

## **INTRODUCTION**

The Resource Management and Conservation Plan contains provisions relating to the management and conservation of Lake County's natural resources, and to the protection of life, health, and property from natural hazards. The natural resources addressed in the Plan include agricultural resources, land resources, water resources, air quality, plant and animal resources, cultural and archaeological resources, scenic highways, Clear Lake, and geothermal resources. Natural hazards identified include geologic and seismic hazards, flood hazards, and wildlife fire hazards.

The policies are designed to ensure that the development of the County will not interfere with or destroy valuable natural resources, and that it will be sensitive to hazardous conditions. The intent of the Plan is not to prohibit all types of development and uses of land in natural resource and hazard areas. Rather, it recognizes the role that wise management of natural resources has in maintaining and enhancing the County's rural character and diverse recreational opportunities. At the same time, the Plan respects the desires of property owners to develop their property and suggests ways that this can be done, while maintaining the natural topography, vegetation, wildlife, and scenic beauty of the County to the greatest extent possible.

State planning law requires cities and counties to identify environmental resources and hazardous conditions existing within their boundaries. State law also requires the preparation and implementation of policies which relate to the utilization and management of these resources, while assuring public health and safety. The following sections of the State Government Code are addressed by the Lake County Resource Management and Conservation Plan.

- Section 65302(d) requires the preparation of a conservation element to specify policies for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers, and other waters, harbors, fisheries, wildlife, minerals, and other natural resources.
- Section 65302(e) requires preparation of an open space element that addresses the use of land for preservation of natural resources, managed production of resources, outdoor recreation, and public health and safety.
- Section 65302(f) requires preparation of a seismic safety element consisting of an identification and appraisal of seismic hazards.
- Section 65302(i) requires provisions for protection of the community from fires and geologic hazards.
- Section 56303 permits a community to prepare additional elements if they are of particular importance. Clear Lake and the geothermal resources located in the County merit special attention, because their use and development will greatly influence the development of the entire County. Management of these resources is needed to ensure their value will be sustained and their full economic potential reached for the current and future generations of Lake County.

### Land Capability and Suitability

As part of the General Plan process, an analysis of the development capability of the County's lands was undertaken. The objective of the analysis was to explicitly identify areas of the County processing resource values or hazardous conditions. By directing the majority of the County's projected growth

away from these areas onto lands more suitable for intensive development, it is possible to reduce risks to life, health, and property; decrease the high costs of mitigating against natural hazards; conserve natural resources; and minimize environmental disruption. Development, in the context of this specific analysis, means use of land to accommodate the majority of the projected population and employment growth.

Development suitability of Lake County lands is determined by analyzing a number of factors which either present opportunities or constrain development potential. The factors used for this analysis include hazards, both natural and man-made, and natural resources. Also considered was the availability of public services and infrastructure, and the costs of extending services to outlying areas. This analysis is illustrated in Figure V-1 and resulted in the definition of three development suitability categories: highly suitable, moderately suitable, and generally unsuitable. It is important to note that development suitability ratings are relative. A rating of generally unsuitable for development should not be interpreted as a prohibition on all types of development. This rating means that other lands are better suited for development, as defined above, and that other types of development, characterized by a reduced building intensity may be appropriate.

The analysis revealed large land areas of moderate and high development suitability exist within Lake County. In total, 37,080 acres of vacant land have a high development suitability and 77,520 acres have a medium development suitability.

Figure V-2 shows the result of this analysis at a sub-County level. (The seven planning areas shown have significance only for the purposes of data collection and analysis.) The Lakeport subarea was found to have a large area of land with high suitability for development directly north of the City of Lakeport. A land supply profile was not developed for the Lake Pillsbury subarea due to the extensive federal ownership pattern. Given the area's rugged terrain and lack of access and infrastructure, this subarea is classified as having low development suitability. Lands in the Upper Lake subarea found to be highly suitable for development were located in rural areas scattered in the northwest section of the subarea. Inaccessibility to these areas and lack of adequate water resources serve as constraints to the development of these lands. The Eastern Lake subarea contains only a small amount of land suitable for development, most of which is located at the eastern end of the High Valley. Extensive areas of high and moderate development suitability exist with the Southeastern Lake subarea. The majority of these lands surround the larger urban areas of Clearlake Park, Clearlake, and Lower Lake. The low development potential of the Big Valley subarea relates to the predominance of soils with high agricultural resource value. The Middletown subarea's lands with development suitability are scattered throughout the subarea with limited access and lack of adequate water supplies constraining their development.

## **AGRICULTURAL RESOURCES**

### **Agricultural and Soil Resources**

Agricultural lands are a major contributor to the economic base and beauty of Lake County. The County's agricultural potential is largely determined by the availability of soils having few natural limitations on their use, but also depends on topography, availability of water, climate, and technical know-how of the farmer/rancher. The United States Soil Conservation Service has developed a classification system which groups soils into eight classes based on their agricultural potential. The eight classes are designated by Roman numerals I through VIII.

Class I and II lands include those soils that have few limitations, the widest range of use, and the least

risk of soil deterioration. The other soil classifications have progressively greater natural limitations. All of the land in Classes I and II are considered prime agricultural lands. These lands are highly conducive to agricultural production because they require little or no special treatment other than normal, good soil management.

Class III land is suitable for cultivated crops but requires additional attention to offset or overcome inherent soil limitations.

Class IV soils are considered suitable for limited cultivation. The lands in Class V, VI, and VII are best adapted to range and woodland plants. The Lands in Classes V and VI can be put into agricultural cultivation; however, improvements to soil fertility through planting, seeding, and/or frequent fertilizing make range or woodland improvements impractical. Under proper management, these lands could be used for grazing, woodland, or wildlife habitat. Class VII and VIII lands have severe restrictions, such as very shallow, stony soils, extremely rocky areas or exceedingly steep slopes, that preclude commercial use of the land.

In Lake County 37,446 acres of Class I and II lands have been identified (see Table V-1). Most of this prime agricultural land occurs in valleys or areas with relatively flat topography. Bachelor Valley, Scotts Valley, and Big Valley are the largest continuous agricultural areas in the County. Other major agricultural areas extend from the Rodman Slough past the community of Upper Lake to Clover Valley.

Classes III - IV lands also have considerable agricultural potential. Vineyards have become more common in the northern part of Big Valley and in the Lower Lake area. Smaller irrigated agricultural areas occur east of Clear Lake, and through the southeast portion of the County. Extensive areas of the County, totalling about 77,900 acres, are used as improved rangeland for livestock production. However, the most viable livestock operations are found on Class I - IV soils. (Figure V-3 shows Classes I - IV lands.)

Fruits and nuts represent the major agricultural crops grown. Pears, walnuts, and grapes account for over 70 percent of the total agricultural production in 1980. The pear crop grown in Lake County accounts for 49 percent of the State's fresh market pear production. The total gross value of agricultural products has more than tripled since 1970, reaching \$36,878,305 in 1980.

Lake County has over 72,800 acres of land considered suitable for cultivation based on soil capability. However, Lake County's agricultural lands, like most agricultural areas in the nation, face severe threats to their continued productivity. The conversion of agricultural land to urban land uses has had the most direct impact. The loss of agricultural land from urban expansion is depriving Lake County of the many benefits of sustained agricultural land use. The most significant of these benefits include:

- the contribution of agricultural operations to the County's economy;
- the contribution of agricultural lands to ecological balance; and
- the contribution of agricultural operations to the County's rural lifestyle.

To provide for the future production of needed food supplies, as well as to promote the continued presence of agriculture in the County, there is a need to preserve lands where agriculture is or can become economically viable. This can only be achieved through the promotion of growth patterns with a commitment to agriculture preservation.

<b>TABLE V-1 LAKE COUNTY AGRICULTURAL POTENTIAL<sup>1</sup></b>	
<u>Soil Class</u>	<u>Acres</u>
I and II	37,446
III (adjacent to Classes I and II) <sup>2</sup>	9,868
III and IV	25,529
TOTAL	72,843

<sup>1</sup> Measurements made by Sedway/Cooke. Acreage figures do not include those lands which have been preempted by development. By way of example, the City of Lakeport is situated upon Class III soil (adjacent to Classes I and II). In this case the soil acreage was not included as "potential" agricultural land.

<sup>2</sup> For purposes of analysis, the agricultural suitability of Class III soils is determined based upon proximity to Classes I and II. Since a large amount of Class III soils are interspersed with prime soils (I and II) it is important to treat those lands in a similar manner, respecting their value as an agricultural resource.

Source: General Soil Map, Lake County, California (Sheets 1 and 2): Soil Conservation Service, U.S. Department of Agricultural, 1967, 1:125,000; Lake County Soil Survey: Soil Conservation Service, U.S. Department of Agriculture, 1966; Sedway/Cooke, 1980.

## **Policies and Objectives**

### **1. To preserve and maintain the County's valuable agricultural lands.**

- 1.1 The County should encourage the preservation of agricultural lands, both those in production and those with potential productivity. Agricultural lands are defined as Class I-IV soils.
- 1.2 Non-agricultural development should be directed onto marginal agricultural lands (capability Class V through VIII), and avoided whenever possible from lands of Class I-IV.
- 1.3 Land uses in areas designated for intensive agriculture should be limited to agriculture and uses necessary for the support of agriculture. Appropriate activities include horticulture, tree crops, row and field crops.
- 1.4 Extension of services, such as sewer and water lines and roadways, into areas preserved for agriculture use should be avoided. Where necessary, they should be located in public rights-of-way in order to prevent interference with agricultural operations and ease of access for operation and maintenance. Service capacity and length of lines should be designed to prevent the conversion of agricultural lands into urban/suburban uses.
- 1.5 Whenever possible, non-agricultural development should be separated from agricultural lands by buffers or transitional areas sufficient to mitigate potential land use conflicts.
- 1.6 The County should discourage the parcelization of land within designated agricultural areas which divides land into units too small to economically support a viable agricultural operation and which contributes to the transition of agricultural lands to non-agricultural uses.
- 1.7 When feasible, the recombining of agricultural parcels to make economic farm units should be encouraged.
- 1.8 The County should continue to support programs of agricultural technical assistance and should cooperate with public and private groups to promote economic development of agricultural areas.

## **LAND RESOURCES**

Land resources addressed in the Plan include timber resources and mineral deposits. These resources contribute significantly to the County's beauty and economic base. Forestry lands also provide valuable open space, watershed, and wildlife habitat to Lake County. Protection and careful management of these land resources is necessary to ensure that their full economic and aesthetic values may be reached.

**TABLE V-2  
AGRICULTURE IMPLEMENTATION**

<b><u>POLICY</u></b>	<b><u>IMPLEMENTOR/ ACTIVATOR</u></b>	<b><u>ACTION</u></b>	<b><u>PHASING/ TIMING</u></b>
<b><u>Agriculture</u></b>			
1.1	Planning	Revise Zoning Ordinance. Review and revise County's Uniform Rules for establishing agricultural preserves under the Williamson Act (G.C.Sec.81200 et.seq.)	18 months
1.2	Board of Supervisors, Planning Commission, Planning Division	Revise Zoning Map.	Upon completion Revised zoning ordinance
1.3	Board of Supervisors, Planning Commission, Planning Division	Revise zoning ordinance (agricultural zoning district with regard to permitted and conditionally permitted uses).	18 months
1.4	Special Districts, Planning Division	Review and revise sewer use ordinance.	18 months
1.5	Board of Supervisors, Planning Commission, Planning Division	Revise zoning text and map.	Upon completion of revised zoning ordinance
1.6	Planning Division, Planning Commission, Board of Supervisors	Revise zoning ordinance.	18 months
1.7	Planning Division, Planning Commission, Board of Supervisors	Revise subdivision ordinances to provide for merger, reversion to acreage of agricultural lands.	18 months
1.8	Agricultural Commission, Board of Supervisors	Resolution of Support.	Continuously

## **Timber Resources**

Timber production in Lake County is fairly limited. Ponderosa Pine and Douglas Fir are the principal trees harvested. The north central area of the County contains the majority of existing forest acreage. Areas that have potential for future timber production include those with needleleaf evergreen forests or woodlands. In 1979, the County's timber harvest was valued at \$1,775,000.

Most of the County's timber acreage falls on public lands which are subject to the regulatory authority of federal and state agencies. These timber lands include the following lands.

- 252,794 acres of County land fall within the borders of the Mendocino National Forest, where the United States Forest Service is responsible for management of timber resources.
- 123,035 acres of County land are managed by the United States Bureau of Land Management.
- California's forest lands are managed by the California State Department of Forestry. Boggs Mountain State Forest has been designated as a Timberland Preserve Zone (TPZ).

