affected by several interrelated factors such as steepness of slope, weak unconsolidated soil units or formations with a high clay content, water saturation, vegetation removal and seismic activity. Usually a combination of several factors will bring the hillside to the verge of failure, and a single factor such as heavy rainfall or an earthquake will be the catalyst responsible for initiating slope failure. The development of sites where these conditions exist may also trigger landslide activity.

As shown on Map 2 (Relative Geologic Stability), a major portion of the City of Saratoga is underlain by a geologic stability zone. This type of geologic unit is moderately stable when dry, but moderately unstable when saturated. Within the city boundaries, landslides are most likely to occur where silt and clay have been eroded along the stream channels traversing the City.

Map 2 also shows areas in Saratoga that contain rock formations conducive to abundant landslides. These areas primarily lie west of Saratoga-Sunnyvale Road, pass through a portion of the Northwestern Hillsides Residential District, and continue pass Big Basin Way. The zone is also present within the Sphere of Influence, along the City’s northwestern boundary and crossing Bohlman Road. Landslides and unstable slopes are prevalent in this area, and can create hazards within the city limits as the slide debris and rock moves down the incline toward the City’s valley floor.

Landslides and slope instability are the major non-seismic geologic hazards in Saratoga. Although most of the hillside areas in the city experience these hazards to some degree, the most severe risks are found in the vicinity of the Congress Springs area and the upper Calabazas Creek watershed. The Congress Springs study area, investigated by geologic hazards by William Cotton and Associates in 1980, is located in the hillside region west of Saratoga and south of Congress Springs Road. Access to the northern part of the area is provided by Pierce, Toll Gate, and Congress Springs Roads. The southern part is served by the narrow hillside roadways of Bohlman, Belnap, Kittridge, Quickert, On Orbit and Apollo Roads. One-third of the land in this study area is within the city limits. The
present land use consists of hillside residential and watershed areas.

The northern portion of the Congress Springs area is traversed by the potentially active Berrocal fault, which has contributed to deformation and fracture of the bedrock in the vicinity. It also lies within a mile of the San Andreas fault; the proximity of these two fault systems has produced unstable slope conditions. Large landslide deposits blanket the underlying bedrock throughout much of the hillside region and approximately 50% of the hillside contains landslide debris.

The most geologically unstable area of the city lies in the Congress Springs area. An extensive section of several active landslides are shown on Map 3, Landslide and Flood Areas. The upper portion of the section includes the hilly region south of Congress Springs Road, part of the natural channel of Saratoga Creek, a section of the Congress Springs Road alignment, and a considerable amount of the low foothills located north of the road. Slope movements have been noted in this region for over 50 years. The Congress Springs Road surface has been significantly deformed and elevated about 14 feet since 1931 when the present alignment was constructed. Extensive structural damage has been experienced by all man-made structures within or south of this region.

**AREAS OF RELATIVELY STABLE GROUND**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>Sbr</td>
<td>Level ground with moderately steep slopes underlain by bedrock within several feet of the ground surface. Soil or alluvial cover may be subject to shallow sliding, soil creep or settlement.</td>
</tr>
<tr>
<td>Sls</td>
<td>Gentle to moderately steep slopes underlain by naturally stabilized old landslide debris. Subject to local soil creep and settlement.</td>
</tr>
<tr>
<td>Sun</td>
<td>Level ground and gentle slopes underlain by thick unconsolidated granular material. Subject to settlement and soil creep. Liquefaction possible in low areas during strong earthquakes. Stream erosion may trigger shallow landslides along creek banks.</td>
</tr>
<tr>
<td>Sff</td>
<td>Large areas of relatively stable artificial fill on flat or gently sloping ground or in canyon bottoms. Subject to localized settlement where placement might not have met engineering specifications.</td>
</tr>
<tr>
<td>Sex</td>
<td>Generally highly expansive, clay-rich soils and bedrock. Subject to seasonal shrink-swell, rapid soil creep and settlement. May include areas of non-expansive material and may also occur within other map units.</td>
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**AREAS OF POTENTIALLY UNSTABLE GROUND**

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<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>Pmw</td>
<td>Steep to very steep slopes underlain by weathered, fractured bedrock, subject to mass wasting by soil creep, slumping and rock fall activity.</td>
</tr>
<tr>
<td>Pfs</td>
<td>Large areas of potentially unstable artificial fill on moderately steep-to-steep ground. Subject to localized settlement, landsliding and debris flow activity where placement might not have met engineering standards.</td>
</tr>
<tr>
<td>Ps</td>
<td>Gentle to moderately steep slopes underlain by relatively unstable material including landslide debris, colluvium and weak bedrock. Commonly less than 10 feet</td>
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thick. Susceptible to shallow landsliding and soil creep activity.

Pd – Moderately steep to very steep slopes underlain by or adjacent to relatively unstable landslide debris, commonly more than 10 feet thick. Susceptible to deep landsliding.

Pdf – Steep to very steep terrain mantled with thick soil, colluvium and landslide debris susceptible to debris flows. Includes flows and depositional areas on flatter slopes below.

AREAS OF UNSTABLE GROUND

Ms - Moving shallow landslides, commonly less than 10 feet thick.

Md - Moving deep landslides, more than 10 feet thick.

Mrf - Moving deep landslides, more than 100 feet thick, exposed in high, over steepened slopes, subject to large-scale sloughing, slumping and possibly catastrophic rock falls.

AREAS OF POTENTIAL SURFACE FAULTING

Psf – Zone of potential surface faulting and associated ground displacement within 100 feet of a trace of the Berrocal Fault or within 200 feet of a trace of the Shannon Fault.

Active land sliding can also be traced across Belnap, Bohlman and On Orbit Roads and private driveways at a number of locations within the Congress Springs and the Lower Saratoga hillside areas. Santa Clara County has surveyed a short section of Bohlman Road below the intersection of On Orbit Drive and found it to be moving at a rate of 2.7 to 3.6 inches per year. This is considered an extremely high-risk area for future development, even in those areas which appear to be stable at the present time. The equilibrium of even the most stable ground within this hillside could be destroyed by the advent of road construction. Irrigation, alteration of natural drainage, or the introduction of septic tank effluent. Rapid failure of these slopes could cause considerable property damage, personal injury or loss of life.

Other highly unstable geologic units within Saratoga and its Sphere of Influence are those designated on Map 2 according to the key. These units include all landslides shown on Map 3, which are considered extremely unstable, particularly when saturated. The upper Calabazas Creek watershed is located in this hillside region west of Saratoga, and extends into the unincorporated area. Primary access to the area is provided by Congress Springs Road to the south, and Pierce and Mt. Eden Roads to the northwest. Although the majority of the land is underlain by relatively stable ground, the stability large portions of the hillside is undermined by landslide deposits and unstable soils.

The most extensive occurrence of landslide deposits is in the central portion of the watershed located north and south of the Mt. Eden Road-Pierce Road intersection. Forty percent of the total land area in the Mt. Eden Road-Pierce Road vicinity is covered by landslide deposits. Isolated landslides are common in this area, as are large landslide complexes, which cover entire hill slopes. Examples of these large slide deposits are those on Pike Road on the Garrod Farms property. Within the same general area, the Quarry Road slide adjacent to the Calabazas Creek has moved part of the roadbed into the creek.
To prevent potential geologic hazards from occurring in areas of slope instability and unstable soils, Saratoga requires that detailed geotechnical investigations be made for all land use proposals in the Northwestern Hillsides Residential District (NHR). The northwestern hillside area of Saratoga and adjacent Santa Clara county lands (refer to map in Appendix B), and in the Hillside Conservation Residential District (HC-RD) in accordance with Section 15-13.050 and 15-14.050 of the City Code.

Saratoga’s Sphere of Influence is within Santa Clara County’s jurisdiction and development review area. Saratoga’s Sphere of Influence is defined as that area outside the City’s incorporated boundary, but designated by the Santa Clara County Local Agency Formation Commission as the unincorporated area most likely to be influenced and annexed by the City at some future date (refer to map in Appendix C). The County has adopted a Geologic Hazard zoning district where development is restricted due to large area-wide landslides. The County has established specific guidelines for the review of development proposals in this district to aid in identifying areas of land instability, and to require that appropriate conditions be met by developers. This zoning designation has been applied to the major slide area at Congress Springs Road, shown on Map 3.

**Soil Creep and Expansive Soils**

Soil creep and expansive soils are most prevalent in the western hillside regions of the city. Soil creep is the slow, down slope movement of near-surface materials. The rate of soil creep is a function of slope angle, soil thickness and texture. It can be regarded as a continuous process, and may cause retaining walls, foundations and paved roads to fail over a period of time unaccompanied by any obvious signs of slope failure. Soil creep should not have a prohibitive effect on land use, but should alert the City to require appropriate geotechnical investigations to evaluate conditions and to impose engineering solutions to mitigate problems.

Expansive soils contain high proportions of clay and alternately absorb and release large amounts of water during wet and dry cycles. When structures are built on expansive soil, foundations may rise each wet season, resulting in cracked foundations, distorted frameworks, and warped windows and doors. These adverse effects can be eliminated by recognition of the applications for site development and foundation design. All applications for site development and building permits should be accompanied by soil reports in those areas where expansive soils exist.

**SEISMIC HAZARDS**

The identification of earthquake hazards in Saratoga requires a description of potentially active faults within the area and also a description of the secondary effects of earthquake activity, caused by the sudden movement of blocks of the earth’s crust along a fault line. The secondary effects constitute potential hazards to the populated area and consist of: 1) ground shaking, 2) surface rupture or ground displacement along fault traces, 3) ground failure, and 4) seismically induced water inundation. Hazards increase in areas where seismic activity is combined with the potential for flooding, poor soil drainage, unstable surficial soil and steep slope, fire hazard and deteriorated structures and can result in extensive property damage, personal injury or death.
Identification of Active and Potentially Active Faults

The San Andreas Fault is the only known “active” fault in the vicinity of Saratoga. For planning purposes, an “active” fault is one which has experienced displacement within the last 11,000 years, and can be expected to move again within the next 100 years. The proximity of the fault, which traverses the City’s Sphere of Influence along the ridge of the Santa Cruz Mountains, subjects the hillside region to the probability of severe lateral displacement and ground shaking should an earthquake occur.

There are two “potentially active” faults within the city limits and lying on the alluvial plain. A “potentially active” fault is one that has moved within the last 2 million to 11,000 years, and because it is judged to be capable of ground rupture or shaking, poses an unacceptable risk to a proposed structure while the San Andreas Fault has a significant history of seismic activity, the Berrocal and Shannon Faults are considered “potentially active” because there is no reliable evidence of recent displacement along either fault. The Berrocal Fault belongs to the Sargent Fault zone, a complex system of interconnecting faults extending northwest between the San Andreas and the Calaveras Faults. The fault trace crosses Congress Springs Road and continues into the southeastern portion of the Sphere of Influence. The Shannon Fault, part of the Monte Vista Fault system, closely parallels the proposed State Highway 85 corridor from Regnart Creek (Cupertino) in the north, crossing Saratoga Avenue, and continuing to the Almaden Expressway in the southeast portion of San Jose. Although there is a remote chance that ground rupture could occur on either of these fault traces in the future, it is more likely to occur on the San Andreas Fault.

In compliance with State legislation (Alquist – Priolo Geologic Hazard Zones Act), the California Division of Mines and Geology has established Special Studies Zones along faults considered to be active or potentially active. When development for human occupancy is proposed within these zones, special studies relating to seismic hazards are required and must be submitted to the City or County Geologist for review. At the present time, the San Andreas Fault is the only area within the City and its Sphere of Influence that the State has designated as a Special Studies Zone.

Ground Movement Potential Maps and Geologic Hazards Analyses of the Northwestern Hillsides region in Saratoga have been prepared by William Cotton and Associates. Geologic and Ground Movement Potential Maps of the Lower Saratoga Hillside Area, supplemented by a Geologic Hazards Analysis, have been prepared for the City by Terratech. These documents indicate the general location of areas of potential hazards and, for the purposes of the Safety Element, have been compiled into one map, Map 4: General Plan Geologic Hazard Overlay Map. This map also includes 100-year flood areas potentially active faults and hazardous fire areas. The information in both Maps 2 and 4 generally informs the public about potential seismic or ground movement hazards, but it is not intended to replace the necessary geotechnical studies for individual sites, particularly in the Northwestern Hillside Area, prior to development.

Ground Shaking

The most widespread effect of an earthquake is ground shaking, or the
movement of the earth’s surface in response to seismic activity; this often is the greatest cause of physical damage. Structures of all types, including buildings and utility facilities may suffer severe damage or collapse if not properly designed to withstand the intensity of the shaking.

The major threat to persons in both the City of Saratoga and its Sphere of Influence is structural failure of buildings or failure of slopes due to shaking. Because of the steep slopes and network of fault lines in the hillside areas closest to the San Andreas Rift Zone, it is essential to enforce strict earthquake construction and soil engineering standards in order to select the most stable building sites, and to compensate for soil instabilities through the use of approved engineering and construction techniques.

According to the California State Division of Mines and Geology, over 100 small to moderate tremors were felt in the Santa Cruz Mountains area over the past 60 years, with 14 events having epicenters located within Saratoga’s Sphere of Influence. Hence, there is a high probability that a strong earthquake will occur in the near future in the vicinity of the city.

**Surface Rupture**

Surface rupture, or a break in the ground’s surface and the associated displacement caused by the movement of a fault, is directly correlated to earthquake magnitude; earthquakes having a magnitude of 5.5 or greater are required for such events to occur.

During the 1906 San Francisco earthquake (magnitude 8.3), ground rupture occurred along 270 miles of the San Andreas Fault, with a 20-foot offset occurring near the epicenter in Marin County.

It is generally not economically feasible to design and build foundations of structures across faults, especially those subject to ground displacement or surface rupture. In addition to regional investigations necessary to the basic understanding of faults and their histories, detailed site investigations are needed prior to the approval of construction in any suspected or potentially active fault zone.

Utilities, roads and other linear features are particularly vulnerable to damage resulting from ground displacement. Little rural residential development has taken place within the San Andreas Fault zone in Saratoga’s Sphere of Influence, so the present risk of structural damage due to fault rupture is minimal. However, utility facilities such as gas and electric lines traverse the fault zone and may be subject to damage from surface rupture.

**Ground Failure**

Ground failure is a secondary effect of earthquake shaking that can be potentially dangerous and damaging. It includes landslides, rock falls, subsidence, liquefaction and ground lurching in areas not actually ruptured by a fault. All of these activities involve the displacement of ground surface due to loss of strength or failure of the underlying materials during earthquake shaking. Existing moisture conditions and groundwater levels play an important role in the assessment of the potential for ground failure, as do soil type and slope instability.

The San Andreas Rift Zone and the Northwestern Foothills (Terrain Unit II) are estimated to have a high probability of
landslide potential should an earthquake occur, while the probability of subsidence and ground lurching in these areas is low.

The Bohlman area (Terrain Unit III) is known for unstable slopes and is considered to have a high potential for seismically induced landslides. The Skyline area (Terrain Unit IV) has a medium or moderate probability of landslide occurrence, but this region is sparsely populated.

The Valley floor (Terrain Unit V), the most populated area of Saratoga, is relatively flat but is traversed by several creeks. While this area may not experience landslide or ground lurching should an earthquake occur, there is a moderate probability that subsidence and/or liquefaction would take place due to the loosely compacted alluvium soil.

Seismically Induced Flooding and Dam Inundation

Should a dam fail during an earthquake, the released water could cause flooding downstream. The resulting damage is dependent on the rate of water released and the volume of water in the reservoir. Failure of a dam can either be caused by ground displacement along a fault trace, ground shaking or overtopping of the dam by a large landslide splash wave.

The Lake Ranch reservoir in Saratoga’s Sphere of Influence is the most likely reservoir to be affected by seismic activity. Operated by the San Jose Water Company, the reservoir is located in a saddle-shaped depression near the southern portion of Sanborn Road, and was created by the construction of a small earthen dam at each end. Both dams are traversed by the San Andreas Fault, and both withstood the 1906 earthquake. However, it is estimated that if an earthquake occurs which either ruptures the dams or creates reservoir seiches (seismic waves), the volume of water (105 million gallons when full) released would be comparable to the flooding hazard from a 100 year flood. The southeasterly flow of the reservoir storage would impact areas outside of the City’s Sphere of Influence near the Santa Cruz County line, while the northeasterly flow would flood areas along Quito Creek.

Other flooding hazards resulting from the secondary effects of seismic activity could occur if landslides are activated and advance into creek beds. On Big Basin Way, near the San Jose Water Company’s Saratoga filter plant, a slide could conceivably block both the road and Saratoga Creek during an earthquake. This area has experienced movement in the past, and has required periodic maintenance and the construction of expensive drainage facilities at the site.

Structural Hazards Related to Seismic Activity

The majority of homes in the City of Saratoga are single-story, post-1950 wood frame structures which tend to fare well during earthquakes because of the flexibility of building material. However, recently, the number of two-story homes being built exceeds that of single-story homes, particularly in hillside areas. The low density of development in recent housing tracts is also an advantage during an earthquake because it allows clearance around buildings for sway and falling debris.

Fortunately, few elevated structures in excess of two or three stories in height have been built in Saratoga or its Sphere of Influence; the few that do exist were constructed according to modern codes.
which include seismic safety requirements. While it is impossible to guarantee the safety of any structure, a clearly defined and conscientiously enforced program of structural reinforcement will greatly reduce injury and loss of life. The establishment of appropriate setbacks to prohibit development near or on fault lines is another precaution which can be used to minimize structural damage.

Many commonly used building components, such as nonreinforced stone or brick chimneys and nonreinforced masonry, are particularly susceptible to ground shaking. Among newly constructed buildings, particularly those for commercial use, small steel frame buildings are generally considered the safest, while nonreinforced masonry and tilt-up structures are regarded as posing a greater risk. Because Saratoga is predominantly a residential community, it does not have a vast number of nonreinforced masonry or tilt-up structures. At the present time, there are no tilt-up structure in the city, but it is estimated that 50% of the structures in the Village area along Big Basin Way are of nonreinforced masonry. This type of construction should be avoided since it is estimated that the damage to this type of structure is two or three times greater than that which would occur with a wood-frame building. In areas with intense ground shaking during the San Fernando earthquake of 1971, there was a 20% loss rate to tilt-up structures, with the roof to wall connections showing particular stress.

State law requires municipalities to inventory potentially hazardous masonry buildings and to file the inventory with the Seismic Safety Commission. However, the State has not allocated funding to assist local agencies in implementing this program.

Other Potential Hazards Related to Seismic Activity

Public and quasi-public facilities such as utility systems may be at risk from the secondary effects of seismic activity. In the aftermath of a major earthquake, facilities of particular importance such as water tanks, pipelines including gas, water and sewer, electrical and communications systems, and roads, bridges and freeways are regarded as the “lifelines” of the community for the provision of emergency services. Many of these utilities unavoidably cross hazardous area, and could be disrupted and seriously impaired in the event of an earthquake. Water distribution, sewage disposal and gas systems are particularly vulnerable. Disruption of these systems after an earthquake will be dependent not only upon the location and magnitude of the earthquake and specific site conditions, but also on the condition of the lines, pumps and plan facilities. Water pumps require electricity units to operate, and hence the system could fail at many points. Gas distribution lines crossing seismically hazardous areas or large gasoline storage tanks located in areas of poor soil conditions could rupture, and the gas be ignited. The areas of the City and its Sphere of Influence where utilities are most likely to be disturbed are the San Andreas Rift Zone and the Bohlman Road area.

Several safety measures have been used by the City to reduce the risk of utility system breakdown during an earthquake: stand-by power sources are provided to all computerized controls and monitors; loss of power will automatically shut off water; and sewage lines have been embedded several feet lower than the water lines. Water comes to Saratoga from four different locations operated by SJWCC: Saratoga Creek, Los Gatos Creek impounding dams,
125 wells in the North Central District, and from the SCVWD Rinconada Treatment Plant. While it is unlikely that all sources would be shut off simultaneously, a limited reserve of replacement equipment might delay the restoration of service. After an earthquake or disaster, SJWC will implement its own emergency operating plan to serve Saratoga.

The problem of water supply in the hillsides and the Sphere of Influence could become acute during an earthquake. In the summer, when streams are dry, dependence on private sources might be inadequate for emergency needs. There are several small reservoirs, two 10,000 gallon redwood storage tanks often used by the Forestry Division, occasional wells, and the Lake Ranch Reservoir which, under properly organized distribution, could provide for emergency needs.

Damage to roadways, freeways and bridges can be expected during a major earthquake. However, recently constructed reinforced concrete bridges and overpasses are considered to be more resilient to earthquake movement than older bridges and overpasses. Several bridges in the City would be subject to failure during seismic activity because they were not constructed according to current engineering standards. These facilities are also in areas of high groundwater levels and unstable creek beds: Springer Avenue at Big Basin Way, Fourth Street near Big Basin Way, Sarahills Road near Pierce Road, and Chalet Clothilde Drive near Pierce Road. The only airport in the Bay Area expected to be operational following an earthquake is San Jose International Airport. All other airports in the bay region are built on bay mud which tends to liquefy during seismic activity.

One of the greatest problems following an earthquake is the provision of emergency care for the injured at major hospitals and health care facilities. Some hospitals may not be operational after a major earthquake, especially if they are located near the San Andreas Fault. If a major earthquake causes the City to become isolated from the rest of the Santa Clara Valley, Los Gatos – Saratoga Hospital on Pollard Road in Los Gatos would be the most accessible health care facility for the residents of Saratoga. Good Samaritan Hospital, while close in proximity to the City, could be inaccessible if freeways and overpasses are not usable. The nine schools in the City would be used as Emergency Operations Centers for public information, and have been designed according to the strict State seismic safety requirements of the Field Act (1933). Blue Hills Elementary School is located near the Shannon Fault; the structural soundness of this structure should be evaluated and if any hazards which cannot be mitigated exist, abandonment of the building should be considered. It is recommended that future involuntary occupancy type structures in Saratoga, such as schools and hospitals, not be located in areas of poor land stability, and should be designed to mitigate any seismic hazards associated with their sites.

FLOOD HAZARDS

Historically, the occurrence of flooding has been a benefit to agricultural soil, wildlife and the general ecological balance of a community. Flooding becomes a natural hazard when the flow of water threatens life and damages personal property. Damages from flooding increase in proportion to the growth of urban development and as subdivisions locate on potential flood sites.
Floods are primarily caused by excessive surface runoff resulting from intense or heavy rainfall, or from the failure of flood control or water supply structures such as levees or reservoirs. When prolonged rainfall exceeds the absorption rate of the soil or the waste storage capacity of the watershed, the excess must flow downstream. Although it is impossible to prevent excessive rainfall that causes major floods, it is possible to develop methods and policies for the management of areas subject to flooding, and for the protection of life and property. Through the use of hydrologic data in conjunction with regulatory and flood proofing measures, proper land use planning can be effective in the control of flooding and its possible adverse affects.

**Historical Data on Flooding in Area**

All surface water originating in or passing through Saratoga ultimately discharges in San Francisco Bay. Runoff is collected in the City’s underground storm drainage system, which discharges into the creeks throughout the City. Three major drainage basin lie within the City, and all drain from south to north. From east to west, these basins are the San Tomas Aquino, Saratoga and Calabaza Creeks. Wildcat, Vasona and Sobey Creeks are tributaries within the San Tomas Creek drainage system, while Prospect and Rodeo Creeks are tributaries of Calabazas Creek. San Tomas Aquino and Calabazas Creeks discharge into the Guadalupe Slough near the Bay, with Saratoga Creek joining San Tomas Aquino north of the City.

Information on flooding of the creeks during the years 1889 through 1973 reveals that the Saratoga area experienced 14 floods of varying severity. Flooding in the early years was often viewed as an asset rather than a liability, since the need for water to irrigate agricultural crops outweighed the damage done by floodwater. As development increased over the years, damage became a more important consideration as population growth and the completion of water retention facilities in the area combined to alter the pattern of potential flooding.

The severity of floods in relation to urban development varies from year to year. The most serious floods in Saratoga occurred in 1914, 1955, 1958, 1963 and the winter of 1982-83. The City was hit most severely during the floods of 1958. The Santa Clara Valley Water District has made progress in improving the channels since that date whenever funds were available; as a result, flood damage has been reduced over the years. During an average year, residents of the area are subject to minor flooding, but most potential hazards are now being corrected through conditions of approval for tentative subdivision maps.

The most recent major flooding in Saratoga occurred during the heavy rains of the winter of 1982-83. Much of the property damage resulting from the high intensity and long duration of the rains during that winter was due to slope failure, triggered by over-saturation of the ground and/or by rising groundwater level. Although the resulting landslides were confined primarily to private property, some public roads and utilities in the upper Calabazas Creek watershed and the Congress Springs study area also experienced ground failure. On Michaels Drive, where several slides occurred, a water line belonging to San Jose Water Works was broken. At Kittridge and Bohlman Roads, a landslide extended into the road alignment, disrupting gas and water lines. Curbs and concrete gutters buckled on Sarahills Drive as slope movement caused compression cracking of the road surface.
Identification of Areas Subject to Flooding

Several creek areas in Saratoga have been identified as specific flood hazard areas (Map 3). Saratoga Creek has the most extensive floodplain in width and length. It begins above Prospect Avenue and follows Saratoga Avenue where it joins Big Basin Way. The widest portion of the floodplain is south of the Southern Pacific Railroad tracks. The flood hazard in this area is expected to diminish when drainage facilities are constructed in conjunction with the development of the State Highway 85 transportation corridor.