On private lands, the County Assessor has identified property suitable for TPZ classification. (See Figure V-3 for land designated TPZ). By zoning lands TPZ, the County has protected its timberlands for timber production or for other compatible open space uses.

## **Mineral Resources**

Much of Lake County's mineral wealth is due to its past volcanic activity. Sand and gravel extraction constitute the major portion of the County's mining activity, both in terms of quantity of material produced and value of extracted resource. It is estimated that the current annual gravel and sand extraction is 200,000 cubic yards, with major operations occurring along segments of Scotts, Middle, Kelsey, Putah, North Fork of the Cache, and Clover Creeks. Gravel, cinder, and rock extraction sites are shown on Figure V-3. The County recently adopted a Creek Management Plan which regulates sand and gravel extraction limits from local streams and creeks. In addition to providing specific extraction policies for fourteen local streams, the Creek Management Plan also helps to streamline the environmental review and permitting process.

Concern over the environmental impacts of gravel extraction in the County has been expressed by County residents. It has been suggested that gravel extraction adversely affects some aquifers by decreasing the amount of groundwater for agriculture during the irrigation season. Other concerns include stream or creek degradation, erosion or scouring of stream banks, and land subsidence resulting from reduced groundwater recharge.

However, by imposing extraction limits for each stream and requiring stream profiles, biannual cross sections, and Reclamation Plans for all gravel extraction projects removing over 1,000 cubic yards of material per year, the County is attempting to significantly reduce these potential impacts. The Lake County Flood Control and Water Conservation District works closely with sand and gravel extractors in an effort to correct or reduce flooding and erosion problems.

At the same time, sand and gravel are vital resources for development, as they are often the source of aggregate for the construction and paving industries. As a bulky, heavy product, it is expensive to transport, so a deposit of sand and gravel close to developing areas is a valuable asset. It is important to insure that the nonrenewable resource deposits do not become depleted or unusable as a result of

unplanned growth.

Gold is also mined in Lake County. Recently gold deposit discoveries made near the Knoxville area have resulted in renewed interest in the mining of this mineral. Also, silver has been intermittently mined in Lake County.

Geothermal Resources, both dry steam and hot water underlie much of the southern portion of Lake County. Development of steam supply fields and electrical generating plants is occurring in the area of proven steam reservoirs in the southwestern area known as "The Geysers". It is reasonable to expect expanded development of the resource both for electrical generation and for direct heat applications in areas where new resources of commercial quality are discovered as neither steam nor hot water can be transported effectively for long distances.

### **Objectives and Policies**

The following policy areas are discussed:

1. Forest Lands
2. Mineral Resources

#### **1. To protect, manage, and develop forestry resources and forest lands.**

- 1.1 The County should place qualifying forest lands in Timberland Preserve Zones.
- 1.2 The County should encourage development of forest lands with the potential for timber production in a manner that will not preclude future forest activities. Compatible development includes outdoor recreation activities, agriculture, rangeland, wildlife habitat, watershed, and campgrounds.
- 1.3 Activities permitted in forest lands should be carried out in an orderly manner that preserves soils, public safety, high water quality, and watershed functions.
- 1.4 The County should promote wood fuel production to stimulate the local economy and to offer an alternative energy source.

#### **2. To protect, manage, and develop mineral resources.**

- 2.1 The County should encourage the planned management of its valuable mineral deposits, geothermal resources, and construction materials, such as sand and gravel.
- 2.2 The County should support the regulation of mineral extraction activities to minimize hazards and conflicts with existing land uses and sensitive natural resources.
- 2.3 The County should encourage the protection and restoration of the appearance and ecological/economic value of mineral extraction areas, particularly in areas also suitable for groundwater recharge and wildlife habitat.
- 2.4 Creek management and Reclamation Plans should address, where appropriate, the protection and restoration of vegetation, wildlife, watershed, groundwater, range and forage lands.

- 2.5 The development of lands surrounding existing or potential mineral extraction sites should be carefully reviewed to minimize the impacts of the proposed development on extraction activities. Low intensity activities such as agriculture, outdoor recreation, and rural land development, or forestry would be appropriate.

## **WATER RESOURCES**

Water, its abundance and availability, is vital to Lake County. It is essential for the County's agricultural operations, it is needed to assure that development opportunities are fulfilled; it is one of the key attractions for thousands of summertime visitors; and it is needed to enable wildlife habitats to flourish.

The origin of the County's water resources is precipitation, including both rainfall and snowfall. Average precipitation varies from 22 inches at Clear Lake to 80 inches in the Mayacmas Mountains in the southwestern portion of the County. Three major drainage basins are defined by the County's topography: Upper Eel River which drains westerly into the Pacific Ocean, Clear Lake Basin which drains easterly into Yolo County, and the Upper Putah Creek which drains southerly into Napa County. Each major watershed is composed of smaller hydrological units, formed by streams, creeks, groundwater basins, and the terrain of the area. (See Figure V-4 for a map of the County's water resources.)

Lake County's surface water resources include numerous lakes, reservoirs, streams, creeks, springs, and ponds whose waters serve the needs of man and nature. Higher order perennial streams supply water for natural groundwater recharge and convey water to major lakes and reservoirs. Lower order streams supply intermittent flows and provide important habitats for wildlife. The County's major lakes store water for domestic use, and also provide quality environments for tourists and County residents alike.

**TABLE V-3  
LAND RESOURCES IMPLEMENTATION**

<b>POLICY</b>	<b>IMPLEMENTOR/ <u>ACTIVATOR</u></b>	<b><u>ACTION</u></b>	<b><u>PHASING/ TIMING</u></b>
<b><u>Land Resources</u></b> (Page V-13)			
1.1	Planing Division, Planning Commission, Board of Supervisors, Assessor, Private Land Owner	TPZ zoning should be designated on appropriate lands selected from Assessor's list A & B and General Plan Figure V-3, or reviewed upon owner request.	12 months
1.2	Planing Division, Planning Commission, Board of Supervisors	Zoning Ordinance and Map revisions, Resource Conservation Overlay Zone, Consultation and Cooperation with appropriate agencies. Open, CEQA review process.	18 months or upon revision of Zoning Ordinance
1.3	Planning Division, Planning Commission, Board of Supervisors, Soil Conservation Service, Flood Control and Water Conservation District, U.S. Forest Service	Zoning Ordinance and Map revisions, Resource Conservation Overlay Zone, Consultation and cooperation with appropriate agencies. Enact a land capacity ordinance.	18 months or upon revision of Zoning Ordinance
1.4	Planning Division, Planning Commission, Board of Supervisors, Soil Conservation Service, Flood Control and Water Conservation District, U.S. Forest Service	Zoning Ordinance and Map revisions, Resource Conservation Overlay Zone, Consultation and cooperation with appropriate agencies. Open, CEQA review process.	18 months or upon revision of Zoning Ordinance

**TABLE V-3 (Continued)  
LAND RESOURCES IMPLEMENTATION**

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
<b><u>Mineral Resources</u></b> (Page V-13)			
2.1 & 2.2	Planning Division, Planning Commission, Board of Supervisors, Flood Control Water Conservation District and Division of Mines and Geology	Maintain up-to-date Mineral and Geothermal Resource Maps. Zoning revisions to discourage further residential development in close proximity to existing mineral resource extraction sites. Enact Resource Conservation overlay zoning for large scale quarry/mineral extraction and processing operations. Continue and expand Creek Management Plans and Mineral Reclamation Plans. CEQA review and use permit process. Consultation and cooperation with appropriate state and federal agencies, etc.	18 months or upon completion of Zoning Ordinance
2.3	Planning Division, Planning Commission, Board of Supervisors	Creek Management Plans and Reclamation Plans should address these concerns. Cooperation with the state and federal agencies with mutual responsibilities. CEQA review and use permit process. Land Capacity Ordinance and Resource Conservation Overlay Zone.	Continuously and upon completion of Zoning Ordinance
2.4	Planning Division, Flood Control Water Conservation District, Board of Supervisors, Planning Commission	Self explanatory.	Continuously

**TABLE V-3 (Continued)**  
**LAND RESOURCES IMPLEMENTATION**

<b><u>POLICY</u></b>	<b><u>IMPLEMENTOR/ ACTIVATOR</u></b>	<b><u>ACTION</u></b>	<b><u>PHASING/ TIMING</u></b>
2.5	Planning Division, Planning Commission, Board of Supervisors	Zoning revisions to discourage further residential uses in close proximity to known resource areas.	Continuously and upon completion of Zoning Ordinance

Currently, the most significant source of water supply in the County is groundwater. Groundwater is contained in underground formations called aquifers which, in the case of Lake County, are composed of either volcanic materials or young alluvial materials such as sand and gravel. Water stored in aquifers is released to the surface through wells and springs or by seepage into lakes, rivers, and wetlands. Just as groundwater ultimately returns to the surface, it is also replenished from the surface. Water from streams and lakes seeps down into aquifers, or where aquifers or transmitting formations are exposed to the surface, precipitation percolates directly into the aquifers. Consequently, the groundwater reservoirs moderate surface flow by absorbing water during rains or periods of high flow and then gradually releasing it during periods of low flow. With limited information available, it appears that most groundwater basins replenish their supply. However, in the Scotts Valley and Big Valley Basins, a steady decline in the water table has been detected, suggesting a serious deterioration in supply (i.e., water consumption in these basins is greater than their recharge ability).

With the rapid rate of growth experienced by the County in the last decade, existing water supplies in certain parts of the County are taxed to meet the present demands for municipal and domestic users and are less than adequate for agricultural users. As a general rule, agricultural users must rely on groundwater supplies because of the concentrations of agents harmful to agriculture found in lake water.

In order to accommodate anticipated future growth, new water supplies must be developed. The appropriation of Clear Lake water rights to Yolo County will have a significant impact on options available to Lake County of expanding its water supply.

Pollution to groundwater and to the lake has been a problem in the Clear Lake Basin due to inadequate municipal and individual wastewater disposal facilities. This problem has been most critical in areas adjacent to Clear Lake where unsuitable soil conditions, high water tables, and inadequate facilities to process waste exist. Water drawn from Clear Lake must be treated for domestic use due to high turbidity and microbiological activity.

### Objectives and Policies

The following policy areas are discussed:

1. Protection of County's water supply and quality.
  2. Development of additional water sources.
- 1. To preserve and protect the supply and quality of the County's water resources.**
- 1.1 In known groundwater recharge areas, the predominant land use should be one that allows the continued recharge of the groundwater basin. Clustered development should be encouraged to promote open space and maintain infiltration.
  - 1.2 New residential development should demonstrate adequate quantity and quality of water for all uses, including fire protection, prior to the approval of new residential lots or structures.
  - 1.3 Development over or immediately adjacent to any water courses or body of water should be designed to ensure that water quality is not adversely affected by soil erosion, by direct discharge of potentially harmful substances, by ground leaching from storage of raw materials, petroleum products, or wastes, by floating debris, or by runoff from the site.

**2. To encourage the development of additional water sources to ensure the availability of an adequate, future supply of water.**

- 2.1 The County should encourage the development of additional water sources through the expansion of water storage reservoirs, increased utilization of Clear Lake, and promotion of water conservation programs.
- 2.2 Opportunities to expand the use of reclaimed wastewater for irrigation of agricultural lands, and large landscaped areas should be promoted where economically feasible.
- 2.3 The County should encourage discussion between the water agencies of Lake County and Yolo County to promote development of joint water projects and other efforts to expand water supply.

**PLANT AND ANIMAL RESOURCES**

Lake County is endowed with a number of significant natural areas including mountain regions, valleys, forest lands, stream corridors, and lake areas. These distinctive environments, in turn, support a wide variety of plant and animal life.

The riparian lands and wetlands located in the County provide some of the most important fish and wildlife habitat. Lake County's many streams possess valuable riparian communities, rich in diverse fish and wildlife. The wetlands, located around the periphery of the County's many lakes also are important wildlife habitats and spawning ground for fish.

The California Natural Area Coordinating Council completed an inventory of the biological, geological, and paleontological features of the County and selected 33 areas of special environmental significance. Figure V-5 shows the location of these areas. These areas are noteworthy due to their particular scientific and educational interest, rare and endangered species, relict or disjunct species, noteworthy geologic areas and areas of historic interest.

Undisturbed habitat is the key to the abundance and well-being of the County's wildlife. The entire County falls in black-tailed deer range with the largest populations occurring in woodland/grass and chaparral areas. Tule elk can also be found in the County. Black bear and bobcat are known to live in the fir/pine/chaparral areas, particularly in Wilson Valley.