As tributaries of the San Tomas Aquino Creek basin, Wildcat, Vasona and San Tomas Aquino Creeks also are subject to the 100-year flood hazard. Recent improvements to these creek channels have greatly reduced the potential for flood damage in adjacent areas. Further improvements will also be made during the construction of the transportation corridor.

Calabazas Creek has an extremely wide 100-year floodplain from Prospect Road extending almost to Wardell Road, between Saratoga-Sunnyvale Road and Arroyo de Arguello, where the watershed branches out in a westward direction. Although much of the terrain lying within the upper Calabazas Creek watershed is characterized by steep hillsides, heavy rainfall during past years has saturated unstable slopes and caused the groundwater lever to rise, triggering landslides of mud and debris into the creek channels. Since the flooding in 1983, extensive cleaning of the Calabazas Creek basin near Comer Drive has been performed annually to dislodge accumulated debris which impedes the flow of the drainage basin.

There are no Federal flood control facilities on stream channels in the City of Saratoga. However, private parties have contributed toward the development of drainage facilities which have reduced flood damages over the years. These improvements have consisted of bridge and culvert construction, but, in many cases, have proven inadequate in containing the 100-year flood flow.

The future risk of hazard from flooding is most likely to occur in areas which have been subject to flooding during the past 100 years on record. Residential development should not be permitted in designated floodplains unless it has been previously approved by the Santa Clara Valley Water District (SCVWD), or only if the structures are adequately protected by raising the first habitable floor at least one foot above the base flood line level.

The principal land use in the floodplains within the City is low to medium density residential, with limited areas designated as agricultural, open space or commercial use. Uses which do not subject human life to danger, such as orchards or wildlife preserves, can be permitted in the floodplains. Existing development in the floodplain can be further protected through the use of levees or engineering methods which increase stream capacity.

Flood Controls and Land Development Review

The City of Saratoga is a participant in the National Flood Insurance Program operated by the Federal Insurance Administration of the Department of Housing and Urban Development (HUD). The purpose of the program is to provide insurance coverage to property owners against losses due to flooding, and to require
that local governments take all actions possible to control development in a manner which minimizes that risk of flood damage. Under the program, the City must adopt land use and development controls to assure that new structures are reasonably safe from flooding. Within the identified flood hazard area which the federal program designates, these controls require that new structures use flood-resistant materials, be adequately anchored, have first floors elevated above the level of the 1% base floodplain, and be placed outside of designated floodways. The 1% base floodplain is that area where there is a one-percent chance of a flood occurring within any given year. This area is often called the 100-year flood zone, which signifies the reoccurrence interval or long-term average period between floods of a specific magnitude. The City must also apply floodplain zoning to designated floodways and develop a Floodplain Management Ordinance under this program.

Without flood protection, many types of land uses, particularly housing, are not appropriate within floodable areas. However, flood protection facilities are not economically justifiable, even though an area is a known floodplain, unless they service valuable land uses such as housing. Historically, land development has come first and flood protection has been provided after flood damage to property has occurred. The use of flood hazard information in the advance planning of land uses is essential in order to provide the framework for zoning administration and the land development review process.

Saratoga has an extensive review procedure in conjunction with the Santa Clara Valley Water District which addresses flooding potential and the impact on development. The Flood Plain Management Act (Cobey-Alquist Act 1969) introduced the concept of reserving from future development areas along stream channels for flood prevention projects. In Saratoga, land development proposals adjacent to a floodplain or creek must be reviewed by SCVWD, which makes recommendations for possible flood prevention measures. SCVWD usually requires that dedication of an easement along natural watercourses or channels under its jurisdiction for the purpose of maintaining the channel or for the future construction of channel improvements. The Water District may also recommend other measures for the mitigation of flood hazards, such as grading of the site and elevation of the structure above the anticipated flooding level. A drainage plan is required by the City at the time of preliminary map submittal to ensure that runoff is drained away from structures. The City engineering department has the responsibility for Saratoga’s drainage facilities, and operates in conjunction with the Water District when areas of responsibility overlap.

Flood Control and Emergency Services

Since flooding causes both damage to property and severe health hazard to those in the community, it is important to have plans for emergency services in the event of flooding. These preventative measures also contribute toward the eligibility to receive Federal funds for future flood control projects.

A community’s eligibility for Federal funds requires a statewide expenditure of $5 million on disaster prevention during the preceding 12 months. SCVWD takes and encourages all other utilities and service providers to take all preventative actions necessary to protect the public safety during periods of emergency, and has created the position of Public Information Officer to
prepare news releases to inform the news media and Emergency Center Staff of any pending danger and the progress of emergency actions. The SCVWD plan includes a hierarchy of responsible officials and contacts in the event of an emergency. San Jose Water Company, which services the City’s water system, has a detailed plan for emergency operations. Their emergency committee will educate the public on how to respond in the event of a disaster.

The Santa Clara Valley Water District has established an emergency operations center at the district office in San Jose to gather and disseminate information, to evaluate potential and existing flood and earthquake conditions, and to advise local communities of corrective measures as necessary. The SCVWD coordinates actions when dual responsibility is involved, and operates as a liaison to County, State and Federal offices of emergency functions. SCVWD is “on alert” from October 1st to May 1st in order to monitor flood and emergency conditions. During flood emergencies, 24 operational bases will be established throughout the County for emergency response. Saratoga’s contact base is at the Rinconada Treatment Plant near More Avenue in Los Gatos.

Isolation of an area by flooded roads can prevent evacuation and access by medical, fire and police personnel. During periods of heavy rainfall, many bridges and roads which cross-stream channels may be inundated by the swiftly moving water. Bridges over the lower portion of Saratoga Creek near the Village are particularly vulnerable to flood damage, making major public roads inaccessible. Residents must then use private, substandard roads for access; should they become completely isolated from the City, only the Division of Forestry would be able to offer air access.

The response time for the provision of this service is greater in the winter months because the division’s hillside substation near Alma Avenue in Los Gatos is unmanned during that season. Bohlman Road and On Orbit Drive are predicted to be isolated in the event of heavy rainfall, as the high groundwater table rises and the geologic instability of the surrounding slopes triggers landslides. During periods of high intensity rainfall, City maintenance crews patrol the entire City with attention being paid to those areas having a history of flooding. The purpose of this type of patrol is to help prevent damage to private property during severe storms.

**FIRE HAZARDS**

Because most fires are started by people, either intentionally or through carelessness, the places of greatest concern for fire prevention are where people live, recreate, drive or work. Once started, a fire can quickly blaze out of control when weather and physical site conditions are amenable. In addition to the direct hazards to people and property, indirect damages and economic losses which fire may cause such as erosion and siltation of dams and flood control channels, increased flood hazard, damage to watersheds, the potential for mudslides and losses to scenic and recreational values may also occur.

Development in areas of fire hazard should be guided by prevention requirements such as fire resistant building construction and materials, adequate space between structures, available water supply, fire resistant plant materials, quality of year-round fire fighting service, available evacuation routes, access routes level enough for fire equipment use, and firebreaks and their maintenance in brush areas.
Access is a key component of fire hazard prevention, since fire-fighting equipment must be able to reach the fire and people living in or visiting the areas subject to the hazard must be able to escape in the event of a fire. Private roads, particularly in the hillside areas, are less likely to meet access and maintenance standards than public roads. The most effective method for avoiding fire risk in hazardous areas is the regulation of housing development and the provision of alternate access routes for settled deadend roads. Hillside roads in the County’s jurisdictional area, such as Redhill Road and Bohlman Road, clearly fail to meet City road construction standards and do not provide any alternative means of access.

Although fire protection services in the City and the Sphere of Influence are considered adequate for most emergencies, they may prove inadequate in the event of an earthquake. Fires associated with an earthquake are often scattered and spread rapidly due to an impaired water system. In such cases, Saratoga’s current level of fire services would be inadequate and water unavailable if reservoirs are ruptured or streams obstructed. During minor emergencies, mutual aid agreements might provide assistance from adjacent communities, but major emergencies, such as large-scale fires, would require additional assistance and resources from the County and State.

Fire Protection in Saratoga

The City of Saratoga is served by the Saratoga Fire District and the Central Fire District of Santa Clara County, each serving approximately 50% of the City’s jurisdictional area. The Central Fire Protection District was established in 1947 by Santa Clara County, and is managed by the County Board of Supervisors. The Saratoga Fire District was originally run by a group of citizen volunteers which organized in 1924; it was reorganized in 1961 as a Fire District under the State law with three elected commissioners. While Saratoga has never been completely devastated by a fire, several spectacular blazes occurred during its early history before the turn of the century, such as the fire at Maclay’s tannery and grist mill, the pasteboard mill fire, and also the fire at the Saratoga paper mill. The Congress Springs Hotel fire, which completely demolished the structure, occurred in 1906. Since the 1920’s, the increase in the level of fire fighting skill and the greatly improved firefighting equipment have prevented many fires in the City from becoming disasters.

The Saratoga Fire District has one station located at the corner of Saratoga Avenue and Saratoga-Sunnyvale Road. The Central Fire District has two Saratoga stations, one located on Cox Avenue and the other on Saratoga-Los Gatos Road, which also serves portions of Los Gatos. All area fire departments cooperate in mutual aid agreements which loosen the strict adherence to district boundaries when adjacent communities are in need.

San Jose Water Company is a private water supply company which services the City of Saratoga and much of Santa Clara County. The City’s water supply is considered adequate for fire-fighting, originating from four sources: 125 wells in the north Central district, Saratoga Creek, Los Gatos Creek Impounding Dam, and purchased treated water from the Santa Clara Valley Water District Rinconada Treatment Plant. The Subdivision Ordinance requires a peakload water supply of 1,000 gallons of water per minute for two
hours for all housing developments. San
Jose Water Company is limited in the areas
it can serve since higher site elevations
decrease the 35-pound minimum pressure
which must be maintained in order to
provide 1,000 gallons per minute. This
factor has caused a severe problem in
providing adequate fire protection in the
Northwestern Hillsides Residential District,
where several of the existing homes do not
meet the City requirement.

The City adopted a map in 1981
designating certain areas of the City as
hazardous fire areas, which are defined as
those areas densely covered with grass,
grain, brush or forest and so situated or
inaccessible that control of fire originating
on the land would present an abnormally
difficult task. The hazardous fire areas of
the City are shown on Map 5: Areas of
Extreme Fire Hazard. This classification
encompasses the Northwestern Hillsides
area of the City and extends to the Lower
Hillsides in the southwestern portion of the
City.

Special building regulations have been
established for the hazardous fire areas,
including the requirement for fire retardant
roofs and the installation of an electronic
fire detection system (Early Warning Fire
Alarms System) in all new homes or
existing homes expanded by more than fifty
percent. The Early Warning Fire Alarm
System consists of heat and smoke detectors
placed throughout the structure which, when
activated, will transmit a signal directly to a
receiver panel in the Saratoga Fire District
station. The fire district will then receive
the earliest possible warning of fires,
decreasing response time to remote areas
and thus reducing the possibility of death,
injury and property damage.

Saratoga has adopted the 1985
Editions of the Uniform Building Code and
the Uniform Fire Code, with modifications
recommended by the Central Fire District
and the Saratoga Fire District. These
modifications reflect local conditions such
as the existence of hazardous fire areas,
larger home and garage sizes, and restricted
access and traffic circulation in the hillside
areas having steep topography and heavy
combustible vegetation. One of the
requirements implemented with the adoption
of the 1985 Uniform Building Code was for
the installation of an automatic sprinkler
system in any new garage or carport having
a capacity to accommodate three or more
automobiles.

The requirement for installation of the
Early Warning Fire Alarm System has been
expanded beyond the hazardous fire areas to
include the following types of structures,
wherever located within the City:

1.) All new residences over 5,000
square feet.
2.) Existing residences which are
being expanded to increase the
total square footage to greater
than 5,000 square feet,
3.) All new multi-family dwellings,
hotels, motels, institutional
facilities, nursing homes and
other structures containing
multiple sleeping units, or any
such existing structures which
are expanded by 50% or more in
gross floor area, and
4.) New or expanded commercial
structures, when required by the
Fire Chief.

Assessment of Fire Risk in Wildland Areas

The Northwestern Hillsides
Residential District (NHR) and the hillsides
in the lower portion of the City (HC-RD)
south of Big Basin Way and Saratoga-Los Gatos Road, including small portions of the adjacent unincorporated area, are both classified by the State Public Resources Code and City ordinance as “hazardous fire areas.” Significant slopes, fire-loading vegetation, weather or any combination of these conditions creates the potential for the loss of life and property due to fire. Because of this potential, special fire protection measures and planning are necessary before development occurs.

The Northwestern Hillsides Residential District is characterized by native brush, grasslands and trees which are subject to wildfire, an uncontrollable brush fire fueled by this vegetation. While the low density of housing in the hillside area minimizes the potential danger to humans and structures, there is a danger that fire in one structure will start a wildfire which could consume an entire hillside. Special efforts have been made by the City to require anti-fire buffer areas and sufficient clearance around each house by landscaping with non-hazardous, drought resistant vegetation. The minimum setbacks in this area are 30 feet in the front yard, 20 feet in the side yards and a minimum of 20 feet in the rear.

Access and parking for emergency vehicles and delays in response time are the major public safety concerns in this area. Public street right-of-ways in hillside areas are required to have a pavement width of 26 feet, while the minimum width for a private access drive is 18 feet. Emergency vehicles such as fire trucks require a radius of a minimum of 32 feet on a cul-de-sac turnaround.

The fire hazard in Saratoga’s Sphere of Influence outside the City limits is considerably higher than in the City and its incorporated hillsides. Forest Service ranger units, located at Saratoga Summit and Stevens Creek Reservoir, are equipped to provide coverage for wildland fires only and not structure fires, during the summer months. The major problems contributing to adverse fire fighting conditions in the Sphere are areas of steep slope, lack of adequate water supply, intense vegetative cover and spectators who block access routes. The Sphere is covered during the winter months by the two fire districts in Saratoga, but structure fire fighting equipment in this area is subject to local emergency conditions and may not be available at all.

Assessment of Fire Risk in Urban Areas

The fire hazards in the flat urbanized areas of Saratoga are relatively low. Although these areas are higher in density than the hillside areas, excessive combustible natural vegetation is not present. The City’s Weed Abatement ordinance and unlimited trash pickup service have been effective in controlling a large portion of the combustible vegetation and trash in the City’s urban area. Response time of fire protection services is only a few minutes to any of the City’s densely populated neighborhoods, and the peak load water supply requirement of 1,000 gallons of water per minute for two hours is more than adequate for these areas.

Summer fires pose the greatest threat to residential areas in the City, particularly during periods of high temperatures and extremely dry vegetation. Tract homes with wood shake shingles are especially susceptible to the rapid spread of any fire which may start during seasonal dry spells, and are a major concern to the fire districts. The future adoption of standards for fire retardant roof materials and residential
sprinklers for all areas of the City should be considered.

A substantial portion of the new single-family dwellings being constructed in the City are much larger than the older existing homes; they are typically in excess of five thousand square feet which includes an attached three-car garage. Because of the size of these dwellings, a fire may be more difficult to extinguish and, therefore, potentially cause more damage than would normally occur. This is one of several reasons which lead to the requirement that the Early Warning Fire Alarm System be installed, in all new or expanded single-family dwellings with a floor area exceeding five thousand square feet, and a domestic sprinkler system must be installed in all three car garages.

Hazardous Materials Storage and Disposal

When compared to adjacent communities, Saratoga does not have a significant problem with hazardous materials storage and handling. No major chemical handlers are located in the City since such operations are severely limited by existing regulations. The storage, use and disposal of hazardous materials is limited to the six gas stations located in the City, and typically consists of anti-freeze, brake fluid, motor oil and gasoline.

Generally, when hazardous materials are present in Saratoga they are being transported through the City rather than to a location within the City limits. The main transportation routes for these materials are Saratoga-Sunnyvale Road and Highway 9; any spill which may occur along this corridor would be responded to by the local fire districts with the clean-up operation being the responsibility of the State Department of Transportation.

A major concern to the City when a hazardous chemical spill occurs is the possibility of surface and groundwater contamination. Floodplains and creeks lie in close proximity to the primary transportation routes and can become contaminated quickly between the time a spill occurs and the clean-up process begins. A spill occurred in 1985 at big Basin Way and Saratoga-Sunnyvale Road, with several thousand gallons of gasoline leaking into Saratoga Creek from a ruptured tank on a gasoline tanker truck. Several businesses and homeowners were forced to evacuate, and access roads were closed for several hours.

Saratoga enacted a Hazardous Materials Storage Ordinance in 1983 (Chapter 8 of the City Code) to protect “health, life resources and property through prevention and control of unauthorized discharges of hazardous materials.” The ordinance includes regulations governing administration and enforcement of the code which is performed by the County, the list of specific materials covered, containment standards, and preparation of hazardous materials management plans. Any person, firm or corporation which stores any hazardous material for which a permit is required must file a Hazardous Materials Management Plan (HMMP) for County approval and public records, demonstrating safe storage and handling of hazardous materials. The HMMP must include general information about the facility, an emergency response contact, a facility storage map, a hazardous materials inventory statement, a monitoring program, record keeping forms to be used as a log for routine inspections, and a description of emergency equipment available on-site. Due to the complexity of the new State laws concerning the storage and transportation of hazardous materials,
the Central Fire District has hired a full-time chemist, rather than training a fire fighter, to monitor and enforce the new laws.

**EMERGENCY PREPAREDNESS AND DISASTER PLANNING**

Effective safety planning involves both the development of regulations to prevent and/or mitigate hazards and the preparation of plans to deal with emergencies should they arise. While prevention is the most effective and cautious method of protecting the public and property from imminent danger, the City must be prepared if an unpredictable disaster should strike. It is the responsibility of each city to prepare a local emergency preparedness plan to be reviewed and updated every four years and approved by the State Office of Emergency Services. Updating the plan on schedule maintains the city’s eligibility for Federal Emergency Management Agency (FEMA) funded programs.

The City Code asserts the obligation of the City to protect the life and property of Saratoga residents, and supports the policy of mutual aid and coordination with the County emergency operational area. Expenditures are authorized for the protection and benefit of residents and their property. The City has defined an emergency as:

The actual or threatened existence of conditions of disaster or of extreme peril to the safety of persons and property within the City caused by such conditions as air pollution, fire, flood, storm, epidemic, riot earthquake, or other conditions resulting from war or imminent threat of war, which conditions are or are likely to be beyond the control of services, personnel, equipment and facilities of the City, requiring the combined forces of other political subdivisions to combat.

Through the California Emergency Services Act of 1970, the California Office of Emergency Service provides the basis for local emergency preparedness. The Office of Emergency Services is responsible for preparing the California State Emergency Plan and for coordinating and supporting emergency services conducted by local governments. The responsibility for immediate response to an emergency, such as fires, landslides, earthquakes or riots, rests with local government agencies and segments of the private sector, with support services provided by other jurisdictions and/or State and Federal agencies. In accordance with their normal operating procedures, the initial response to an emergency is to be made by the City’s Fire, Law Enforcement, Medical or Maintenance (Public Works) districts or departments.

**Emergency Plan Purpose and Organization**

The purpose of the Saratoga’s Emergency Plan is to provide for effective emergency management within the City, using existing organizations and resources to the maximum extent possible. The objectives of the plan are:

1.) To minimize the effects of emergency or disaster occurring as a result of any hazard, natural or manmade,

2.) To enhance the response to emergencies in a timely, coordinated manner,

3.) To assist recovery from a disaster rapidly and at lowest possible cost to residents,
4.) To facilitate preparedness for dealing with the mitigation, response and recovery actions inherent in the objectives above.

The City’s Emergency Plan details the assignment of authority and procedures to be followed during emergencies. The present plan was adopted in January 1986, and is currently being revised to be consistent with recent changes in State law. Saratoga’s City code authorizes the creation of a disaster council which consists of the Mayor and Council at the time the disaster occurs. The Council has the authority to develop and recommend disaster-related plans, policies, ordinances and regulations, and to implement all aspects of the plan. The City Manager functions as the Director of Emergency Services, assuming the direction and control of emergency operations, and the requisitioning of materials and labor. The emergency organization under the director consists of all officers and employees of the City, those volunteers enrolled to aid during an emergency, and any others, who by agreement or operation of law, can be charged with emergency duties.

The Plan is organized into five parts: Part One, the Basic Plan, deals with matters of concept, organization, direction and control; Part Two, Emergency Response Services, focuses on those services which respond initially to emergency calls and would be immediately required to respond when an official emergency is declared; Part Three, Resource Management Services, encompasses those activities which may or may not be required depending on the nature and scope of the emergency; Part Four, the Staff Services section, is designed to describe key staff assistance required by the Director of Emergency Services for effective management of an emergency; Part Five, the Emergency Operating Center (EOC), describes details of organization and functioning of the EOC. The objectives, concepts and applicable doctrine of the State and Santa Clara County emergency plans are automatically incorporated into Saratoga’s plan, and should be used in conjunction when local emergencies extend into and effect adjacent communities.

Emergency Evacuation Plan

Another facet of the City’s responsibility in emergency preparedness is the development of evacuation plans which will readily and effectively relocate residents from hazardous areas to locations of greater safety. An integral part of evacuation planning is the identification of evacuation routes and places of assembly. Map 6, Evacuation Routes, illustrates the direction of movement on local collector and arterial streets and the designated evacuation routes that should be followed in order to promote safe and efficient evacuation of residents. Proposed places of assembly are chosen for their ability to accommodate significant numbers of people, their relative location to the arterial and collector streets, and their overall geographic location in relation to population concentrations. Roads which serve as collector streets are Fruitvale Avenue, Big Basin Way and Pierce Road. These collectors feed into the higher capacity arterial streets such as Saratoga-Sunnyvale Road, Quito Road, Saratoga Avenue, Saratoga-Los Gatos Road and Prospect Rd.

The Evacuation Route map shows that the majority of the City’s evacuation routes are located in the area between Prospect Avenue and Saratoga-Los Gatos Road, and Saratoga-Sunnyvale and Quito Road, where the population is of a higher density than in
hillside areas. Depending on the nature of the disaster, some access roads in the hillside areas may be closed or impeded, creating the necessity for residents to evacuate from the area along substandard emergency access roads or by helicopter.

Places of assembly, or congregate care centers, to be opened in the event of a disaster are shown on Map 6 and are designated as “primary places of assembly” or “secondary places of assembly.” The primary places of assembly are Saratoga High (Saratoga-Sunnyvale Road and Herriman Avenue), the West Valley College (Fruitvale Avenue and Allendale Avenue), and the Odd Fellows Home (Fruitvale Avenue and San Marcos Road). The Odd Fellows Home, although limited in space and occupancy load, is important as an emergency shelter due to the availability of medical care. Secondary places of assembly consist of the remaining seven elementary, junior high and high schools in the City. Saratoga’s designated emergency operating centers are also shown on the map. The primary center is located adjacent to City Hall in the Senior Wing of the Community Center, with secondary center at the Saratoga Fire District station at Saratoga-Sunnyvale Road and Saratoga Avenue. In addition to these facilities, Saratoga is also served by Santa Clara County Emergency Welfare Service Center VIII, located at 700 Gale Drive in Campbell.

IMPACT IDENTIFICATION

Identification of geologic, seismic, flood and fire hazards affecting Saratoga is the first step in estimating the potential safety risks to people and property. The determination of conflict areas and the impact resulting from the identified hazards is the next step in defining those areas of the city at highest risk. By the use of a map which overlays the hazard areas on the City (Map 4), potential impacts to people and property can be identified and used as a basis for safety planning policy formulation.

Land Use Impacts

A major portion of the city of Saratoga is underlain by a geologic stability zone, and resembles a relatively flat valley floor. The land use in this area is predominately residential of varying density, and is not considered to be geologically hazard prone. However, the potentially active Shannon Fault lies in this area of the City, parallel to the proposed Highway 85 Corridor. Although no recent movement is evident along the fault trace, the most likely secondary effects of an earthquake in this area would be ground subsidence or liquefaction due to the many creekbeds and alluvium soil present in the area.

Commercial land use is concentrated in the Village area, along Saratoga-Sunnyvale Road, and sporadically along Saratoga Avenue. Some commercial properties in the Village have experienced problems related to a high groundwater table and above-ground seepage caused by underground creeks and mineral springs, but no substantial damage has occurred due to geologic hazards.

The most geologically unstable areas in Saratoga, the upper Calabazas Creek watershed and the Congress Springs study area, are predominantly low density residential. Some portions of the Congress Springs area within Saratoga’s urban service area are unincorporated and under County jurisdiction. The zoning of the southern section of Bohlman Road, Quicker Road and On Orbit Drive is regulated by the County, with many roads and homes on land considered too unstable for such uses.
These roadways will require continual maintenance and could face possible catastrophic failure due to massive landsliding or fault movement along the potentially active Berrocal fault. The geologic and environmental constraints related to seismic hazards in this area make the development potential of vacant parcels doubtful. The County’s slope-density zoning allows from approximately 2.5 to 10 acres per dwelling unit; however, the subdivision off On Orbit Drive was developed according to flatland standards during the early 1970’s. The City’s slope density zoning allows from approximately 1 to 6 acres per dwelling.