**TABLE V-4  
WATER RESOURCES IMPLEMENTATION**

<b><u>POLICY</u></b>	<b><u>IMPLEMENTOR/ ACTIVATOR</u></b>	<b><u>ACTION</u></b>	<b><u>PHASING/ TIMING</u></b>
<b><u>Water Resources</u></b>			
1.1	Planning Division, Planning Commission, Board of Supervisors	Implement land capacity ordinance.	18 months
1.2	Health Department and Fire Department	Implement Land Capacity Ordinance, EIR Guidelines.	Continuously
1.3	Planning Division, Planning Commission, board of Supervisors	Implement Land Capacity Ordinance, Zoning Ordinance, subdivision design regulations.	Continuous upon revision of County Ordinance
2.1	Planning Division, Flood Control Water Conservation District	Implement Management Plan, revise Zoning Ordinance.	Upon revision of County Ordinance
2.2	Flood and Water Conservation District, Agricultural Commissioner, Planning Division	Augment water conservation program.	Continuously
2.3	Board of Supervisors, Flood and Water Conservation District, Planning Division	Joint power/legal agreements, etc.	Immediate

Over 300 species of birds have been sited in Lake County. Mountain and California quail are fairly abundant throughout the County, principally in the fir/pine/chaparral areas. Pheasant can be found throughout the agricultural lands. The bald eagle, a federal and state listed endangered species, has been sighted in several areas, notably in the Blue Lakes region, Wilson Valley, and Anderson Marsh. The peregrine falcon, also a federal and state listed endangered species, has been sited in the Cobb Mountain area. Predominant waterfowl include western and pied-billed grebes, the Great Blue Heron, osprey, mallards, green-winged teal, cinnamon teal, and the ruddy duck. The County has also become known for its abundant grebe population.

Clear Lake and its tributaries support several species of warm water game and nongame fish including crappies, bass, catfish, bullhead, bluegill, and sunfish. The Eel River contains silver salmon, salmon, and steel head trout. The Blue Lakes have had various species of fish introduced.

Lake County also supports several plant species included on the list of endangered or rare plant species as designated by the Fish and Game Commission pursuant to the California Native Plant Protection Act, effective October 5, 1979. Endangered plant species include Brodiaea cronaria spp. rosea (Indian Valley brodiaea) located near Hough Springs, Hespeolinon didymocarpum (Lake County dwarf flax) sited in the Middletown vicinity, Lasthenia burkei (Burke's baenia) found around Clear Lake, Navarretia plinthia (many-flowered navarretia) sited near Boggs Lake, Orcuthia tenuis (slender orcutt grass), and Orthocarpus succulentus (succulent owl's clover).

The fish and wildlife of the County represent recreational, natural, and economic values, providing their habitat is protected. Important wetland areas, particularly around Clear Lake, have already been lost to commercial and residential development. These natural areas contribute greatly to the County's quality of life, as well as supporting such activities as fishing, hunting, and hiking. Environmentally sensitive areas located in Lake County other than those identified by the California Natural Areas Coordinating Council, in need of protection and preservation include: wetlands, riparian lands, and rare and endangered species habitats. (See Figure V-6)

## **Objectives and Policies**

- 1. To preserve and protect environmentally sensitive significant lands and waters valuable for their plant and animal habitat, and natural appearance and character.**
  - 1.1 The County should ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare and endangered.
  - 1.2 The County should consider the environmentally sensitive areas shown on Figures V-5 and V-6 as areas of natural significance and limit the encroachment of development into these areas when possible.
    - Development proposed in these areas should be permitted only after a site specific investigation is conducted to define the extent and fragility of the habitat and suitable mitigation measures for any impacts. (However, this environmental study may be waived if other studies have been conducted in the vicinity revealing no impacts on the area or if it has been otherwise determined that the proposed project would not result in adverse impacts.) To avoid unnecessary costs and duplication, the site investigation should meet the requirements of the California Environmental Quality Act.

- Clustered development should be encouraged in these areas, where applicable.
  - Roads and buildings shall be set back from riparian corridors to avoid damage to habitat. The County should review proposed development plans and site investigations.
- 1.3 The development and enhancement of wildlife habitat through controlled burning, planting, livestock grazing, mechanical land manipulation, and creation of ponds should be encouraged.
  - 1.4 When planning and development or alteration of a site with identified wildlife or plant life habitat (as shown on Figure V-5 and V-6), consideration should be given to ways of protecting the habitat.
  - 1.5 Creek Management Plans and Mineral Reclamation Plans should include measures to protect and maintain riparian resources.

## **CULTURAL AND ARCHAEOLOGICAL RESOURCES**

Less than 5% of Lake County's land area has been inspected in an effort to locate and record cultural resources. However, this limited work has indicated that the County's cultural resources are varied and unique. Archaeologically, the Clear Lake basin contains one of the highest densities of prehistoric sites in the state. Lake County is the location of the Mostin site which may be the oldest Indian village in North America (11,260 years old). Historically, Lake County contains sites and structures which depict nearly all of the major social, economic, and technological developments which have served to shape this region. Culturally, Lake County is the home of a large indigenous Native American population which has diligently worked to maintain its traditional character and identity.

The protection and enhancement of these cultural resources serves numerous purposes. Many archaeological and historical sites are suitable for public display which can enhance the County's tourist industry. This was demonstrated by the recent appropriation of \$2,000,000 in funds for the establishment of a State Park Cultural Preserve in Lake County. Cultural resources have long been used for educational purposes providing both local and visiting schools with a visual "hand-on" means of teaching California history and prehistory. Lastly, by studying Lake County's cultural resources, scientists are able to reconstruct past cultural patterns and learn about contemporary cultural processes, providing us with a better understanding of our own strengths and weaknesses.

**TABLE V-5  
PLANT AND ANIMAL RESOURCES IMPLEMENTATION**

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
<b><u>Plant and Animal Resources</u></b>			
1.1, 1.2, 1.4	Planning Division, Planning Commission, Board of Supervisors	Zoning ordinance and map revisions should be enacted to assign low intensity uses to sensitive wildlife and habitat areas. Policy 1.2 should be implemented through revisions to the zoning ordinance and CEQA implementation rules. Resource Conservation Overlay Zones should be enacted for higher priority areas. Planned Development permit process emphasizing clustering and avoidance of sensitive habitats should be required in areas where higher intensity land use proposals may be considered. Public acquisition of the most sensitive areas should be pursued. Riparian habitats can also be protected by Creek Management and Mineral Reclamation Plans and Flood Hazard Zoning. Early consultation and cooperation with such agencies as California Department of Fish and Game, BLM, Forest Service, etc. should be reflected in CEQA documents and use permit conditions.	18 months or revision to Ordinance

**TABLE V-5  
PLANT AND ANIMAL RESOURCES IMPLEMENTATION**

<b><u>POLICY</u></b>	<b><u>IMPLEMENTOR/ ACTIVATOR</u></b>	<b><u>ACTION</u></b>	<b><u>PHASING/ TIMING</u></b>
<b><u>Plant and Animal Resources</u></b> (Page V-23)			
1.3	Planning Division, Planning Commission, Board of Supervisors, Flood Control and Water Conservation District, Resource Conservation Dists., Bureau of Land Management, Department of Fish and Game, Agricultural Commissioner	Implementation would be largely the responsibility of state and federal agencies responsible for wildlife and land management. County park and flood control projects as well as local use permit conditions should reflect these concerns.	Continuously
1.5	Planning Division, Planning Commission, Board of Supervisors, Flood Control and Water Conservation District	Self-explanatory.	

Unfortunately, the majority of Lake County's cultural legacy is fragile and non-renewable. Historic and archaeological sites are easily damaged and destroyed by surface and subsurface ground alteration. Due to the fragile nature of these resources several state and federal laws have been enacted in an effort to manage and protect cultural resources. These include: California Environmental Quality Act of 1970, sec. 15082, 21060.5, Appendix G. Item j; Health and Safety Code sec. 5097.5, Executive Orders 11593 and B-64-80, Federal Antiquities Act of 1906, Historic Sites Act of 1935, Reservoir Salvage Act of 1960, National Preservation Act of 1966, National Environmental Policy Act of 1969, Archaeological Salvage Act of 1974 and Native American Religious Freedom Act of 1978.

### **Objectives and Policies**

- 1. To manage and protect sites of cultural and archaeological importance for the benefit of present and future generations.**
  - 1.1 The County should participate in and support efforts to identify its significant cultural and archaeological resources.
  - 1.2 The County should encourage the protection of cultural and archaeological sites with potential for placement on the National Register of Historic Places and/or the designation as a State of California Landmark. Such sites may be of statewide or local significance and have anthropological, cultural, military, political, architectural, economic, scientific, religious, or other values.
  - 1.3 When planning any development or alteration of a site with identified cultural or archaeological resources, consideration should be given to ways of protecting the resources. Development should be permitted in these areas only after a site specific investigation has been conducted to define the extent and value of resource, and mitigation measures proposed for any impacts the development may have on the resource.
  - 1.4 The County should support local, state, and national education programs on cultural and archaeological resources.

### **GEOLOGIC AND SEISMIC HAZARDS**

Geologic hazards occurring in Lake County result from unstable slopes, ground failure, unstable soils, and volcanism. Seismic activity poses hazards to developed area in the County by ground displacement, ground failure, and ground shaking.

**TABLE V-6  
ARCHAEOLOGICAL AND CULTURAL RESOURCES IMPLEMENTATION**

<b><u>POLICY</u></b>	<b><u>IMPLEMENTOR/ ACTIVATOR</u></b>	<b><u>ACTION</u></b>	<b><u>PHASING/ TIMING</u></b>
<b><u>Cultural Resources</u></b>			
1.1	Planning Division, Planning Commission	Establish review procedure for the early identification of cultural resources in the planning process.	18 months
1.2	Planning Division, Planning Commission, Board of Supervisors	Establish cultural heritage zone. Establish ordinance for the protection of identified cultural sites from vandalism.	Upon completion of Ordinance
1.3	Planning Division, Planning Commission	Establish procedures for mitigating impacts and protecting cultural resources. Contract with a qualified cultural resource coordinator for the development of the review procedures and ordinances for the protection of cultural heritage resources.	During Zoning Ordinance Revision
1.4	Planning Division	Develop informational pamphlet pertaining to cultural resources for distribution to the public.	Upon completion of Zoning Ordinance

## **Unstable Slopes**

The major geologic hazard facing the County is that associated with slope instability. As slope increases, so does the potential for hazardous conditions to human life and structures situated in the area. Land having an average slope of 30 percent or greater is generally considered less suitable for intensive development because it is difficult and costly to develop. Figure V-7 identifies lands in the County with a slope of 30 percent or greater.

Landslides induced by seismic activity, heavy rains, or construction activities present a risk to human life and property located in or directly below hill areas. Due to the hilly terrain and subsurface geology of Mesozoic Franciscan Formation, large areas along the Mayacmas Mountains and north of Highway 20 are prone to slope failure. These areas constitute slightly over 40% of the County's area. No recent landslides have been identified in the County, although the potential for failure does exist in these areas, especially in previous landslide debris areas. Figure V-7 shows unstable landslide areas and existing unconsolidated landslide debris. Areas prone to landslides require a sufficient amount of open, undeveloped space to ensure public safety.

## **Ground Failure**

Subsidence and ground failure due to seismic activity (discussed under seismic activity) are two potential forms of ground failure which could occur in Lake County. Subsidence is a localized downward movement of ground surface with little horizontal movement. It is usually caused by the collapse of underground voids such as mines or caverns, by excessive groundwater withdrawals, or by extraction of oil. Subsidence may damage all types of construction, including: buildings, sewage disposal works, water pipes, gas lines, and roads.

The likelihood of local subsidence problems occurring due to the withdrawal of vapor dominated geothermal resources appears remote. Substantial subsidence due to local geothermal development has not been noted to date. However, geothermal development has only occurred in areas of Lake County characterized by dry steam resources at relatively deep locations. Development of liquid dominated geothermal resources, particularly in residential and agricultural areas, should require careful monitoring to insure that subsidence problems do not occur.

## **Unstable Soils**

Expansive soils expand in volume when wet and shrink in the process of drying. Structures built on soils having this characteristic may suffer extensive damage if conditions exist which favor the shrink-swell phenomena. Such soils are widespread throughout the County, as over half of its area is underlain by soils classified moderately to highly expansive. Mitigation of this hazard requires engineering and design precautions.

Soil erosion is another common form of soil instability. Erosion is a function of soil type, slope, rainfall intensity, and groundcover. It accounts for a loss in many dollars of valuable soil, is aesthetically displeasing, and often induces even greater rates of erosion and sedimentation. Sedimentation is simply the accumulation of soil as a result of erosion. Construction activities often contribute greatly to erosion and sedimentation. Besides being a pollutant in its own right, sediment acts as a transport medium for other pollutants, especially nutrients, pesticides, and heavy metals, which adsorb to the eroded soil particles. As the sediment drains into water courses, the combination of these pollutants adversely affects water quality. Clear Lake water quality suffers from high naturally occurring sedimentation.

## **Volcanism**

The southern half of Lake County is one of the sixteen areas in California identified as likely to experience a future volcanic eruption. Mount Konocti is the most recent, large volcano in the County. Further evidence of possible volcanic activity is indicated by the area's known geothermal resources, apparently originating in a shallow magma (molten rock) chamber.

## **Seismic Activity**

Within the past 200 years, no major damaging earthquakes have occurred along faults in Lake County. However, numerous faults exist within the County, designated potentially active, which could cause ground rupture, failure and shaking. (Potentially active faults are defined here as those faults that have affected Quaternary earth material, i.e., materials dating back two million years.) Precise locations of these faults are not well established. It appears that the greatest number of faults occur in the southwestern portion of the County, starting at the Cobb Mountain area and running from the Hopland grade to the southern County line. The southeastern portion of the County also appears to have considerable faults, particularly from Grizzly Peak eastward and running from Knoxville to the southern County line (see Figure V-7).

Active faults within the vicinity of Lake County include the San Andreas (within 30 miles and Healdsburg (within 15 miles). These faults have been responsible for the moderate to major earthquakes experienced in the County.

## **Objectives and Policies<sup>1</sup>**

- 1. To reduce the risk to life and property and increased governmental costs from seismic occurrences and geologic hazards.**
  - 1.1 There exists a direct relationship between the degree of slope and the associated hazards on any given soil and geologic situation. In Lake County soils and geology are complex, making for a wide variety of conditions when building. In order to avoid hazards to human life and property, areas in

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<sup>1</sup> Policy in this section is only an update of the Lake County Seismic Safety Element adopted June 13, 1977. Related policy can be found in the Seismic Safety Element on p. 24-34.

excess of 30 percent slope shall have engineered plans for all construction and grading. These plans shall address roads, utility corridors, etc. as well as, off-site problems, such as erosion caused by construction.

- 1.2 Development of lands identified as having high inherent swelling capacity and severe load limitations should be allowed only after site specific soil analysis have been performed which indicate the soils can adequately support the structure.
- 1.3 The siting of residential, commercial, recreational, or industrial structures on or adjacent to known or potentially active fault zones should be avoided.
  - Development on lands having soils sensitive to seismic activity should be permitted only after adequate site analysis and appropriate siting and design of structure and foundation.

In areas of known seismic hazards, building intensity should be dictated by a scale of acceptable risks as shown in Table V-7.

- 1.4 Development should not occur on existing unconsolidated landslide debris (refer to Figure V-7).
- 1.5 The County should update all soil related data and policies when current United States Soil Conservation Service study is completed. New information should be continually and immediately added to the technical background data base and if significant changes occur which would affect the Element, it should be revised.
- 1.6 The County should consider the creation of a Geotechnic Advisory Board comprised of representatives from recognized professional societies to assist in the periodic review of the Seismic Safety Element to assure the Element remains current with existing levels of knowledge. The Committee should include Engineering Geologists, Soil Engineers, and Design Civil Engineers. The Advisory Board will also act as an Appeal Board for special studies zones.
- 1.7 Encourage studies by the appropriate state and federal agencies on fault location, activity and seismicity within the County.

**2. To determine the relative seismic risk in various parts of the County as a guide to new development and hazard abatement of existing structures.**

- 2.1 The County should continue to evaluate areas to determine the level of earthquake risk.

- 2.2 The County should carefully monitor the relationship between geothermal resource development and seismic activity.
- 2.3 The County should consider geologic and seismic criteria in its permitting authority and in determining land use policies and making decisions on development, particularly in identified study areas.
- 2.4 The County should adopt development standards to insure adequate public health and safety upon delineation of Special Study Zones by state geologists as required by the Alquist-Priolo Act.
- 2.5 All buildings for human habitation should be designed to compensate for seismic hazards and to meet the Uniform Building Code and other requirements based on risk, type of occupancy, and location.
- 2.6 Anchoring of nonstructural elements that could cause damage, injury or loss of life during an earthquake should be encouraged.
- 2.7 Public facilities should be upgraded to meet the risk requirements for seismic safety and be periodically reviewed to determine if and when upgrading is necessary.

**TABLE V-7  
A SCALE OF ACCEPTABLE SEISMIC RISKS**

<b><u>LEVEL OF ACCEPTABLE RISK</u></b>	<b><u>REASON FOR RISK LEVEL</u></b>	<b><u>KINDS OF STRUCTURE</u></b>
Extremely low	Failure of a single structure may affect substantial populations.	Structures whose continued functioning is critical, or whose failure might be catastrophic; nuclear reactors, large dams, power intertie systems, plants manufacturing or storing explosives or toxic materials.
Slightly higher than the above case	Failure of a single structure may affect substantial populations.	Structures whose use is critically needed after a disaster: important utility centers; hospitals, fire, police, and emergency communication facilities; fire stations; and certain bridges and overpasses that are part of a critical transportation element; also smaller dams.
Lowest possible risk to occupants of the structure	Failure of a single structure would affect primarily only the occupants.	Structures of high occupancy, or whose use after a disaster would be particularly convenient: schools, churches, theaters, large hotels, and other highrise buildings housing large numbers of people, other places normally attracting large concentrations of people, civic buildings, secondary utility structures, extremely large commercial enterprises, most roads, alternative or noncritical bridges and overpasses.
An "ordinary" level of risk to occupants of the structures	Resist minor earthquakes without damage; resist moderate earthquakes without structural damage, but with some non-structural damage; resist major earthquakes of the intensity of severity of the strongest experienced in California, without collapse, but with some structural as well as non-structural damage.	The vast majority of structures: most commercial and industrial buildings, small hotels and apartment buildings, and single-family residences.
Source: <u>Meeting the Earthquake Challenge</u> , Final Report to the Legislature, State of California, by the Joint committee on Seismic Safety, January 1974. Part One: A Comprehensive Approach to Seismic Safety, p.9.		

- 2.8 Existing buildings, particularly critical facilities, that do not meet requirements for seismic safety should be strengthened, abated, or downgraded in use in an orderly manner. Priorities for seismic upgrading or phasing out of existing seismically unsafe buildings should be based on hazard to life, occupancy, and the capability of the structure to resist anticipated earthquake effects.
- 2.9 Request federal or state financial assistance to implement the corrective measures required.
3. **To insure that critical structures such as dams and hospitals, and other vital emergency facilities, are designed so as to remain functional after anticipated earthquake effects and to reduce the risk of life and property loss and interruption of essential services in the event of earthquake.**
- 3.1 Prohibit construction of critical facilities in areas subject to landsliding, liquefaction, quick clay effects, or seiche unless it can be conclusively demonstrated by site specific studies that the hazards can be mitigated and that the facilities will remain functioning after anticipated effects.
- 3.2 Prohibit construction of critical facilities across the trace of known active or potentially active faults.
- 3.3 Selected streets and highways vital to communication and the functioning of emergency services and critical facilities should be evaluated and upgraded to an acceptable degree of safety considering potential earthquake effects.
- 3.4 Limit construction of critical transportation structures across the trace of a known active or potentially active fault to those which can not be reasonably constructed at another location.
- 3.5 Require that critical facilities be designed and constructed to remain functioning after the Maximum Probable Earthquake and to resist collapse in the event of the Maximum Credible Earthquake as specified in a detailed Geologic/Seismic report based on a site specific investigation. Design utilities crossing fault zones to minimize damage by utilizing such measures as flexible units, valving, redundant lines, or automatic valves operated by differential pressure.
- 3.6 Require emergency centers, such as hospitals, to have alternate independent drinking water systems, cooling water systems for electric generators and alternate generators for power.
- 3.7 Conduct a structural review of all County critical facilities and include a detailed geologic/seismic site investigation and, if necessary, a review of access roads and utilities serving the sites. Require upgrading as determined by the reviews.
- 3.8 Continue to meet seismic standards of dam safety as promulgated by the State Division of Safety of Dams as applicable to new and existing structures.
4. **To insure that emergency communications remain functional after a major seismic disaster.**
- 4.1 Emergency plans dealing with disaster response should be maintained and revised as conditions warrant.
- 4.2 The County should coordinate with all other local, state, and federal governmental agencies charged with disaster and emergency preparedness responsibilities.
- 4.3 The public should be kept informed of what to do in the event of an earthquake disaster.
- 4.4 Property owners should be encouraged to take adequate steps to protect their property against the economic risks of seismic hazards.
- 4.5 The County should continue to conduct periodic emergency response exercises to insure that all County departments respond efficiently and that emergency communications and other systems are properly maintained. Continue to maintain emergency evacuation plans for identified potential flooding areas downstream of dams.
- 4.6 The County should develop interim disaster plans assuming many bridges and highway overpasses will not be functional following a major earthquake due to collapse and the roads and highways in hillside areas will be blocked by landslides.
- 4.7 The County should begin formulation of procedures to be followed in the event earthquake prediction becomes a reality, such as determining the agency from which predictions would be accepted (tentatively, the Governor).
- 4.8 The County should encourage the lending and insurance industries to advise fire and homeowner policy holders of insurance provisions related to earthquakes, floods, and mudslides.
5. **To facilitate post-disaster recovery and assure the sound and rational consideration of the area following a major disaster.**
- 5.1 Following a major disaster, the County should be rebuilt in accordance with established general plan objectives and policies and appropriate County codes and ordinances.
6. **To encourage public awareness of potential earthquake hazards and protection measures.**
- 6.1 Initiate an information program to educate the public to potential earthquake hazards, disaster preparedness, and procedures to follow during and after an earthquake.

#### **FLOOD HAZARDS**

Flood hazards in Lake County can be attributed to three sources: creeks, lakes, and dam failures. Those areas with the greatest potential for creek flooding are residential and agricultural areas along tributaries to Clear Lake and within the 100 year floodplain (see Figure V-8). The floodplain is most extensive along Scotts Creek, Cache Creek, Adobe Creek, Putah Creek, Cole Creek, and Kelsey Creek. A typical cross section for floodplain is depicted in Figure V-9.

Lake flooding poses a direct hazard to lands around Clear Lake, Lake Pillsbury, Blue Lakes and Indian Valley Reservoir. The greatest damage can be expected around Clear Lake, since approximately forty of the lake's seventy-one mile rim are developed. The risk of human life is low because there is generally ample time to evacuate lakeshore residences if flooding is expected. Lake Pillsbury is an irregularly shaped lake, bounded by steep walls on all sides except for the northern lakeshore (gravelly valley). Flooding and wave run up (seiche) would inundate the entire rim of the lake, with Gravel Valley experiencing the greatest impact.

Five dams have been identified as being capable of causing death or injury if flooding due to dam failure occurs. These are Adobe Creek, Highland Creek, Indian Valley, Clear Lake, Hidden Valley, and Scott dams. Dam inundation can result from failure of its structural integrity or when spillway capacities are exceeded.

#### **Objectives and Policies**

1. To reduce the risk to life and property from flood hazards.

- 1.1 All development within the designated floodway zone shall conform with Department of Housing and Urban Development regulations and the Lake County Flood Plain Management Plan.
- 1.2 The 100 year floodplain zones (as designated on maps prepared by the U.S. Housing and Urban Development, Federal Insurance Administration) should be protected and maintained through strict limitation on land use. To carry out this policy the following guidelines on development should be observed:
  - Critical facilities (those facilities which should be open and accessible during emergencies) should not be permitted.
  - Passive recreational activities (those requiring non-intensive development, such as hiking, horseback riding, picnicking) are permissible.
  - Commercial industrial and residential uses should not be permitted, unless all standards regarding elevation, anchoring, and floodproofing have been satisfied.
- 1.3 Flood control measures should be considered as part of an overall community development plan, and should advance the goals of recreation, resource conservation, preservation of natural riparian habitat, and scenic values of the County's streams, creeks, and lakes.
- 1.4 Projects proposed within potential dam and seiche inundation zones should be reviewed by the Director of the County Office of Emergency Services and checked against evacuation plans on file for the area. If a project presents a direct threat to human life, appropriate mitigatory actions should be taken, including restriction of development in the subject area.
- 1.5 The County shall encourage the development of multipurpose flood control projects when economically feasible.