The Northwestern Hillsides Residential District lies within the upper Calabazas Creek watershed and is another region of Saratoga subject to geologic hazards. The most unstable portion of the watershed is located north and south of the Mt. Eden Road-Pierce Road intersection. Landslide movement has occurred at several residential sites in this section of the hillside, particularly along Pike Road and Sarahills Drive. Recent losses in this area attributed to landslide movement have shown that even those structures built with deep pier and grade beam-type foundations may be damaged or destroyed if the active slip surfaces lie below the depth of foundation penetration. The presence of percolation from underground natural springs in this area has also contributed to the instability of these slopes.

The terrain unit designated as the San Andreas Rift is traversed by the San Andreas Fault. It is considered seismically unstable and subject to intense ground shaking and surface rupture. Development in this region of the Sphere of Influence is sparse, and the area should be considered only for open space preservation in the future rather than urban development.

Transportation Route Impacts

Major transportation routes such as highways and arterial streets link the neighborhoods of the city and provide essential access both into and out of hazard prone areas. The mobility of public safety officials and emergency personnel is vital in emergency situations. Because evacuation relies upon passable and safe roads, transportation routes are a key concern in safety planning.

Many of the roads in the hillside areas of Saratoga are narrow and traverse areas of questionable stability. Congress Springs Road is continually moving, as are parts of Bohlman and Pierce Roads. The cost of maintaining these roads to acceptable standards is high. Roadbeds are often destroyed by active land sliding into creek beds, and creeks must be channeled to prevent the reoccurrence of damage.

The Bohlman Road area is especially prone to landsliding during the winter months when the soil becomes saturated. Road closure due to an active landslide at the intersection of Norton and Bohlman would completely isolate the southern portion of Bohlman Road, Belnap, Kittridge, Quickert and the subdivision on On Orbit Drive. Due to the potential movement of the hillside in this region and deformation of roadbeds, the development of emergency access roads and cost of their maintenance is prohibitive. Should a landslide occur, the only method of emergency access to this area would be by air, requiring the assistance of the Department of Forestry.

Saratoga Creek has the most extensive floodplain in width and length, following the
course of Saratoga Avenue from Prospect Road to Big Basin Wy. Isolation of the lower portion of this area by flooded roads or bridges crossing the creek channel could prevent evacuation and access by medical, fire and police personnel.

Utility Impacts

Utility facilities, roads and other linear structures are particularly vulnerable to damage from seismic activity. Utility systems for water and gas distribution, and sewage disposal are easily disrupted by intense ground shaking and geologic instabilities, and many of these facilities currently cross the San Andreas Fault zone or the Bohlman Road area. Since these regions are the most likely portions of the City to be isolated from emergency services if a disaster should occur, special consideration should be given to the design and location of these utility and roadway networks and the supporting emergency backup systems.

Slope failure from over-saturation of the soil has occurred in the past in the upper Calabazas Creek watershed area, rupturing water and gas lines and disrupting water and gas lines and distributing service for long periods of time. This area of the City has historically been sparsely populated, consisting of low-density residential development. However, as more development occurs in this region and more expensive homes are built, more people and property will be endangered if caution is not taken in this site analysis stage of development review.

Water and gas lines can be ruptured by the disposition of debris or the force of floodwaters during periods of heavy rainfall. Contamination of domestic water supplies is another hazard attributed to pipeline rupture. Septic tank systems are unable to function when the ground becomes over-saturated, and have the potential to pollute floodwaters. Several hillside developments, along Pierce and Pike Roads and the south portion of Bohlman, Kittridge and Norton Roads, are not served by sanitary sewer lines but are connected to septic tank systems. The developments also tend to be geologically unstable areas subject to slope failure, increasing the risk of water supply contamination during floods.

Emergency Related Facilities

During times of emergency, certain structures throughout the City are of prime importance to the safety and welfare of those who live in the community. These facilities are used to coordinate emergency relief operations and to give medical care and shelter to those affected by the emergency situation and to give medical care and shelter to those affected by the emergency situation. The safety of these critical buildings and their occupants during times of natural hazards is of paramount importance to the operation of a successful emergency response plan.

Critical structures such as emergency operation centers, hospitals, fire and police stations are often located in areas prone to natural hazards and should receive high priority for building inspections if they were not built according to current safety standards. The Saratoga Fire District Station and the County Sheriff’s Office are located at the intersection of Saratoga Avenue and Saratoga-Sunnyvale Road, and lie within the floodplain of Saratoga Creek. The City’s main Emergency Operation Center, City Hall, is located on Fruitvale Avenue at Allendale, just outside Wildcat Creek’s 100-year floodway. Los Gatos-Saratoga Community Hospital on Pollard Road in Los Gatos (2 miles from Quito
Road) is the most accessible hospital to Saratogoans in the event of an emergency. A floodplain lies just east of the facility and follows the alignment of the Los Gatos portion of Highway 17. Since the County’s Emergency Plan makes the assumption that freeways will be unusable and overpasses closed in the event of an earthquake or flood, other valley hospitals may be inaccessible to City residents. If this assumption is correct, the City’s evacuation plan will be ineffective. Because of this, it is imperative that a strong individual emergency preparedness program be initiated so that City residents can be self-sufficient for at least 72 hours, or until remote areas of the County are accessible to emergency crews.

Another consideration which could adversely affect the City’s evacuation plan is that of conflicting policies by surrounding jurisdictions and the resulting impacts. Two cities adjacent to Saratoga, Los Gatos and Monte Sereno, have substantial areas of unstable hillsides covered with dense vegetation. According to the Los Gatos General Plan, hillside building and site designs are regulated by ordinance, and excessive accumulation of vegetation that could trigger a fire is strictly monitored and controlled. The City also restricts development along single-lane access roads, and emergency access routes must be provided for remote development sites. These polices complement Saratoga’s approach to safety planning and emergency preparedness. However, policies of the City of Monte Sereno could have major impacts on the effectiveness of Saratoga’s emergency plan. One of Monte Sereno’s development policies is to encourage limited neighborhood access with looped streets and cul-de-sacs to prevent thorough traffic and reduce crime, even to the extent that the administration of emergency services might be hindered. Neighborhoods may request a reduction in vehicular access routes if they feel such a measure would preserve the quality of life in their area. The risk of fire in the steep heavily vegetated hillsides south of Highway 9 is high, and reducing the number of emergency access routes could delay the response of police, fire, ambulance and paramedic services, increasing the likelihood of fire spreading to the hillsides of adjacent communities.

In the event of an earthquake or major disaster, residents of Los Gatos and Monte Sereno would share two major evacuation routes with those living in Saratoga. Los Gatos, Monte Sereno and many Saratoga residents would evacuate along Quito Road and Highway 9 (Saratoga-Los Gatos Road). These roads are heavily congested during normal commute hours, and would exceed their maximum traffic capacity during an emergency evacuation. It would be beneficial to all three communities to develop an effective inter-city emergency evacuation plan.

GOALS, POLICIES AND IMPLEMENTATION PROGRAMS

The purpose of the Safety Element is to establish policies designed to achieve the goal of reducing risks from natural hazards. The steps used in the process of establishing policies are: 1) identification of problems or hazards, and 2) the development of solutions or policies. Thus far, the hazards have been defined and mapped, and the potential impacts have been identified. This chapter will focus on the development of solutions.

The City of Saratoga already has adopted many policies and programs which address safety and seismic safety issues. These policies can be separated into four categories: City development standards,
General Plan Elements, Specific Plans, and the Emergency Plan. It is important to analyze these existing policies first for the purpose of identifying areas of policy strength, policy weakness and policy voids. When combined with the issues identified in previous chapters of this Element, this analysis will lead to recommendations on how the goals, policies and implementation programs in the City’s existing Safety/Seismic Safety Element can be improved and strengthened.

ANALYSIS OF EXISTING POLICIES AND PROGRAMS

City Development Controls and Standards

The majority of development standards for the City of Saratoga are located in the City Code. Chapter 14 contains subdivision regulations; those sections which specifically address safety issues include Article 14-25, Design Requirements (design standards and dedication of streets, public service easements and watercourses) and Article 14-30, Improvement Plans (storm water drainage, water provision and sewer improvement plans). Chapter 15 of the Code contains zoning regulations; those sections which pertain to safety issues include Article 15-13, Hillside Conservation Residential District and Article 15-14, Northwestern Hillside Residential District (maximum site density, particularly, for sloped sites), and Article 15-65, Nonconforming Uses and Structures (unsafe buildings, and general standards for nuisance abatement and public safety).

The City has also adopted the most recent edition of the Uniform Building Code (UBC) which contains general construction safety regulations and specific seismic safety standards. Chapter 16 of the City code contains additional building regulations addressing site drainage requirements, structural reinforcement, fire retardant construction, and automatic sprinklers for certain garages in hazardous fire areas; these regulations serve as modifications to UBC reflecting local conditions.

The Early Warning Fire Alarm System is another important safety policy which was authorized through a General Plan amendment to the Safety Element in 1984, and then implemented through the subdivision, zoning and building regulations.

Ground Movement Potential Maps of the Upper Calabazas Creek, the Congress Springs Study Area and the Lower Saratoga Hillside Area have been adopted as Article 16-65 of the Building Regulations, along with restrictions and requirements for development in certain areas based on designations of slope stability depicted on the maps. In those areas designated as having extreme potential for ground movement, further professional analysis must be obtained certifying that the site is safely developable. If deemed necessary by the City Geologist, precautionary measures must then be undertaken as a condition of development.

General Plan Elements

It is the purpose of the Safety Element to reduce risk from natural hazards. This element, however, is not the only element containing goals and policies designed to make Saratoga a safer place in which to live. Five other General Plan elements, as follows, contain policies intended to reduce danger to people and property from natural hazards (the number in parentheses refers to the goal, policy or implementation measure from the specified General Plan element):
Land Use Element

The City shall use the design review process to assure that new construction and major additions thereto are compatible with the site and the adjacent surroundings. (5.0)

Relate new development and its land uses to presently planned street capacities so as to avoid excessive noise, traffic and public safety hazards. If it is determined that existing streets need to be improved to accommodate a project, such improvements shall be in place or bonded for prior issuance of building permits. (6.0)

Circulation and Scenic Highway Element

Traffic impacts that could create excessive noise, safety hazards and air pollution shall be mitigated. The City shall use the standards established by the State of California and in effect on February 14, 1983, to determine what constitutes excessive noise, safety hazards and air pollution until the City adopts its own standards or more restrictive standards are adopted by the State. (10.0)

Open Space Element

Use open space to protect human life and property from such hazards as wildfires, earthquake destruction, landslides and flooding. (2.0)

Continue enforcement of existing flood control regulations. This will supplement the Flood Plain Map which is part of the General Plan. (Imp)

Conservation Element

Preserve the quality of the natural environment and the character of the City through appropriate regulation of site development. (3.0)

Maximum impervious coverage limits used by the City shall be evaluated and, if necessary, revised to ensure that runoff due to new development will not create flooding or erosion impacts. (3.6)

Housing Element

The City shall mitigate the danger of earthquake damage by enforcing strict earthquake construction and soil engineering standards, selecting the most stable areas for development and by having developers compensate for soil instabilities by approved engineering and construction techniques. (3.1)

Development shall be designed to retain the natural topographic features of the land to the maximum extent possible. (3.2)

Any development in areas subject to natural hazards shall be designed to protect the environment, inhabitants and general public. In areas where personal injury, property damage or damage to streets and utilities could occur, development shall be prohibited, unless the potential hazards can be mitigated or avoided through engineering or construction techniques. (3.3)

Specific Plans

In addition to the basic Elements, the City’s General Plan includes two specific plans, The Northwestern Hillside Specific Plan and the Sphere of Influence Special Plan, which addresses specific safety and seismic issues for those areas of the City.

Northwestern Hillside Specific Plan
The Northwestern Hillside Specific Plan was adopted by the City of Saratoga to implement Measure “A” which was passed in 1980. The purpose of the plan is to reduce danger to the northwestern hillside community (approximately 2,100 acres) and its environment from geologic hazards through the implementation of goals, policies, and programs specifically addressing the following issues: geology and soils, hydrology and flooding, fire hazards, water provision, fire/emergency services, site and storm drainage, environmental resource management and community development. Residential density in the NHR District is one unit per acre, which may be further reduced by use of a slope/density formula. This formula has also been applied to the HCRD District, so that virtually all of the hillside areas in Saratoga are restricted to very low-density development. Because of its length and level of detail, the plan’s summary of goals, policies and implementation programs is located in Appendix B of this Element.