**FIRE HAZARD**

Lake County is a high wildfire hazard area. The County's hilly topography, rich vegetation cover, and hot, dry season produce dangerous summer fire conditions. Wildfires are a potentially dangerous hazard to development located in forest and shrub areas. They not only destroy vegetation and endanger structures and public safety, but devastate valuable wildlife habitat and watershed lands. The absence of natural groundcover on burned lands greatly increases the hazards from slope failure, and erosion.

The severity of wildfire problems is influenced by four factors: vegetation, climate, slope, and people. The California Department of Forestry has developed a fire hazard severity scale which uses the first three of the above four factors to evaluate wildfire hazard (see Figure V-10). Using this scale, approximately 45% of the County falls into extreme fire hazard.

**TABLE V-8  
GEOLOGIC AND SEISMIC HAZARDS IMPLEMENTATION**

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
<b><u>Geologic and Seismic</u></b>			
1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.5, 3.6, 3.8	Building Division, Planning Division, Planning Commission, Board of Supervisors	Amend Building Code, implement Land Capacity ordinances, adopt a geologic hazard overlay zone and continually update and adopt regulations as necessary when new information becomes available.	Initial 18 months and then continuous
1.6, 2.2, 2.7, 2.8, 2.9, 3.3, 3.4, 3.7, 4.1, 4.2, 4.5, 4.6, 4.7, 5.1, 6.1	Planning Division, Planning Commission, board of Supervisors, Building Division, DPW, various agencies including Fire Dist., hospitals, sheriff, etc.	Self explanatory.	
1.7	Planning Commission, Board of Supervisors	Continue to work with state and federal agencies and provide access to County data.	Continuous
4.3, 4.4, 4.8	Planning Division	As implemented by Policy 6.1.	Continuous

**TABLE V-9  
FLOOD HAZARDS IMPLEMENTATION**

<u>POLICY</u>	<u>IMPLEMENTATOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
<b>Flood Hazards</b>			
1.1	Building Permit Application	Required to conform with "P-F" or "S-F" zoning restrictions when applicable. Reviewed by Flood Control Officer for compliance with HUD standards and Flood Plain Management Ordinance.	Continuously
1.2	Specific project review, review of General Plan policies and zoning restrictions	Identification of Flood Plain and Hazard areas with appropriate zoning regulations Land Use.	Upon completion of revised Zoning Ordinance
1.3	General Plan adoption, proposed zone changes	State guidelines require internal consistency between elements of General Plan. Zone changes must be consistent with principles and policies of General Plan.	Ongoing
1.4	Application for Development Permits	Discretionary permits which require CEQA review will be conditioned with mitigation measures. Flood Control Officer reviews non-discretionary permits for potential hazards, and requires appropriate development standards.	CEQA Initial Study review or building permit review
1.5	Subdivision Ordinance Development Requirements	Flood Control systems should be developed within new subdivisions consistent with prepared plans. Plans should be developed to include methods of implementing existing subdivisions or flood control projects.	Continuous

The amount of wildland vegetation available as potential fuel for a fire is called fuel loading. The extent and severity of fuel loading is dependent upon the type and amount of vegetation in a particular area. Light fuels are considered to be flammable grasses and annual herbs, brush and shrubs less than six feet in height are considered to be medium fuels. Heavier brush and timber over six feet are considered to be heavy fuels. Roughly 45% of the County has a forest or woodland cover and nearly 40% is in hard chaparral.

Critical fire weather occurs in the County when air temperature rises to over 100 degrees Fahrenheit, relative humidity drops to near zero and hot, dry north or east wind blow at high velocities. Lake County has an average of more than 9.5 days of critical fire weather per year.

Development of residences on steep slopes or brush covered hillsides is an additional source of hazard. For example, development in hilly areas often necessitates narrow, twisting roads which do not provide adequate access for fire equipment. Several residential areas on Cobb Mountain experience such access problems. In addition, for each 20 percent increase in slope, the rate of spread for a fire will double.

People, or more appropriately human activities in areas sensitive to brush fires constitute the fourth factor contributing to the incidence of wildfire.

As Lake County continues to grow, higher levels of human activity result in increases in the frequency of domestic and wildfires, and greater numbers of residential and commercial structures requiring protection increasingly stretch the limited equipment and personnel resources of the nine separate public agencies that provide fire protection in the County. Over the next ten years, property taxes and fire suppression assessments currently collected will be insufficient to fund anticipated fire facilities needed to serve a growing population. Of the approximately 46,000 lots in Lake County, it is estimated that about 17,000 are currently developed with residences. Over the next ten years, it is anticipated that another 10,000 or so will be improved with homes (adding some 25,000 new residents on existing lots). There are also a significant number of undeveloped commercial lots. While appropriate and reasonable fees can be collected as mitigations for fire protection impacts related to discretionary projects such as new subdivisions, residential and commercial development on existing lots is permitted ministerially, and there are currently no means of collecting fire mitigation fees for this ministerially permitted development to mitigate the very real impacts it creates.

Of the nine public agencies providing fire protection services, six have prepared capital fire facilities and equipment plans, and the remaining three may follow suit. These plans are intended to provide a basis for the enactment of fire facilities mitigation fees, to be collected in conjunction with the issuance of building permits to allow new residential and commercial development. The plans include information that quantifies the impact of a development on each agency, and relates that impact to the specific needs of the agency in order to maintain current levels of service over a period of the next ten years.

In each case, the agencies providing fire protection services have identified the capital improvements that will be necessary over a defined period to provide service to new residents anticipated to arrive over that same period. The districts have provided the expected costs of these improvements, and will divide these costs equitably among owners of anticipated residential and commercial building permits. While appropriate mitigation fees for capital improvements can be required in connection with discretionary projects through the CEQA process, the only means of collecting such fees for residential and commercial construction by administrative permit is through the County's authority to adopt such fees by ordinance (the districts not having this authority).

#### **objectives and Policies**

##### **Structural Fires**

- 1. To reduce the risk to life and property from structural fires and establish minimum standards throughout populated areas of the County.**
  - 1.1 The County should support the improvement of fire protection services.
  - 1.2 All proposed development shall satisfy the structural fire protection and standards contained in most recent editions of the Uniform Building Code and Uniform Fire Code.
  - 1.3 All proposed development shall be adequately served by water supplies for fire protection and shall be designed and constructed to meet the Fire Protection Standards of Lake County.
  - 1.4 The County should encourage clustered developments to provide for more localized and effective fire protection measures such as consolidations of fuel buildup abatement, firebreak maintenance, fire fighting equipment access, and water service provision.
  - 1.5 Parks, golf courses, utility corridors, roads and greenbelts should be located so that they may serve a double function as fuel breaks.
  - 1.6 Road networks shall be designed to provide for safe and ready access for emergency fire equipment and to allow alternate routes for excavations.
  - 1.7 The County should ensure that all streets, roads, and buildings are properly identified by name or number with signs which are non-combustible and are clearly visible from the main travelled roadway.
  - 1.8 In order to ensure that there are sufficient revenues for the capital improvements necessary to provide current levels of fire protection for Lake County's growing population, the County should promote the preparation and adoption of a fire mitigation fee ordinance for the collection of fees to be allocated to the affected fire service providers for the acquisition of capital facilities.

##### **Wildland Fires**

- 2. To reduce the risk of life, property, and areas from wildland fires.**
  - 2.1 The County should consult with the appropriate fire service district, in areas designated as high and extreme fire hazard, for particular regulations prior to issuance of a building permit.
  - 2.2 The County should consider fire hazards in evaluating development proposals. Within designated areas where population or residential building densities may be inappropriate to the hazards present, measures should be developed and adopted to mitigate risk to life and property loss. Lands designated as having high and extreme wildfire hazard may be developed provided that the following guidelines are satisfied:
    - development should be limited to low density and rural residential only; cluster development encouraged.
    - developer and/or subsequent owners must assume responsibility for ongoing fire prevention maintenance activities for the project, including: abatement of fuel buildup, fire break maintenance, access provision, and provision of adequate water supply to meet fire flow.
    - separately developed dwellings with an individual private water supply shall provide an acceptable guaranteed minimum supply of water, in addition to the amount required for domestic needs.



TABLE V-10  
FIRE HAZARD IMPLEMENTATION

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
<b><u>Fire Hazards</u></b>			
1. Structural Fires			
1.1	Fire Districts, Planning Division, Planning Commission	Continue to mitigate impacts to fire protection agencies caused by development. Enforce Subdivision Regulations.	Continuous
1.2	Building Division	Enforce Uniform Building Code.	Continuous
1.3	Health Department, Fire Districts, Building Division, Planning Division, Planning Commission	Enforce Uniform Building Code and Uniform Fire Code and Subdivision Regulations.	Continuously and/or upon completion of Zoning Code
1.4	Planning Division, Planning Commission and Board of Supervisors	Implement Land Capacity Ordinance.	Upon completion of Zoning Code
1.5	Planning Division, Planning Commission, Parks and Recreation	Implementation through Subdivision Regulations and "PD" process; emphasis on cluster housing.	Upon completion of Zoning Code
1.6	Fire Districts, Department of Public Works, Planning Division, Planning Commission	Enforce Subdivision Regulations requiring proper road widths, adequate ingress and egress, and utilize master road plan to provide for ultimate road circulation.	Continuous
1.7	Department of Public Works, Fire Districts	Maintain and enforce regulations requiring proper street, road and building identification.	Continuous

**TABLE V-10 (Continued)  
FIRE HAZARD IMPLEMENTATION**

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
2. Structural Fires			
2.1	Building Division, Fire Districts	Establish procedure for Fire District review of building permits for areas designated as high and extreme hazard.	18 months
2.2, 2.3	Fire Districts, Building Division, Planing Division, Planning Commission	Continue to evaluate development with consideration for the hazards. Also implement Land Capacity Ordinance and cluster housing concept.	Continuous upon revision of Zoning Code
2.4	Fire Districts, Department of Public Works, Planning Division, Planning Commission	Require property owners to maintain necessary firebreaks. Establish procedures for notification and enforcement.	18 months
2.5	Planning Division, Planning Commission	Land Capacity Ordinance.	18 months
2.6	Fire Districts, Board of Supervisors	Self explanatory.	Continuous
2.7	Fire Districts, Board of Supervisors	Support Keene Bill.	Continuous

- 2.3 The exterior of residential units should be composed of fire resistant materials and designated to reduce fire vulnerability.
- 2.4 Firebreaks of 30 feet should be maintained around all structures. Additional fire breaks or fuel modifications up to 100 feet around structures should be required when the fire officials find that extra hazardous conditions exist. Secondary firebreaks up to 200 feet in width should be required when the fire authority finds that additional precautions are necessary. Fire buffers should be created along heavily traveled roads within high and extreme hazard areas by thinning, discing, or controlled burning.
- 2.5 Fire hazard criteria and performance standards shall be included in implementing policies of this section. (See implementation Chapter, Land Capability/Capacity Policy.)
- 2.6 The County should maintain a continuing cooperative fire protection agreement with the California Division of Forestry to provide added fire protection on a year round basis.
- 2.7 The County should actively support controlled burn programs on public and private lands throughout the County.

**AIR QUALITY**

One of Lake County's most valuable resources is its good air quality. There is an occasional violation of standards set by the State for total suspended particulates, but this occurs primarily in agricultural areas where dust due to plowing is common. Hydrogen sulfide standards have been violated in areas that surround geothermal developments, but again, this is a specific rather than general phenomenon. The remainder of the County is in attainment of the State air quality standards. Less significant sources of air quality degradation in the County include dust (suspended particles) due to construction activities, sand and gravel extraction, pesticide and fertilizer spraying, and vehicular exhaust fumes.

One of the primary air quality concerns in Lake County is the ability of the basin to tolerate a large loading of pollutants. The air basin is relatively small and is composed of a complex topography which makes dispersion of pollutants difficult under inversion conditions. (Inversion is an atmospheric condition where a layer of cool air is trapped by a layer of warm air so that the underlying cool air cannot rise. Inversions spread polluted air horizontally rather than vertically so that contaminating substances cannot be widely spread.)

Continued expansion of geothermal development in the County and subsequent hydrogen sulfide emissions represents a major threat to the County's air quality. (Refer to Geothermal Overview in the appendix for further discussion.) Strict monitoring and enforcement of hydrogen sulfide and other air pollution standards are required along with the use of advanced abatement technology. The Lake County Air Pollution Control District is primarily responsible for regulating stationary air pollution sources.

**Objectives and Policies**

- 1. **To protect and preserve the County's air quality.**
  - 1.1 New and existing point sources of air pollution should be monitored for compliance with County, State, and Federal air quality regulations and standards.
  - 1.2 The County should encourage the use of the best available air pollution control technologies to maintain healthful air quality and high visibility standards.
  - 1.3 To reduce the number of vehicle trips and miles travelled, residential development should be in close proximity to places of shopping, play, and work. Opportunities for nonmotorized transportation should be encouraged to preserve the County's air quality and conserve energy as well.
  - 1.4 As unpaved roads are a major source of the County's particulate emissions, the County should require that all new roads be paved or treated to reduce dust generation, unless waived by the appropriate review agency.

TABLE V-11  
AIR QUALITY IMPLEMENTATION

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
<u>Air Quality</u>			
1.1	Lake County Air Pollution Control District, California Air Resources Board	Air quality monitoring and compliance are being implemented by the Air Pollution Control district and the Air Resources Board.	Continuously
1.2	Lake County Air Pollution Control District, California Air Resources Board	Best available control technology is generally required by the Air Pollution Control District.	Continuously
1.3	Planning Division, Planning Commission, Board of Supervisors	Zoning revisions are required to promote residential development near employment and to allow local and community commercial operations to serve nearby residential areas. Implement County Bicycle Plan. Require equestrian trails and/or bike routes, ways or lanes where appropriate.	Upon completion of revision of zoning code
1.4	Planning Division, Planning Commission, Air Pollution Control District, Public Works Department	To reduce the dust impacts of new development on adjoining residences, paving or treatment of roads should be required in the use permit or air quality permit process. Existing roads may be resurfaced through capital improvement plans, redevelopment plans, special assessment districts or as part of existing County road maintenance activities.	Continuous

## SCENIC HIGHWAYS

Residents and visitors, alike, recognize the extraordinary scenic beauty of Lake County's natural landscape. Mountains juxtaposed with lakes, numerous creeks flowing through valleys, orchards and vineyards spreading on flatlands or resting on hills. These views provide natural scenic amenities important to the quality of life in the County.

The enjoyment of these scenes depends largely upon the continued maintenance and further development of access to them. The County is fortunate to have an established highway system which traverses areas of scenic and recreational interest. Highways with scenic view corridors provide for an enjoyable travel experience, link urban areas with open space areas, and provide access to recreational areas.

One method of preserving these resources is through the designation of scenic highways. The State Scenic Highway System was established in 1963. The system consists of officially designated state highways which are intended to be safe for fast moving traffic and equipped with turnouts, vista points and rest facilities. Roads can be designed as official scenic routes only after the California Department of Transportation performs a corridor study to identify the views and significant features along the route, and potential turnouts, vista points, etc.

Following the completion of this study, the County must prepare and adopt a program for the protection of the scenic corridor. ("Corridor" refers to the land area which can be seen from the road.) This program is to provide guidelines for the careful management and control of land use within the scenic Corridor. It is the state's responsibility to improve the roads, as necessary to meet scenic highway standards, while the County must provide adequate corridor protection. The intent is to create a network of scenic corridors which will orient the traveller and enhance both the foreground and distant views.

The California State Transportation plan lists the following segments of State Highways within Lake County as eligible for official Scenic Highway designations (for location of routes refer to Figure V-11).

- Highway 20 - the entire length through the County from Mendocino County line on west to Colusa County line on the east.  
Highway 20 offers a diverse range of scenic views including mountain vistas near the Mendocino County line, agriculture lands in Bachelor Valley, and rolling hills on the eastern portion of the County. The route provides excellent lake views of both Blue Lakes and Clear Lake, as the road runs parallel to their shorelines.
- Highway 29 - from the intersection of Highway 20 at Upper Lake south to the Napa County line.  
Highway 29 also provides scenic views of many of the County's diverse natural environments. Flatlands and rolling hills laced with orchards and vineyards are common views on the road segment between Lakeport and Lower Lake. The road offers an excellent view of Mt. Konocti. Open meadows and small valleys with a backdrop of rolling hills characterizes the scenic views of the highway from Napa County line to Lower Lake. It is an important scenic road connecting Lake County to regions south.
- Highway 53 - from the intersection with Highway 20 to the intersection with Highway 29 at Lower Lake.  
Scattered views of Clear Lake with Mt. Konocti in the distance make the route scenically enjoyable.
- Highway 175 from Highway 29 in Middletown to the Highway 175 and Highway 29 intersection south of Shaul Valley.

In addition, to eligible State routes, several County roads have potential for designation as Scenic Highways include:

- High Valley Road between Bartlett Springs Road to Clear Lake Oaks, including the High Valley Road extension to Highway 20.  
Hilly topography and scenic vistas to the south characterize this route.
- Lucerne cutoff - between Highway 29 and Highway 20.  
Route links Lakeport with the communities on the north shore of Clear Lake. The road traverse Rodman Slough, one of the largest remaining wetlands areas important as a wildlife habitat.
- Butts Canyon Road, northeast of Middletown to Napa County line.  
Butts Canyon Road connects the southeastern corner of Lake County with Highway 29. Hills and open valleys make route aesthetically pleasing.
- Scotts Valley Road from Highway 29 to Highway 20.  
Scotts Valley Road links a major agricultural area with the City of Lakeport, Highway 29, and with Highway 20 to Ukiah.
- Elk Mountain Road from Upper Lake to Lake Pillsbury and Mendocino County line.  
This gravel road is the only route north into Mendocino National Forest, a major recreation area. Elk Mountain Road also provides access to Lake Pillsbury.
- Bartlett Springs Road from Highway 20 to Colusa County line.  
Bartlett Springs Road connects the grazing lands of the northeastern section of the County with north shore communities. This gravel road cuts into an area unspoiled by commercial areas and sprawling homesites. The route, following a ridgeline in some segments, offers some spectacular views south to Clear Lake.
- Bottle Rock Road from Highway 29 to Cobb.  
Bottle Rock Road extends from the edge of Big Valley agricultural region to Cobb Mountain and the geothermal development area. Primarily, running through

mountainous topography, the route include dense woodlands and open meadows.

- Big Canyon Road from Seigler Spring Canyon Road, Seigler Springs to Highway 175 at Middletown.

Big Canyon Road runs through a relatively unspoiled area providing scenic views of woodlands and open valleys.

- Soda Bay Road from Lakeview Boulevard to Highway 29 outside of Lower Lake.

Soda Bay Road is one of the County's most beautiful routes, running along the southern shoreline of Clear Lake. The route offers views of orchards and vineyards, as well as of the lake and Mt. Konocti. The road also offers access to Clear Lake State Park.

In order for these County roads to receive state approved designation as Scenic Highways, the County must be willing to provide the same level of protection as required for a state scenic highway and must request designation from the State Director of the Department of Transportation.

The intent of a scenic highway element is to eliminate unsightly conditions which may impair safe driving and be distracting to highway users. Further, it strives to create a favorable public image that will encourage economic development and tourism within the County, thereby protecting property values in areas through which the highways pass.

It must be considered, however, that although these highways should be promoted for a scenic highway classification, all areas along these highways are not equally "scenic". Physical constraints, public health and safety concerns and other hardships may make many areas inappropriate for a Scenic Corridor zoning overlay. Established urban densities, existing small lot sizes, etc. may necessitate a trade-off. Special sensitivity to these areas and conditions must be considered when designating "scenic corridors". This will ensure that this attempt at preservation of Lake County's natural scenic beauty will not conflict with the housing element's related policy: the provision of affordable housing in areas not subject to special design and infrastructure constraints.

Opportunities for picnickers, hikers, bicyclists and equestrians in much of the County are limited to the developed parks. Most of the scenic roadways have no existing public rest stops, picnic grounds and bike/equestrian trails associated with them.

#### Objectives and Policies

1. **To protect and enhance the recreation based economy of the County through the maintenance and preservation of views of scenic areas from the County's roadways, both for the benefit of local residential and resort development and the motoring public.**

1.1. In the non-urbanized areas of the County (not designated urban residential) structures built within the immediate foreground view of a scenic roadway should reflect the following guidelines.

- Structures should be sited back from the roadway edge a sufficient distance to minimize intrusion upon the natural features and backdrops as viewed from the roadway or adjacent residences.
- Structures should be sited to minimize obstruction of views of significant natural features, such as Clear Lake and Mt. Konocti.

1.2. In the urbanized areas of the County (densities greater than three dwelling units per acre) structures within the immediate foreground of a scenic roadway should be constructed at a height and/or sited at a sufficient distance to maintain roadway and adjacent structures' views of distant, but visually significant natural features.

1.3. Signage intended to be seen from designated scenic corridors should meet the following guidelines:

- Signs should be limited to the identification of the name and type of goods or services provided on the site on which the sign is located (i.e., billboards and other advertising of businesses, services, or products produced, sold or provided elsewhere would be prohibited except by special use permit).
- Signs should be of a size, design, shape, material, and colors which make them subordinate to the sites and structures to which they relate and to the larger setting within which they will be viewed.
- Signs should be designed, sized, and sited so as to be easily read by motorist travelling at the posted speed.

1.4. The County should establish a coordinated Countywide roadway signage program which would provide within the public right-of-way identification of routes and major destinations; traffic information on speed, signalization, etc.; and identification and directional information for both public and commercial facilities serving the community and recreation visitors.

1.5. Within the designated scenic corridors, roadway improvements should be constructed in a manner which minimizes roadway width and thus, reduces domination of the view by road surface; and conforms to the natural contours of the land and minimizes extensive grading and removal of roadside vegetation.

1.6. Where possible curbside parking should be prohibited to minimize obstruction of and intrusion upon views from the roadway except at strategically located turn-outs.

1.7. Commercial parking areas within scenic corridors may be necessary, but with proper design constraints they can provide attractive open areas which complement and expand scenic views. Special consideration should be given to these parking areas as to their physical location, layout, and landscaping in an effort to make them an asset in the preservation of scenic corridor values.

1.8. Landscaping should be employed to screen from views lands or structures which detract from the view and help frame and direct attention to major views. Additionally, selective cutting and pruning should be permitted to enable establishment or improvement of roadway views.

2. To provide residents and visitors with opportunities to experience the County's scenic setting as motorists, bicyclists, hikers, and equestrians.
- 2.1 Hiking, bicycling and equestrian trails should be developed along scenic roads where they can be safely provided without adversely increasing public health and safety needs.
- 2.2 Turnouts should be provided where there are major views of specific features, such as Clear Lake, or panoramic views of the countryside. Interpretative information should be provided at these points to help inform visitors and residents of the natural and cultural history of the County.