Sphere of Influence Special Plan

Saratoga adopted the Sphere of Influence Plan as a Special Area Plan in 1974 to assist in the formulation of policies leading to an appropriate balance of conservation and development in the area. The plan was designed to guide future City decisions relating to annexation, development and public safety in the City’s Sphere of Influence, which is that area outside the City’s incorporated boundary designated by LAFCO (Local Agency Formation Commission) as the unincorporated area most likely to be influenced by/or annexed to the City at some future date. This area encompasses approximately 9,480 acres of hillside land under the jurisdiction of Santa Clara County, with the City having secondary review authority. Like the Northwestern Hillside Plan, the sphere plan is long and detailed, and its summary of goals and policies is located in Appendix C of this Element. The plan has not been amended since its adoption in 1974.

Emergency Plan

In order for the City to be eligible for disaster-related financial assistance, it must update its local emergency plan every four years and assess its adequacy. However, even though the City adopted its plan in 1986, it already requires revision because of recent changes in the State law. The 1986 plan remains incomplete with six sections of Part Four (Staff Services), such as the “Disaster Analysis Section,” still unfinished. This section is a vital component of emergency preparedness planning and the anticipation of mitigation, response and recovery actions inherent to the plan’s effectiveness. The potential for various emergency situations must be addressed in order to prepare for the necessary response and action. Although the plan adequately addresses organization, management and general response services during times of disaster, specific directions related to the assessment of past and potential hazards are needed; this section should be completed and consistent with this Element. An Evacuation Route map, detailing specific arterial and collector streets, and emergency shelters or congregate care facilities should also be included in this section of the plan.

Part Three of the Emergency Plan, Resource Management Services, has not been prepared. This part deals with procurement service, health service, transportation service, manpower service and construction and housing service required, depending on the nature and scope of the emergency. This is essential
information for emergency staff members who must provide support to the public.

Saratoga’s geographical location is not conducive to total County disaster-related support, and could be isolated from other communities and outside agencies during the first 24 to 48 hours following a regional disaster such as an earthquake. Emergency training exercises, held at least once a year and sponsored by the County, test the City’s current emergency plan and efficiency level for immediate response to a disaster. However, the conduct of emergency planning should not be left only to the employees of the City, but should include individual preparedness on the part of citizens through an active emergency preparedness education program.

Until 1986, annual disaster exercises were conducted in Saratoga by the Emergency Preparedness Coordinator and the local fire districts to prepare staff for their assignments during an emergency situation. However, since then the City has participated in only the countywide exercises. For the annual City-sponsored exercise, a scenario was established which provided a basis for emergency function and action, with the planning department staff responsible for maintaining current information on the City map regarding transportation routes closed or impeded, areas of major damages, location of medical treatment and congregate care facilities, limits of the evacuation area, control points and exit routes. In order to ensure coordinated and timely emergency response, the City staff should be aware of their responsibilities, with practice exercises held annually. The Emergency Plan should also be reviewed annually for consistency with State law and updated in a timely manner.

ISSUE INDENTIFICATION AND ADOPTED GOALS, POLICIES AND IMPLEMENTATION PROGRAMS

In the hazard and impact identification chapters of this element and in the analysis of existing City safety policies, significant issues relating to the identified hazards and the City’s plans for addressing them have been raised. These issues, and the recommended goals, policies and implementation programs to address them, are presented in the following pages.

Hazards of Land Instability

ISSUE #1: The physical and geologic characteristics of Saratoga have the potential to produce geologic instability problems for land development. Hazards occur when property is developed in ways which are unsuitable to geologic conditions in the area. Areas of particular concern to the City due to their history of geologic instability are the Upper Calabazas Watershed, the Congress Springs Study Area, and the Lower Saratoga Hillside Area.

1.0 (Goal) To protect residents from injuries and minimize property damage resulting from land instability and geologic hazards in populated areas.

1.1 (Policy) No development shall be permitted in the designated urban service area without individual site-specific geotechnical investigations to determine depth of bedrock, soil stability, location of rift zones and other localized geotechnical problems.

1.1 (IMP) The City Geologist will review proposals involving sites having potential land instability or
geologic hazards, and will make recommendations accordingly.

1.2 (Policy) Development in areas subject to natural hazards shall be limited and shall be designed to protect the environment, inhabitants and general public. In areas which have been proven to be unsafe, development of structures for human habitation shall be prohibited to the maximum extent permitted by law.

1.2 (Imp) Identify any areas of significant natural hazards as they become known. Development will not be allowed in these areas unless conditioned to mitigate such hazards.

1.3 (Policy) Proposals for General Plan amendments, zone changes, use permits, variances, building site approvals, and all land development applications subject to environmental assessment according to CEQA guidelines shall be reviewed for hazardous conditions utilizing the most current data.

1.3 (Imp) Mitigation measures to eliminate potential geologic hazards identified during the environmental review process will be required as conditions of development.

Seismic Hazards

ISSUE #2: Seismic activity and its secondary effects such as ground failure are potential hazards to the populated areas of the City. Two “potentially active” faults, the Berrocal and the Shannon, lie within the City limits, while the “active” San Andreas Fault traverses the City’s Sphere of Influence.

2.0 (Goal) To protect the residents of the City and surrounding areas from seismically induced hazards.

2.1 (Policy) In order to mitigate the danger of earthquake damage, the City shall enforce strict earthquake construction and soil-engineering standards, selecting the most stable areas for development and requiring developers to compensate for soil instabilities through approved engineering and construction techniques.

2.2 (Policy) Critical structures and systems vital to the public health and safety (water, power and waster disposals systems, police an fire stations and communication facilities) shall not be designed to mitigate any seismic or geologic hazards associated with their sites.

2.1 & 2.2 (Imp) A series of General Plan reference maps delineating geotechnical hazards and an environmental constraint is to be maintained and periodically updated as necessary to aid in the review of development proposals.

2.3 (Policy) The City should comply with State statutes regarding the identification of non-reinforced masonry structures.
2.3 (Imp) The City will inventory all non-reinforced masonry structures in the Village area as State funding for such an inventory becomes available, and develop a program to help mitigate structural hazards related to such buildings.

3.2 (Policy) The City shall continue to participate in the National Flood Insurance Program.

3.2 (Imp) The City will adopt and enforce a Floodplain Management Ordinance, based on the national Model Floodplain Management Ordinance to satisfy the requirements of the National Flood Insurance Program.

3.3 (Policy) The City shall continue to enforce its existing regulations pertaining to impervious coverage to reduce potential hazards from excessive run-off.

3.3 (Imp) Implement by continuation of existing zoning regulations as contained in the City Code.

Flood Hazards

ISSUE #3: Historically, much of the damage to private and public property during periods of heavy rainfall has been due to slope failure in hillside areas, induced by over-saturation of the soil and/or by rising groundwater levels. Flooding and flood induced land sliding can also isolate areas of the City and hinder the provision of emergency services. Traversing the City are several creeks having extensive floodplains and watersheds where the future risk of flooding is great.

3.0 (Goal) To reduce the damage to public and private property resulting from flooding and flood induced hazards.

3.1 (Policy) The City shall continue to enforce its existing flood control regulations, and will cooperate with the Santa Clara Valley Water District when proposed projects will affect floodways in the City in order to prevent development activities from aggravating or causing potential flood problems.

3.1) (Imp) All proposed projects adjacent to floodways and floodplains will be referred to the Water District for review and comments

3.2 (Policy) The City shall continue to participate in the National Flood Insurance Program.

3.2 (Imp) The City will adopt and enforce a Floodplain Management Ordinance, based on the national Model Floodplain Management Ordinance to satisfy the requirements of the National Flood Insurance Program.

3.3 (Policy) The City shall continue to enforce its existing regulations pertaining to impervious coverage to reduce potential hazards from excessive run-off.

3.3 (Imp) Implement by continuation of existing zoning regulations as contained in the City Code.

Fire Hazards

ISSUE #4: The danger of property damage and loss of life from fire is considered greatest in the hillside areas of Saratoga where dry brush is prevalent and the provision of fire protection services is inadequate. Even though fire protection services appear adequate for the more densely populated urbanized areas of the City, summer fires pose a severe threat to wood-shingled homes which are especially susceptible to the rapid spread of fire.

4.0 (Goal) To reduce the danger of property damage and loss of life due to fire in both urban and rural areas of the City.

4.1 (Policy) The City shall require the installation of an early warning fire alarm system in each of the following cases:
a. All new single-family dwellings and any existing single-family dwellings which are expanded by fifty percent or more in floor area, where such new or expanded dwellings are located within designated hazardous fire area.

b. All new single-family dwellings having a gross floor area in excess of 5,000 square feet.

c. Any existing single family dwelling which is expanded by fifty percent or more in floor area which, after such expansion, will exceed 5,000 square feet in gross floor area.

d. All new multi-family dwellings and other new structures having multiple sleeping units, such as hotels, motels, apartments, condominium or other community housing projects, townhouses and nursing homes.

e. Any existing multi-family dwelling or other existing structure having multiple sleeping units such as described in Paragraph (d) above, which is expanded by fifty percent or more in gross area.

4.1 (IMP) Implement through continuation of existing subdivision, zoning and building regulations as contained in the City Code.

4.2 (Policy) The Chief of the fire district having jurisdiction should be authorized to require the installation of an early warning fire alarm system in any new commercial structure or community facility, or expansion of an existing commercial structure by fifty percent or more in gross floor area, whenever the Chief deems such requirement to be necessary or appropriate on the basis of facts and circumstances in each individual case.

4.2 (IMP) Implement through continuation of existing subdivision, zoning and building regulations as contained in the City Code.

4.3 (Policy) The City shall encourage all property owners to install an early warning fire alarm system on a voluntary basis where such owners are not otherwise required to do so.

4.3 (Imp) Implement by continuation of existing provision in the building regulations allowing voluntary installation of the system and publicize the availability of the system for any property located within the City.

4.4 (Policy) The City shall continue to enforce its existing regulations pertaining to hazardous fire areas, fire retardant construction and landscaping.
4.4 (Imp) Periodically review subdivision, zoning and building regulations which pertain to hazardous fire areas to determine if significant changes are required.

4.4a (Imp) Update map depicting hazardous fire areas as needed.

4.5 (Policy) The City shall study the need for additional fire prevention regulations for the built up, populated areas of the City.

4.5 (Imp) The City, in cooperation with the local fire districts, will review and modify, as necessary, existing building regulations to require Type A & B fire retardant roof materials in the densely populated flatlands of the City.

Emergency Preparedness

ISSUE #5: Saratoga has developed an emergency plan to provide for effective emergency response. The development of an effective evacuation plan to relocate residents from hazardous areas during an emergency is also the City’s responsibility. However, for the plan to operate effectively during a disaster, the plans of the surrounding jurisdictions must be taken into consideration in order to foresee preventable hazards and impacts on a regional basis.

5.0 (Goal) To develop and maintain an emergency preparedness plan which will provide effective response in the event of a natural or manmade disaster.

(Policy) The City shall review and update on a regular basis its plan for emergency preparedness. This plan shall use local resources and manpower to provide maximum benefit and protection for the City’s residents.

5.1 (Imp) Review and update annually the City’s Emergency Plan, modifying the plan if significant changes are required. Sections of the plan which are incomplete will be completed in a timely manner.

5.2 (Policy) The City shall coordinate its plan with local jurisdictions and regional agencies to anticipate cumulative impacts during times of disaster.

(Imp) Review adjacent jurisdictions’ plans and resolve areas of potential conflict.

5.3 (Policy) The City shall encourage all citizens to take responsibility for their own safety in the event of a disaster.

5.3 (Imp) The City shall publicize and participate in disaster preparedness exercises and distribute emergency planning information to the citizens of Saratoga.
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City of San Jose.  The General Plan, City of San Jose, California: Seismic Safety Plan.  Planning Department, assisted by Cooper, Clark and Assoc.; Duncan and Jones; Rinne and Peterson; Environment Assessment Engineering; and William Ellis and Assoc. September 1974.


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APPENDICES

APPENDIX A

Glossary

**Active Fault Zone**: Fault area which has experienced displacement during geologic time (within the past 10,000 to 600,000 years), indicating that further movement might occur.

**Floodplain**: The area bordering a stream which becomes flooded when the stream overflows its channel.

**Lifelines**: Public facilities and services that the metropolitan population are dependent upon such as transportation and communication networks, power, gas and water lines.

**Mercalli Scale**: A scale of earthquake intensity ranging from I to XII. Based on observable effects at a given place.

**Potentially Active Fault Zone**: Fault area showing evidence of surface displacement during Quaternary time or the last 2 million years.

**Rift Zone**: A large fault where lateral movement occurs.

**Richter Scale**: A scale of earthquake magnitude based on the logarithm (base 10) of the amplitudes of the deflections created by earthquake waves and recorded by a seismograph.

**Rural Residential**: Low density single-family residential development and agricultural uses with compatible conditional uses. Local jurisdiction usually provides a minimal level of service.