TABLE V-12 SCENIC HIGHWAYS IMPLEMENTATION				
POLICY	IMPLEMENTOR/ ACTIVATOR	ACTION	PROGRAM FINANCING	PHASING/ TIMING
<b>Scenic Preservation</b>				
1.1	Planning Commission, Planning Division	Establish precise areas in County which have scenic values, eliminating lots of areas not suitable for scenic corridor designation because of dimensions, location, etc. Implement revised scenic corridor zoning overlay.	County general fund	Immediately upon adoption of a revised scenic corridor ordinance
1.2	Planning Commission, Planning Division	Create review procedures for construction within Scenic Corridors.	County general fund	Immediately upon adoption of General Plan
1.3	Planning Commission, Planning Division	Adopt design criteria for signs. Establish procedures for ministerial review by Staff, except for signs requiring use permit which will be reviewed by Planning Commission.	County general fund	Immediately upon adoption of General Plan
1.4	Planning Commission, Board of Supervisors, Planning Division, Department of Public Works	Determine strategic locations through study and consultation (Chamber of Commerce, Caltrans, citizen input, etc.) for information signs. Organize volunteer aid in design and implementation.	County general fund, State Highway Beautification Fund, federal revenue sharing, volunteer aid	Within 2 years

**TABLE V-12 (Continued)  
SCENIC HIGHWAYS IMPLEMENTATION**

<b>POLICY</b>	<b>IMPLEMENTOR/ ACTIVATOR</b>	<b>ACTION</b>	<b>PROGRAM FINANCING</b>	<b>PHASING/ TIMING</b>
1.5	Board of Supervisors	Direct Department of Public Works to establish procedures for road design review. Work with Caltrans prior to state highway improvements on design alternatives.	County general fund, Capital improvements fund	Within 1 year
1.6	Board of Supervisors	Review and revise Lake County Transportation Code (Chapter 19) to limit or restrict curbside parking where appropriate. Work with Caltrans to provide turnouts and rest stops at strategic vista points.	County general fund, State highway fund	Within 1 year
1.7	Planning Commission, Planning Division, Dept. of Public Works	Revise scenic corridor zoning regulations to include parking lot design criteria. Establish review procedures.	County general fund	Immediately upon adoption of the General Plan
1.8	Planning Commission	Establish scenic corridor landscaping requirements where appropriate. Work with Caltrans on landscape beautification program.	County general fund, State Highway Beautification Fund	Within 1 year

TABLE V-12 (Continued)  
SCENIC HIGHWAYS IMPLEMENTATION

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PROGRAM FINANCING</u>	<u>PHASING/ TIMING</u>
<u>Scenic Enjoyment</u>				
2.1	Board of Supervisors, Department of Public Works	Lobby with state legislators and Caltrans for quick implementation of adopted County Bicycle Plan. Establish program to study feasibility of widening shoulders of County roads. Paint or remark "fog lines" where appropriate.	County general fund, Capital Improvements Fund	Within 1 year
2.2	Planning Commission, Board of Supervisors, Planning Division, Department of Public Works	As implemented by policies 1.4 and 1.6	County general fund and Capital Improvements Fund; volunteer aid	Within 2 years

**3. To provide for utility facilities that meet the needs of the public that are of high ecological and aesthetic quality.**

- 3.1 The siting of transmission lines shall avoid interfering with scenic views to the greatest extent possible, taking into account the design and size of the transmission towers, the nature of the landscape, and the placement of the transmission facilities (115 K.V. lines and above) shall not be sited along a foreground view (up to 1/4 - 1/2 mile) of potential state and county scenic highways as designated in the county general plan,\* designated community areas,\*\* major resorts or wineries unless no feasible alternatives exist. In situations where no feasible alternatives exist, undergrounding or other visual mitigation measures shall be imposed.

**CLEAR LAKE**

Clear Lake is the County's single most valuable natural resource, important for both its economic and aesthetic values. Its use and development will greatly influence the development of the entire County. Wise management and protection of the lake and shoreline is needed to ensure that its value will be sustained and its full economic potential reached for the current and future generations of the County.

Ironically, the lakeshore, by its appeal, generates many of the forces which threaten its value. Fragile ecological systems exist in the lake and around its shore which cannot tolerate intensive, human use. Specifically, development near and around the shoreline of the lake have had a significant impact on the water quality and has destroyed valuable wetland areas. (See Figure V-15 for existing land uses around the lakeshore.)

Lakeshore development, historically, has been the result of a complex set of public and private decisions made in an uncoordinated and piecemeal manner. In several cases, public uses and uses which provide a significant public benefit have lost out to private development are passed onto the public, including environmental degradation and pollution.

The value of Clear Lake to Lake County is best determined by the functions it serves. The lake provides outstanding recreational opportunities, supporting the County's recreation/tourist industry. The lake is also an important source of water, both domestic and irrigation uses, for Lake County and neighboring Yolo County. The lake and its shoreline support important fish and wildlife habitat necessary for the spawning, feeding, and protection of fish and other wildlife. Since fishing constitutes the primary recreational use of the lake, these habitat areas are also significant to the recreational function of the lake. The lake's natural scenic beauty also brings pleasure and enjoyment to all within its view.

Enjoyment of the recreational, aesthetic, and economic values of Clear Lake is greatly influenced by the lake's environmental quality and public access. Currently, the two most significant water quality problems are nuisance algae growth and high sedimentation yield. These two problems are largely due to natural conditions of the lake. The algae are primarily a result of the lake's high nutrient load and the sedimentation a result of the naturally high erosion factor of the Clear Lake Basin. The effects that urban, agricultural, and recreational development have had and will continue to have on the lake are not entirely understood. Development of land, as well as use of water within the watershed has affected the siltation, nutrient intake, circulation, and turbidity levels of the lake. With naturally high nutrient and erosion levels, all man-made factors contributing to water quality problems should be kept at a minimum.

The quantity and quality of the lake's natural habitat areas also affects the environmental quality of Clear Lake. The habitat areas, including wetlands and riparian lands, support a diverse and abundant variety of fish and wildlife (see Figure V-12). These areas have been greatly altered from their pristine state by commercial, residential, and agricultural development.

The loss of wetlands around Clear Lake has been piecemeal, but the cumulative effects of this development has been a net loss of 72 percent of the wetlands area between 1952 and 1977. Without these habitat areas, both the quantity and diversity of the lake's fish and wildlife will suffer. Preservation of all remaining wetlands areas is important, in particular, three areas are of special significance, largely due to their size and quality of habitat. These areas include Anderson Marsh, Rodman Slough, and the area south of Lakeport and west of Clear Lake State Park.

Adequate public access to Clear Lake and its shoreline is also a necessary ingredient to the lake's enjoyment. Access is currently provided by ten public recreational facilities with boat ramps, picnic areas, swimming areas, etc; public lands that are currently undeveloped; private resort areas and clubhouses which provide access to their guests/customers; and private property which has, over the years allowed public access. Figure IV-16 shows all public recreation areas with lake access. In Lake County access is sometimes provided in those areas where streets dead-end into the lake.

**Objectives and Policies**

**1. To manage and preserve fish and wildlife habitat areas, environmentally sensitive areas, and areas of natural scenic beauty around Clear Lake.**

- 1.1 the County should ensure the preservation and enhancement of the diverse fish and wildlife, and aquatic habitats of the lake.
- 1.2 The development or alteration of a Clear Lake shoreline site with identified fish and wildlife habitat (as shown on Figure V-13) should give consideration to the protection of the habitat. Development should be permitted only after a site specific investigation to define the extent and fragility of the habitat, and mitigation measures proposed to any impacts to the habitat stemming from the site's development. (However, this study may be waived if other studies have been conducted in the vicinity revealing no impacts on the area or if it has been otherwise determined that the project would not result in adverse impacts.) To avoid unnecessary costs and duplication the site investigation should meet the requirements of the California Environmental Quality Act.
- 1.3 Opportunities to use natural or managed floodplains should be promoted to provide habitat for waterfowl and other wildlife.
- 1.4 The County should coordinate and support efforts for the public acquisition of environmentally significant lands.
- 1.5 Agricultural lands adjacent to the wetlands of the shoreline above the high water mark, 7.56 Rumsey, should be retained in agricultural operation (see Figure V-13).

**2. To protect and enhance the water quality of Clear Lake.**

- 2.1 The County should ensure that development around Clear Lake and along major tributaries occurs in a manner which minimizes the potential impact of land disturbance and erosion on the water quality of the lake.
- 2.2 The discharge of potential water pollution from septic tank systems, wastewater disposal facilities, agricultural activities, industries using toxic chemicals, junk yards and other potential polluting sources, into Clear Lake should be avoided.
- 2.3 The County should coordinate and support efforts needed to control Clear Lake environmental problems, including nuisance algae and Clear Lake gnat.
- 2.4 Public agencies having management responsibilities for Clear Lake should promote and pursue methods to

enhance fish and wildlife habitats, and water quality in areas within their jurisdiction, and cooperate with other agencies and private property owners to those ends.

3. **To maximize the opportunity for human enjoyment of Clear Lake resources, ensure frequent and easy public access to the lake, and enhance the recreation-based economy of the County.**
  - 3.1 Vacant County-owned lakefront properties not presently developed for recreation purposes should be retained in public ownership and improved as needed to expand opportunities for the general public to have access and use of Clear Lake. Consideration should be given to land swaps with private property owners which would enable consolidation of County properties into more useable parcels or relocate the public uses to more appropriate locations.
  - 3.2 All vacant lands owned by other public agencies should be retained in public ownership and steps taken to improve these sites for public lake access and water-related uses. Any public lands declared surplus by other public agencies should be acquired by the County and retained for public shoreline use.
  - 3.3 Public streets which dead-end at the lake should be used for public access and open space.
  - 3.4 Recreation uses and facilities should be permitted on lakefront lands designated as rural land in the Land Use Plan (Figure V-7). The type and size of these uses and facilities should be determined based upon consideration of topography and geologic factors which determine the extent of buildable land; ability to provide adequate vehicular access; and visual compatibility with the lake and lake setting.
  - 3.5 The County should promote water related land uses and facilities on vacant or redeveloped lakefront lands designated for suburban or urban residential uses. Water related uses and facilities are defined as those whose primary purpose is to provide for public access and use of the lake (e.g., fishing, boating, swimming, water skiing, viewing) or commercial uses which derive major economic benefits from their immediate proximity to the lake.
  - 3.6 Consideration should be given to the location of and types of facilities provided by existing lakefront recreation areas when developing new public access areas, so that a coordinated and integrated Clear Lake recreation network may result.
  - 3.7 The County should require commercial signage which contributes to, rather than distracts from, the scenic value of the area; promotes public safety; and improves the identification of public serving commercial facilities along the lakeshore of Clear Lake.
  - 3.8 Development regulations and review procedures should prevent further blockage of lake views from shoreline roadways and where feasible, restore visual contact with the lake from these roadways.
  - 3.9 The County should encourage every available means for providing public education regarding the value of shoreline preservation and the shoreline as an educational laboratory.
  - 3.10 The County budgeting process should prioritize programs for improvement and maintenance of public lakefront lands and seek new sources of financing to help maximize the recreation, aesthetic, and economic benefits derived from public view, access, and use of the lakefront.
  - 3.11 The County should permit limited alteration of the shoreline to facilitate improved public access and use.

#### **GEOHERMAL RESOURCES**

The energy captured from the earth's heat is a relatively clean, efficient source of fuel. A large portion of Lake County overlies a major geothermal resource area, the Geysers-Calistoga Known Geothermal Resource Area (KGRA). Since 1960 when the first geothermal power plant began operating in Geysers-Calistoga KGRA (Known Geothermal Resources Area), Lake County has experienced increasing demand for its geothermal resources. Currently, the County has one geothermal power plant in operation, one under construction, and at least 4 proposed for construction. This represents a substantial commitment to the development of the County's geothermal resources. Most land in the KGRA is leased for geothermal development. As of September, 1981, 156 geothermal wells had active permits in Lake County from the local Air Pollution Control District.

Geothermal development in the County has generated varying degrees of support and resistance from the public. Support for geothermal development stems from the potential benefits from local geothermal contributions to an improved regional energy supply. Projections for the Geysers-Calistoga KGRA range from an electrical energy capacity as high as 2,000 megawatts (MW) to 2,400 MW by 1990. Increased employment opportunities, diversification of the County's economic base, and an improved tax base are considered the major benefits of local development. Generally, local resistance largely stems from potentially adverse environmental impacts associated with geothermal development activities.

Lake County "Conditions, Procedures, and Performance Standards for Geothermal Regulation" have been in effect since 1972. Use permits required for all geothermal well drilling and site construction contain conditions designed to minimize impacts to each specific site. In 1978, a revision of the County's "Conditions, Procedures, and Performance Standards for Geothermal Regulation" was initiated but not completed. Upon completion, these revised standards should be used for implementation of the General Plan.

The purpose of this geothermal element is to provide a plan of action to guide geothermal development. The provisions contained in this element have been developed to help attain maximum benefits and minimum impacts from the use of the County's geothermal resources. In addition, with an adopted geothermal element and adequate procedures for processing geothermal projects, the Division of Oil and Gas may delegate its authority as lead agency for exploratory well permits to Lake County (Public Resources Code Section 25133). The California Energy Commission may also, upon petition of the County, and demonstration of an equivalent certification process, delegate its authority to the County for siting geothermal power plants over 50 megawatts. However, it should be noted that the geothermal element was not written for the purpose of qualifying the County for these increased geothermal regulatory responsibilities at this time.