**Seismic**: Pertaining to an earthquake or earth vibration, including those that are artificially induced.

**Sphere of Influence**: That area outside the City’s incorporated boundary, but designated by the Santa Clara County Local Agency Formation Commission as the unincorporated area most likely to be influenced and annexed by the City in the future.

**Tilt-up Structure**: Concrete walls are poured on the ground, allowed to harden, and then tilted into place.

**Urban Residential**: Medium to high density single – and multi-family residential development and compatible conditional uses. Local jurisdiction usually provides full array of urban services.
APPENDIX B
NORTHWESTERN HILLSDIE SPECIFIC PLAN

The Northwest Hillside Specific Plan was adopted by the City of Saratoga after the passage of Measure “A” in 1981. The purpose of the plan is to reduce danger to the hillside community and its environment from geologic hazards. The specific goals, policies and programs which address safety and seismic safety concerns are listed below. The Northwestern Hillsides Residential District Ordinance (Article 15.14 of the City Code) was adopted to implement these policies.

GOALS

1. Land use regulation shall be based upon natural, flood and geologic hazards.

Geology and Soils

POLICIES

1. Geologic hazards should be avoided to the fullest extent possible by either correction or dedications of such areas into open space. In avoiding geologic hazards, applications proposing structures be located on lands designated Md or Mrf or within the specific fault setbacks as designated by the City Geologist, shall not be approved.

2. Every applicant seeking approval of any construction project within the Specific Plan Area shall at all times have the burden of providing, to the satisfaction of the City and its Geologist and other professional consultants, that the proposed development will be constructed in such a manner as to be safe from known or reasonably predictable geologic hazards which may cause injury to persons or property.

3. The Geologic Hazards Analysis of the Upper Calazabas Creek watershed is a planning document which may require modification.

4. No deviations or modifications of the Maps shall be permitted without prior written approval of the City Geologist.

5. In locating building sites, preference should be given to areas designated as stable (Sbr, Sls, Sun, Sex) on the Ground Movement Potential Maps. Especially sites on potentially moving slopes (Pmw, Ps, Pd) and moving slopes (Ms) shall not be approved unless geologic and engineering analysis and design provided by the developer clearly demonstrate the long-term stability of such sites to the satisfaction of the City, its Geologist and other professional consultants.

6. On questionable sites the City Geologist may require slope stability analysis with the building site and its immediately surrounding area having a factor of safety against failure of at least 1.5 or equivalent, in the event of a designed earthquake of magnitude 8.3 on the San Andreas Fault. The City Geologist shall review and approve all proposals to insure conformance with this requirement.
7. The City, Santa Clara Valley Water District, Evergreen Resource Conservation District and Santa Clara County should immediately commence proceedings with the landowners for the stabilization of the abandoned quarry areas on the Paul Masson Vineyard and Cocciardi properties as well as other erosion reduction activities.

8. If grading proposed for a project, as specifically approved by the Planning Commission, City Geologist and City Engineer, corrects a geologic hazard, then roads, driveways and structures may be located on such graded areas as approved.

9. Projects or portions thereof that require a high level of maintenance activity over the long-term to prevent slope failures should generally not be approved since the City’s ability to perform or enforce performance of maintenance is limited. Project design should principally use solutions that minimize risk in not affecting public or private structures in the event of failure.

10. City should continue to strictly enforce its grading ordinance through the City Geologist and Department of Inspection Services and control of all work by soils engineer and geologist on all projects in hillsides.

ACTION PROGRAM

1. Design and/or revise Ordinances to carry out the above policies for entire Specific Plan Area.

Hydrology and Flooding

POLICIES

1. For site-specific policies, see Site and Storm Drainage.

2. City Council, Planning Commission and City Staff should continue all available efforts to secure remedy to flooding and erosion problems along the main Calabazas and in already developed areas.

3. Long-term maintenance of natural watercourses of smaller size than would qualify for Santa Clara Valley Water District jurisdiction should be by homeowners in tributary areas using private resources and with City review and approval of any proposed improvements or maintenance.

4. Continue (and expand to include Specific Plan Area) pro-rata share fees for drainage, insuring that they are large enough to pay all costs of necessary facilities to eliminate flooding at the 100-year storm level.

5. Recommend continuing support of long-term study of hydrology of area.

ACTION PROGRAM

1. Work with the Santa Clara Valley Water District to develop appropriate procedures for the above policies.

Fire Hazard
POLICIES

1. Encourage landscaping with non-hazardous, drought resistant vegetation.

ACTION PROGRAM

1. Recommend landscaping of non-hazardous vegetation at CC&R stage.

Water

POLICIES

1. Upgrade provisions of water for adequate fire protection in the hillsides.

2. Improve supply of water for fire protection for existing homes by establishing the water improvement project.

ACTION PROGRAM

1. Allow formation of the Water Assessment District.

2. Continue Subdivision Ordinance Section which requires 1,000 gallons per minute of water for any new development prior to issuance of building permit.

Fire/Emergency Services

POLICIES

1. Require wiring for Early Warning Fire Reporting System adopted by Saratoga Fire District Board with optional hookup to homeowner.

ACTION PROGRAM

1. Adopt Early Warning Fire Reporting System Ordinance.

2. Study need for a Fire Station in the western hillsides and possibility for joint ownership between the two fire districts.

3. Consider specifying roofing requirements (other than wood).

4. Adopt such other measures as are necessary to increase fire protection in this area.

Site and Storm Drainage

POLICIES

1. Developer, through actual improvements and fees, to provide for installation and maintenance of storm Drainage system.

2. All major facilities to be designed to provide for 100-year storms – local and minor facilities design provide for 20-year storms.

3. Landscaping and resultant site drainage plan to be approved with Design Review approval of the residence prior to issuance of permits.

4. Site drainage plans to be approved so as to not impact adjacent properties.

ACTION PROGRAM

1. Increase improvement criteria and fees if called for in study.
APPENDIX C
Sphere of Influence Special Plan

Saratoga adopted the Sphere of Influence Plan as a Special Area Plan in 1974, pursuant to State Government Code Title 7, Chapter 3, Article 8, to assist in the formulation of policies leading to an appropriate balance of conservation and development in the area. The plan was designed to guide future City decisions relating to annexation, development and public safety in the City’s Sphere of Influence. Concise objectives and policies regarding environmental hazards are specified in this plan and include the following:

Environmental Resource Management

GOALS

1. To preserve open space for a natural rural environment, health and safety purposes and for scenic and recreational uses.

2. To permit uses and densities compatible with the physical limitations of the land.

3. To preserve the natural environment of the Santa Cruz Mountains.

4. To insure protection of rare or endangered plant animal species.

5. To protect County watersheds and natural waterways from pollution.

6. To regulate development in order to mitigate its undesirable effects.

POLICIES

1. In areas of periodic, predictable hazard, such as flood plains or fault zones, apply special zoning to allow only compatible uses.

2. Postpone development of areas with an unacceptable level of environmental risk unless or until the hazards are reduced by corrective action.

Community Development

POLICIES

1. Coordinate the Plan with other plans proposed or in effect in the Santa Cruz Mountains. Participate in a common coordinate system for mapping and a data bank for information retrieval and storage with all four counties traversed by the Santa Cruz Mountains.

2. Assign uses and densities to the land as an inverse function of geologic, topographic, seismic and public health hazards.

3. Temporarily restrict development in areas not served by public services, roads and schools until adjacent areas having these services are developed.

4. Regulate and limit the manner of development in the Sphere of Influence based on slope conservation guidelines, findings of topography, geology, soils, safety, conservation, public facilities availability and access.
5. Withhold public services in areas not suitable for development.

6. Periodically review and revise land uses and formulas for density determination.

7. Consider drainage implications of development on creeks to reduce erosion, to protect their natural state and to reduce flooding at lower elevations.

8. Encourage zoning in conformance with the policies and objectives of this plan.

9. Developments which are likely to cause or to create hazards should not be permitted.

10. Measures to correct, reduce and eliminate hazards should be utilized whenever feasible.

11. Emergency plans should be adopted for evacuation, maintenance of order, locating and distributing resources and the restoration of services and normal activity.
APPENDIX D

Existing Safety/Seismic Safety Element

A seismic safety element consisting of an identification and appraisal of seismic hazards such as susceptibility to surface ruptures from faulting, to ground shaking, to ground failures, or to effects of seismically induced waves such as tsunamis and seiches. A safety element for the protection of the community from fires and geologic hazards including features necessary for that protection as evacuation, routes, peak water load supply requirements, minimum road widths, clearance around structures and geologic hazard mapping in areas of known geologic hazards.

SS/S.1.0 Protect residents from injuries and minimize property damage from earthquakes, flooding and other natural hazards in populated areas.

SS/S.1.1 The City shall continue to enforce its existing flood control regulations, and will cooperate with the Santa Clara Valley Water District when propose projects will affect floodways in their jurisdiction, to prevent development activities from aggravating or causing potential flood problems.

1.1 (Imp) (The policy is specific and does not require an implementation measure.)

SS/S.1.2 The City shall adopt an ordinance providing a hazardous fire area overlay zone, which shall reinforce development regulations concerning fire-retardant construction and landscaping.

1.2 (Imp) The policy is specific and does not require implementation measure.

SS/S.2.0 Update regularly the City’s Emergency Plan.

SS/S.2.1 The City shall prepare, review and update on a regular basis a plan for emergency or disaster action. This plan shall use local resources and manpower to provide maximum benefit and protection for the City’s residents.

2.1 (Imp) The City’s Emergency Plan shall be reviewed annually and modified if significant changes are required.

SS/S.3.0 Maximize the protection of residents and property from the hazards of fire by requiring or promoting the installation of an early warning fire alarm system consisting of heat and smoke detectors capable of transmitting a signal directly to the fire station.

SS/S.3.1 The City shall require the installation of an early warning fire alarm system in each of the following cases:

a. All new single-family dwellings and any existing single-family dwellings which are expanded by fifty percent or more in floor area, where such new or expanded dwellings are located within designated hazardous fire area.
b. All new single family dwellings having a gross floor area in excess of 5,000 square feet.

c. Any existing single family dwelling which is expanded by fifty percent or more in floor area which, after such expansion, will exceed 5,000 square feet in gross floor area.

d. All new multi-family dwellings and other new structures having multiple sleeping units, such as hotels, motels, apartments, condominiums or other community housing projects, townhouses and nursing homes.

e. Any existing multi-family dwelling or other existing structure having multiple sleeping units such as described in Paragraph (d) above, which is expanded by fifty percent or more in gross area.

3.1 (Imp) Implement through amendment of the subdivision, zoning and building regulations as contained in the City code.

3.2 (Imp) Implement through amendment of the subdivision, zoning and building regulations as contained in the City code.

SS/S.3.2 The Chief of the fire district having jurisdiction should be authorized to require the installation of an early warning fire alarms system in any new commercial structure or community facility, or expansion of an existing commercial structure by fifty percent or more in gross floor area, whenever the Chief deems such requirement to be necessary or appropriate on the basis of facts and circumstances in each individual case.

SS/S.3.3 The City shall encourage all property owners to install an early warning fire alarms system on a voluntary basis where such owners are not otherwise required to do so.

3.3 (Imp) Implement by including in the building regulations a provision allowing voluntary installation of the system and publicize the availability of the system for any property located within the City.
MAPS
### Geotechnical Hazard Evaluation and Recommendations for Saratoga Terrain Units

#### Key for Map 1

<table>
<thead>
<tr>
<th>Terrain Unit</th>
<th>San Andreas Fault Zone I</th>
<th>Foothills II</th>
<th>Bollman III</th>
<th>Skyline IV</th>
<th>Valley V</th>
<th>Floor</th>
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#### Natural Seismic Hazards

<table>
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<tr>
<th>Hazard</th>
<th>San Andreas Fault Zone I</th>
<th>Foothills II</th>
<th>Bollman III</th>
<th>Skyline IV</th>
<th>Valley V</th>
<th>Floor</th>
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<tr>
<td>Possibility of Surface Rupture</td>
<td>Definite</td>
<td>Limited</td>
<td>Limited</td>
<td>Limited</td>
<td>Unlikely</td>
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<tr>
<td>Ground Shaking Intensity:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnitude 6 - San Andreas</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>V</td>
<td>VI</td>
<td></td>
</tr>
<tr>
<td>Magnitude 8.3 - San Andreas</td>
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<td>VIII - IX</td>
<td>IX</td>
<td>IX</td>
<td>VIII -</td>
<td></td>
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<tr>
<td>Ground Failure Probability:</td>
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<td></td>
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<tr>
<td>Landslides</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
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<tr>
<td>Subsidence</td>
<td>Low</td>
<td>Low</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Liquefaction</td>
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<td>N/A</td>
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<td>Ground Lurching</td>
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<td>Flooding</td>
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<td>Structural Hazards</td>
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<td>High to Moderate</td>
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#### Recommendations

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<th>San Andreas Fault Zone I</th>
<th>Foothills II</th>
<th>Bollman III</th>
<th>Skyline IV</th>
<th>Valley V</th>
<th>Floor</th>
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<tr>
<td>Geotechnical Terrain Unit's Ability to Support Urban Residential Development</td>
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<td>Geotechnical Terrain Unit's Ability to Support Rural Residential Development</td>
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<td>Geological Investigation Required</td>
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<td>Soils Investigation Required</td>
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<td>Yes</td>
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</tr>
</tbody>
</table>

**Source:** Fugro, Inc. for Williams & Mocine  
**Geotechnical Report (1974)**
Sphere of Influence, City of Saratoga
RELATIVE GEOLOGIC STABILITY

map 2

Source: Fugro, Inc.
<table>
<thead>
<tr>
<th>Increasing Stability</th>
<th>Geologic Description</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Massive, well consolidated hard sandstone, conglomerate, argillite, and volcanic rocks (Ks, Ky, Kdg).</td>
<td>Stable when dry. Landslides or rock fall may occur in fractured rocks when saturated with water.</td>
</tr>
<tr>
<td>H</td>
<td>Rhythmically-bedded sequences of hard sandstone, chert, or limestone alternating with soft shale or thin argillite (Kssh, Kshs, Kc).</td>
<td>Moderately stable when dry. Alternating hard and soft units result in differential weathering and erosion. Rapid erosion of soft units may undermine hard units and result in landsliding or hard units. Landsliding also likely where bedding inclined downslope.</td>
</tr>
<tr>
<td>L</td>
<td>Massive semi-consolidated to poorly consolidated sandstone and mudstone; water table generally deep below ground surface (Eb, Kw).</td>
<td>Moderately stable when dry; moderately unstable when water saturated. Landsliding most likely where bedding incline downslope or where hard units are undermined by rapid erosion of local soft units.</td>
</tr>
<tr>
<td>P</td>
<td>Unconsolidated to semi-consolidated gravel, sand, silt, and clay; water table may be near ground surface (Qtsc, Qg, Qoal, Qyf).</td>
<td>Moderately stable when dry, moderately unstable when water saturated. Landsliding most likely along steep margins of stream channels eroded into units, and in silt and clay-rich parts of units.</td>
</tr>
<tr>
<td>S</td>
<td>Rock units of various types which give rise to abundant landslides (Osl, Hl, sz). Includes shattered and sheared rocks along faults.</td>
<td>Unstable when wet. Instability increases with increased water content and increased slope. Landsliding common and most prominent along steep margins of deep stream channels.</td>
</tr>
<tr>
<td>W</td>
<td>Unconsolidated surficial deposits thicker than 2 feet; often water-bearing; includes landslide debris, soil, and undifferentiated colluvium.</td>
<td>Unstable when wet. Instability increases with increased water content and increased slope.</td>
</tr>
</tbody>
</table>

Source: Fugro, Inc. for Williams & Mocine
Sphere of Influence, City of Saratoga
LANDSLIDE AND FLOOD AREAS
map 3

NOVEMBER 1983
updated 1987

Source: Fugro, Inc.
LANDSLIDE AND FLOOD AREAS

MAP KEY
Map 3

MODERN LANDSLIDES - Landslide scar and landslide debris generally visible; not eroded; boundaries approximately located.

OLD LANDSLIDE OR LANDSLIDE COMPLEX - Locations of boundaries uncertain; no visible fresh landslide scars; may be partly eroded; hummocky topography.

ANCIENT STREAM CHANNELS - Colluvium filled.

BOUNDARY OF AREAS OF FLOODING - APPROXIMATE - Based on 100 year flood.
Note: The area of flooding in the mountain units is approximately 10 feet above the creek bottom.

New Landslides


Geologic Sources: Congress Springs Study (Cotton, 1980)
Calabazas Creek Watershed Study (Cotton, 1981)
Terratech Geotechnical Study of Lower Saratoga Hillsides (1985)
SARATOGA
and the
SPHERE OF INFLUENCE
map 4

GENERAL PLAN GEOLOGIC HAZARD OVERLAY

Fault Line
Geologic Rift Zone
Special Study Zone

SARATOGA SPHERE OF INFLUENCE

CONGRESS SPRINGS RD.
SANTA CLARA AVENUE
STYLLINE BLVD.

SANTA CLARA COUNTY

Sources:
Santa Clara County Geologic Hazards Map, County of Santa Clara (1978)
Ground Movement Potential Map of Upper Calabazas Creek Watershed, Cotton & Assoc. 1980
Ground Movement Potential Map of the Congress Springs Study Area, Cotton & Assoc. 1980

NOVEMBER 1983

WILLIAMS & MCINNES
CITY & REGIONAL PLANNING
SAN FRANCISCO (894-7601)
UPDATES TO SAFETY ELEMENT
SINCE 1987
RESOLUTION NO: 10 - 018

APPLICATION NUMBERS: GPA09-0001 & ZOA09-0005

The City of Saratoga City Council finds and determines as follows with respect to the above-described application:

WHEREAS, the Housing Element is the state-mandated General Plan element that addresses how the City of Saratoga will strive to achieve its share of regional housing needs within the assigned planning period. The State Department of Housing and Community Development (HCD) is responsible for providing the Association of Bay Area Government (ABAG) with the region’s share of the state-wide housing need. ABAG, in turn, through the Regional Housing Needs Assessment (RHNA), works with cities to determine each jurisdiction’s share of regional housing need. The housing need numbers are then incorporated into the Housing Element update and provide the basis for formulation for housing programs for the ensuing planning period, and

WHEREAS, on October 16, 2007, at a joint meeting of the City Council and Planning Commission, Staff was directed to prepare a Request for Proposals for the purpose of selecting a consultant to prepare an update to the General Plan Housing Element for the 2007-2014 planning period; and

WHEREAS, on April 2, 2008, the City Council authorized the City Manager to execute an agreement with RBF Consulting to prepare an update to the General Plan Housing Element for the 2007-2014 planning period; and

WHEREAS, public participation opportunities were provided through several means including, two public workshops, three City Council/Planning Commission study sessions, and the City of Saratoga Website; and

WHEREAS, on April 30, 2009, a draft Housing Element was submitted to the State Department of Housing and Community Development (HCD) for review and comment; and

WHEREAS, following several sets of comments from HCD and responses by the City on January 11, 2010, HCD provided the City a letter stating that the Draft Housing Element attached hereto as Attachment 3F was in compliance with State housing element law; and

WHEREAS, on March 10, 2010 the Planning Commission held a duly noticed Public Hearing on the draft Housing Element and related planning actions described below at which time all interested parties were given a full oppoSrtunity to be heard and to present evidence and argument. The Planning Commission considered the draft Housing Element,
the General Plan Housing Element Implementation Ordinance, amendments to the General Plan Land Use, Safety, Open Space and Conservation Elements, the Saratoga Village Plan, and the Saratoga Village Design Guidelines, the Staff Report, CEQA documentation, correspondence, presentations from the public, and all testimony and other evidence presented at the Public Hearing. The Planning Commission recommended that the City Council adopt the Housing Element and all related General Plan, ordinance, and other amendments; and

WHEREAS, on April 7, 2010 the City Council held a duly noticed Public Hearing on the draft Housing Element and related planning actions described below at which time all interested parties were given a full opportunity to be heard and to present evidence and argument. The City Council considered the draft Housing Element, the General Plan Housing Element Implementation Ordinance, amendments to the General Plan Land Use, Safety, Open Space and Conservation Elements, the Saratoga Village Plan, and the Saratoga Village Design Guidelines, the Staff Report, CEQA documentation, correspondence, presentations from the public, and all testimony and other evidence presented at the Public Hearing, and

WHEREAS, amendments to the General Plan Land Use Element and the General Plan Open Space and Conservation Element (included as Attachment 3A) are intended to ensure internal consistency between the General Plan Land Use Element, the General Plan Open Space and Conservation Element, and the 2007-2014 General Plan Housing Element; and

WHEREAS, amendments to the City of Saratoga Village Design Guidelines (included as Attachment 3B) are intended to ensure consistency between the Saratoga Village Design Guidelines and the 2007-2014 General Plan Housing Element; and

WHEREAS, amendments to the City of Saratoga Village Plan (included as Attachment 3C) are intended to ensure internal consistency between the Village Plan and the 2007-2014 General Plan Housing Element; and

WHEREAS, amendments to the General Plan Safety Element and Open Space and Conservation Element (included as Attachment 3D) are intended to ensure that these General Plan Elements include the information required by Assembly Bill 162 and include an update of the map regarding fire hazard areas to conform to recent information provided by the State of California; and

WHEREAS, amendments to Chapter 15 (Zoning) of the Saratoga City Code (included as Attachment 3E) are intended to implement the policies contained in the 2007-2014 General Plan Housing Element and include changes to Article 15-10 (Establishment of Zoning Districts), Article 15-19 (Commercial Districts), Article 15-46 (Design Review: Multi-Family Dwellings and Commercial Structures), Article 15-58 (Mixed-Use Development Standards), and Article 15-80 (Miscellaneous Regulations and Exceptions); and

WHEREAS, environmental review was completed in the form of an Initial Study
and it was determined that the proposed adoption of the 2007-2014 Housing Element, the General Plan Housing Element Implementation Ordinance, amendments to the General Plan Land Use, Safety, Open Space and Conservation Elements, the Saratoga Village Plan, and the Saratoga Village Design Guidelines would not result in potential significant impacts on the environment and a Negative Declaration was prepared and the Planning Commission has recommended that it be adopted by the City Council; and

WHEREAS, the City Council finds that the 2007-2014 Housing Element Update, the General Plan Housing Element Implementation Ordinance, and the proposed amendments to the General Plan Land Use, Safety, Open Space and Conservation Elements, the Saratoga Village Plan, and the Saratoga Village Design Guidelines are consistent with the City of Saratoga General Plan as amended by this Resolution; and

NOW, THEREFORE, the City Council of the City of Saratoga does hereby adopt the 2007-2014 Draft Housing Element and General Plan Housing Element Implementation Ordinance, and related amendments to the General Plan Land Use, Safety, Open Space and Conservation Elements, the Saratoga Village Plan, and the Saratoga Village Design Guidelines.

PASSED AND ADOPTED by the City of Saratoga City Council this 7th day of April 2010 by the following vote:

AYES: Councilmember Chuck Page, Susie Nagpal, Howard Miller, Mayor Kathleen King

NOES: Vice Mayor Jill Hunter

ABSTAIN: None

ABSENT: None

Kathleen M. King
Mayor

ATTEST:

Ann Sullivan
City Clerk
Proposed AB 162 Amendments
City of Saratoga General Plan
- Conservation Element
- Safety Element

The following amendments to the Open Space/Conservation Element (June 6, 2007) and Safety Element (September 16, 1987) of the City of Saratoga General Plan are intended to ensure that those elements include the information required by Assembly Bill 162 to be included in the General Plan in conjunction with adoption of a revised Housing Element. The amendments also include updating the map regarding fire hazard areas to conform to recent information provided by the State of California.

Open Space/Conservation Element Amendments

1. Insert the following text on page 12 of the Open Space Conservation Element at the end of the section discussing “Flood Plain and Flood Protection” and immediately preceding the section discussing “Fire Hazard Area.”

As indicated by OSC-5, upland areas in Saratoga contribute to groundwater recharge and are protected as watershed protection areas. Given the nature of Saratoga’s topography and hydrology, however, there is no significant accumulation of flood water and consequently, no opportunity for groundwater recharge in association with flooding.

2. On page 14, revise Exhibit OSC-4 (Hazardous fire Area) to conform to the Wildland Urban Interface Fire Area map adopted by the City Council in April 2009 attached hereto as Exhibit A.

Safety Element Amendments

1. On page 13 of the Safety Element, revise the first sentence of the section titled “Identification of Areas Subject to Flooding” as follows:

“Several creek areas in Saratoga have been identified as flood hazard areas (see Map 3, Exhibit OSC-3, Federal Emergency Management Agency maps on file with the Department of Public Works and, with respect to risks from the Lake Ranch Reservoir, the Dam Failure Inundation Hazard Map for Saratoga prepared by the Association of Bay Area Governments on file with the Department of Public Works). Lands within the 200 year floodplain are shown on maps prepared by the Department of Water Resources as part of its Awareness Floodplain Mapping Program available at: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/awareness_floodplain_maps/.”
2. On page 14, immediately preceding the section titled “Flood Control and Emergency Services” insert the following new paragraph:

   “Saratoga works to limit the placement of development in flood hazard areas through the measures described above and by requiring compliance with the City’s Floodplain Management Ordinance (Saratoga Code, Article 16-66). Public facilities adjoining the 100 year flood plain are shown in Figures S-1 through S-4 at the end of this Element.”

3. At the end of the Safety Element insert the figures attached hereto as Figures S-1 through S-4.