TABLE V-13  
CLEAR LAKE IMPLEMENTATION

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
<u>Clear Lake</u>			
1.1	Planning Division, Planning Commission, Board of Supervisors, Department of Fish and Game, Army Corps of Engineers, Lakebed Management	Enact Resource Conservation overlay zones in critical habitat areas and implement buffer, setback development plans or clustering requirements. Continue Lakebed Management permitting procedures for lakeshore improvements. Early consultation and cooperation with Fish and Game, Army Corps of Engineers, and other agencies. Review (and revise if necessary) CEQA procedures.	18 months and then continuously
1.2	Planning Division, Planning Commission, Board of Supervisors	Review (and revise if necessary) CEQA procedures.	18 months and then continuously
1.3	Same as 1.1, plus Flood Control and Water Conservation District	Zoning revisions, implementation of Flood Control overlay designations, and cluster policy. Cooperation with state and federal agencies.	18 months and then continuously
1.4	Same as 1.1, plus Flood Control and Water Conservation District	Self explanatory.	Continuously
1.5	Same as 1.2	Low intensity agricultural zoning.	Upon completion of revised Zoning Ordinance

**TABLE V-13 (Continued)  
CLEAR LAKE IMPLEMENTATION**

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
2.1	Planning Division, Planning Commission, Board of Supervisors, Army Corps of Engineers, Lakebed Management, Public Works Department	Implement setback and buffer requirements, flood control hazard designations, grading, Building and Lakebed Management permits, Resource Conservation overlay zones.	18 months
2.2	Regional Water Quality Control Board, Health Department, Special District, Planning Division, Planning Commission, Board of Supervisors	Expand lakeshore sewer system; deny development requests and building permits based on percolation and drainage considerations; zoning revisions.	Continuously
2.3	Health Department, Mosquito Abatement	Self explanatory.	Continuous
2.4	Same as 1.1	Same as 1.1	Continuous
3.1	Public Works, Planning Division, Planning Commission, Board of Supervisors, Lakebed Management	County should identify and prioritize suitable lakefront properties for improved access and recreational opportunities.	2 years

**TABLE V-13 (Continued)  
CLEAR LAKE IMPLEMENTATION**

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
3.2	Public Works, Planning Commission, Planning Division, Board of Supervisors, Lakebed Management, appropriate state and federal agencies	Self explanatory.	Continuous
3.3	Department of Public Works, Lakebed Management, Planning Division, Planning Commission, Board of Supervisors	Self explanatory.	Continuous
3.4	Public Works, Lakebed Management, Planning Division, Planning Commission, Board of Supervisors	Enact land capacity ordinance, zoning revisions, scenic corridor provisions.	18 months
3.5	Planning Division, Planning Commission, Board of Supervisors	Zoning revision.	18 months
3.6	Lakebed Management, Planning Commission, Board of Supervisors, Planning Division, Public Works	Capital Improvement plans.	Continuous

**TABLE V-13 (Continued)  
CLEAR LAKE IMPLEMENTATION**

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
3.7	Planning Division, Planning Commission, Board of Supervisors	Implement and revise if necessary sign ordinance and zoning, scenic corridor revisions.	18 months
3.8	Planning Division, Planning Commission, Board of Supervisors	Scenic corridor, zoning revisions.	18 months
3.9	Planning Division, Public Works, Lakebed Management, Department of Fish and Game, State Parks Department, Board of Education, etc.	Self Explanatory.	Continuous
3.10	Lakebed Management, County Departments, Planning Commission, Board of Supervisors	Self explanatory.	Continuous
3.11	Lakebed Management, Public Works	Lakebed Management permitting from Capital Improvement Plans.	Continuous

To date, geothermal development in the County has primarily occurred in the Mayacmas Mountains, near the Sonoma County boundary. This area produces almost pure steam which is either dry and super-heated or vapor dominated. Figure V-14 shows the County's proven vapor dominated reservoir. However, this dry steam reservoir is anticipated to extend outward from the proven field (although the actual magnitude of the field is undetermined), and it is expected that further geothermal development will follow. Temperatures of the geothermal resource in this reservoir have been in the range of 350°-475 F. Outside of this steam-bearing zone is a large area extending northeasterly which is more likely to contain liquid dominated resources.

Most of the lands in the southeastern portion of the County which are likely to have potential geothermal resources have been leased to prospective developers. In Lake County, property owners include the federal government, state government and private interests. The Bureau of Land Management reports approximately 7,500 acres under lease in the County. The State Lands Commission has leased approximately, 1,000 acres and issued geothermal prospecting permits for 1,800 acres in Boggs Mountain State Forest. The Commission is currently proposing to lease an additional 1,480 acres, most of which is located in Lake County. Current information is not readily available regarding which private lands are lease.

Electric power generation has been and will continue to be the dominant product of the geothermal resources in Lake County. This is primarily attributed to the high quality of the County's steam resource. There are currently 15 electrical generating power plants in the Geysers-Calistoga KGRA. One of the plants, PG&E's Unit 13, is located in Lake County. The plant produces 135 MW of electricity and utilizes 2,455,000 pounds of steam per hour when operating at full capacity. Another power plant, the Department of Water Resources' Bottle Rock Plant, is under construction near Cobb Valley. Numerous other electrical power generating entities are proposing power plants in Lake County (see Table V-14).

<u>Utility</u>	<u>Net Megawatts</u>	<u>Operation Date</u>	<u>Status</u>
PG&E Unit 13	135	1980	on-line
Department of Water Resources Bottle Rock	55	1984	under construction
PG&E Unit 16	110	1983	AFC*
Occidental #1	80	1984	AFC*
Northern California Power Authority #1	66	1985	AFC*
DWR New Field	55		planned

\* AFC - Application for Certification pending before California Energy Commission.

In addition to generating electricity, geothermal resources can be used directly to provide heat for a variety of agricultural, commercial, and residential applications. While direct heat applications have not been included in any large scale development plans in the County, interest in direct application is growing, largely due to increasing energy costs combined with the development of technologies which make direct use operations more cost effective. If developed, direct use applications could produce important local employment benefits and provide a most efficient use of geothermal energy. Direct use operations showing promise for application in Lake County include the following: space heating and cooling for homes and business; agribusiness operations such as greenhouse operations of vegetables and cut flowers, algae growing, harvesting and processing, mushroom growing, aquaculture (fish farming), livestock and poultry feed production, soil warming and frost protection, refrigeration, hay drying, vegetable and fruit canning and freeze drying; commercial operations such as dehydration, cryogenic, pharmaceutical and specialized food processing; and recreation uses such as hot springs and mineral baths. Geothermal heat can also be used in processing natural resources such as timber drying, ethanol and bio-gas production.

The ability to obtain greater revenues from steam development for power generation than from direct application is a principal factor contributing to the low interest in direct applications. Accessibility problems throughout the geothermal resource area and the County, in general, have also proven to be strong disincentives to industrial operations which could utilize the resource.

The implications of developing the County's geothermal resources will be particularly significant for not only those communities and residents who are located within close proximity to the primary geothermal development area, but also the entire County. Already the communities located in the Cobb Mountain area, including Anderson Springs, Whispering Pines, Cobb, Pine Grove, Hoberg and Loch Lomond, are witnessing a change in the character of their communities as a result of existing geothermal development (see Figure V-15). The cumulative effect of geothermal development potentially could be great. While it is likely that these effects will help to stimulate the local economy, geothermal development may also result in unintended changes to the scenic/recreational character of the area. A variety of environmental and land use implications must be considered when planning for geothermal development. These considerations are addressed in the following Objectives and Policies, and discussed in greater detail in the Geothermal Resource Overview located in the Appendix.

**Objectives and Policies**

1. **To promote and manage geothermal development which will maintain and enhance the County's environment and quality of life and provide an alternative energy supply.**
  - 1.1 The County should promote the development of geothermal resources, provided that such use allows maximum protection to the resource and the environment, protects public health and safety, and is compatible with the current and projected uses of the land.
  - 1.2 The County should encourage compatible, comprehensive, multiuse activities in geothermal production areas.
  - 1.3 The County should encourage the development of all geothermal resources capable of measurably improving the local economic base, consistent with its environmental protection policies.
  - 1.4 The County should determine costs of processing permits, monitoring, and enforcement of geothermal development; and pass these costs on to development companies through an appropriate fee.
2. **To protect Lake County's natural environment and public health and safety through the management and mitigation of environmental impacts associated with geothermal development.**
  - 2.1 Geothermal development should be conditionally permitted in all land uses based upon performance standards which seek to minimize environmental impacts and to ensure compatibility with surrounding land uses.

2.2 The County should review all existing local regulations and standards for geothermal development activities and revise where necessary to insure adequate protection of public health and safety. Performance standards for all phases of geothermal development should address, but not be limited to, the following concerns:

- Land Use - Appropriate mitigation measures are in part determined by the surrounding land use. Consequently, performance standards should consider varying land uses including agricultural, residential, resort, and other uses.
- Natural Habitat/Vegetative Protection - The County should require a comprehensive and well-maintained program of revegetation after grading activities have occurred, as well as after abandonment of any geothermal facilities. The cost of all facets of the revegetation program should be borne by the resource developers.
- Soil and Slope Stability (including subsidence) - Concerns regarding soil erosion and geologic hazards require site specific topographical and geological information and the use of appropriate design features pertaining to grading, cut and fill slopes, compaction, drainage, and other factors.
- Surface and Groundwater Degradation - Adequate buffer zones along streams, spill protection measures, sump construction, drainage systems, water quality monitoring, and other considerations, should be taken into account to protect water resources.
- Seismicity - Appropriate geologic studies and seismic monitoring should be encouraged to further investigate the relationship of geothermal activities to the frequency and intensity of seismic events.
- Air Quality/Noise - The County should promote use of the best available air pollution and noise abatement techniques, as well as encourage the development of new technologies, to further reduce air quality and noise impacts.
- Visual Quality - Geothermal development in visually sensitive areas should be encouraged to apply measures which would reduce the visual impact of the development.
- Cultural and Archaeological Resources - Cultural and archaeological resources should be identified and adequate mitigation measures enacted where appropriate.
- Environmentally Sensitive Areas - The County should assure the preservation and protection of riparian corridors, wetlands and other environmentally sensitive lands (refer to Figure V-4, V-5, and V-6) in areas of geothermal development.
- Road Access/Traffic - The road system serving geothermal development areas should be upgraded and maintained to reduce traffic hazards, improve circulation and other road conditions. There may be specific projects where the cost of necessary road improvements should be passed on to developers as part of the project's mitigation measures.
- Well and Plant Abandonment - Upon completion of geothermal activities, wells shall be abandoned in accordance with local and state regulations.
- Agriculture - Potential expansion of geothermal activities into predominately agricultural areas raises issues pertaining to possible competition for water, subsidence and the impact of geothermal emissions on plant growth. Consequently, additional performance standards and monitoring may be appropriate in agricultural areas.
- Geothermal Waste Disposal - Performance standards should address those measures needed to insure that geothermal wastes are disposed of in a safe and acceptable manner.
- Fire Protection - Wildfire contingency plans should be considered for all geothermal development occurring in a higher extreme wildfire hazard area.
- Electrical Transmission Lines - Electrical transmission corridor routes should be carefully selected, and transmission line corridors which accommodate the anticipated capacity of the Geyser's operations should be established to deliver electricity to major distribution points.
- Public Safety - Evacuation plans accounting for possible emergencies situations with geothermal exploration, development, and operation, for geothermal workers and proximate areas of human habitation should be prepared, implemented, and maintained by the developer in cooperation with public agencies.

**3. To encourage and promote the development of direct use applications.**

- 3.1 The County should promote the utilization of direct heat applications, including space heating and cooling for homes and businesses, sewage and solid waste disposal, and water supply treatment facility.
- 3.2 The County should promote the development of direct use applications through pursuit of government and private grant sources. One possible use of these funds would be for the development of a geothermal direct use demonstration-educational center and office.
- 3.3 The County should encourage direct use applications through appropriate zoning, land use flexibility, and incentives.

TABLE V-15  
GEOHERMAL IMPLEMENTATION

<u>POLICY</u>	<u>IMPLEMENTOR/ ACTIVATOR</u>	<u>ACTION</u>	<u>PHASING/ TIMING</u>
<u>Geothermal Resources</u>			
1.1, 1.2, 1.3	Planning Division, Planning Commission, Board of Supervisors	Revise County Geothermal Performance Standards. Review permitting procedures for each stage of development. Require bonding requirements when necessary to insure adequate site restoration. Maintain up-to-date map of geothermal projects for public information purposes. Zoning revisions to prevent or reduce future land use conflicts on lands surrounding existing geothermal development projects.	1.1 - 1 year
1.4	Planning Division, Planning Commission, Board of Supervisors	Self explanatory	Immediately
2.1, 2.2	Planning Division	Self explanatory	2.1 - Continuous 2.2 - 1 year
3.1	Planning Division, Planning Commission, Board of Supervisors, Special Districts	Grant funding should be sought for feasibility studies and/or demonstration projects. Planning, Public Works and other County staff should provide technical assistance where possible.	Continuous
3.2, 3.3	Planning Division, Public Works, Planning Commission, Board of Supervisors	Self explanatory	Continuous