

**SOLVANG GENERAL PLAN
CONSERVATION AND OPEN SPACE ELEMENT**

**CITY OF SOLVANG
1644 Oak Street
Solvang, California 93463
(805) 688-5575**

**Solvang City Council
Kenneth L. Verkler, Mayor
Allan T. Larsen
June S. Christensen
Fillmore Condit
Elaine W. Campbell**

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1.0 INTRODUCTION

1.1 OVERVIEW

1.1.1 Contents of Element

The Government Code requirements for conservation elements overlaps many of the Government Code requirements for open space elements. For example, considerations regarding open space for the preservation of natural resources and open space used for the managed production of resources encompass the concerns of the conservation element. Therefore, the Conservation and Open Space Element of the Solvang General Plan is a combined element which describes existing conditions and issues related to water resources, agricultural resources, air resources, cultural resources, energy resources, and open space/visual resources. This element also contains goals, objectives, and policies established to ensure that natural resources within Solvang are managed wisely.

Open space issues related to trail-oriented and outdoor recreational uses are addressed in the Parks and Recreation Element prepared as an optional general element pursuant to Government Code Section 65303(a).

1.1.2 Key Issues

Conservation and open space issues in Solvang are many and diverse. Among the key issues is the availability of water resources and the ability of Solvang to meet projected demands for water. Other key issues involve the potential effects of general plan buildout upon natural resources such as prime agricultural soils, biological resources, and air resources as well as cultural/scientific resources. The scenic quality of Solvang's open spaces and visual features is important to Solvang's identity as a tourist destination and needs to be protected from potentially adverse effects of future development.

1.1.3 Overview of Goals, Objectives, and Policies

The overall goals set forth in this element are to protect and conserve the city's natural and cultural resources, and to protect sensitive open space areas and viewsheds. The objectives and policies articulate the city's role and responsibilities involving the management of natural and cultural resources, including open space.

1.2 PURPOSE

This element is mandated by state law to promote the protection, maintenance, and use of natural resources. These resources may include those that are economically productive or have intrinsic ecological/historical/archaeological value. A key purpose of this element is to guide city decisionmaking so as to prevent the wasteful exploitation, destruction, and neglect of natural resources.

1.3 AUTHORIZATION

As stated below, a conservation element is required pursuant to Government Code Section 65302(d):

A conservation element 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. That portion of the conservation element including waters shall be developed in coordination with any countywide water agency and with all district and city agencies which have developed, served, controlled or conserved water for any purpose for the county or city for which the plan is prepared. The conservation element may also cover:

- (1) The reclamation of land and waters.
- (2) Prevention and control of the pollution of streams and other waters.
- (3) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.
- (4) Prevention, control, and correction of the erosion of soils, beaches, and shores.
- (5) Protection of watersheds.
- (6) The location, quantity and quality of the rock, sand and gravel resources.
- (7) Flood control.

Government Code Sections 65302(e) and 65560 through 65567 set forth the requirements for and the intent of an open space element. As stated in Section 65560(b):

"Open space land" is any parcel or area of land or water which is essentially unimproved and devoted to an open space use as defined in this section, and which is designated on a local, regional or state open space plan as any of the following:

(1) Open space for the preservation of natural resources including, but not limited to, areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks or rivers and streams, and watershed lands.

(2) Open space used for the managed production of resources, including but not limited to, forest lands, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; areas required for recharge of groundwater basins; bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.

(3) Open space for outdoor recreation, including but not limited to, areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.

(4) Open space for public health and safety, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, floodplains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs and areas required for the protection and enhancement of air quality.

This combined conservation and open space element fulfills the statutory requirements related to each issue.

2.0 EXISTING CONDITIONS/ISSUE ANALYSIS

2.1 WATER RESOURCES

2.1.1 Watershed and Hydrology

Solvang is located in the heart of the Santa Ynez River watershed. The watershed extends westward to the Pacific Ocean from the Murietta Divide located just east of the Ventura County/Santa Barbara County boundary. The watershed is roughly rectangular in shape, with an east-west length of approximately ninety miles, a north-south width that ranges from eight to twenty miles, and has a total area of approximately 900 square miles.

Watercourses in the Solvang area that are tributaries of the Santa Ynez River are Alisal Creek, Adobe Creek, and Alamo Pintado Creek.

Protection of water quality in the Santa Ynez River watershed is managed by the Central Coastal Regional Water Quality Control Board in cooperation with the State Water Resources Control Board. The use of surface water and groundwater resources is managed by the Santa Barbara County Water Agency (SBCWA). Local water resources in the Solvang area are managed by the Santa Ynez River Water Conservation District, Improvement District No. 1. This district serves an approximately 16-square-mile area of the Santa Ynez Valley encompassing the communities of Solvang, Santa Ynez, and Los Olivos.

2.1.2 Domestic Water Supply and Demand

The city of Solvang lies within Improvement District No. 1 of the Santa Ynez River Water Conservation District and is entitled to share in the district's water supply obtained from Lake Cachuma, upland wells, and the Santa Ynez River underflow. In addition, the city currently has three active wells and one well which has been drilled, however, not yet equipped with a pump or discharge pipeline to the city's water system.

The city's current maximum daily well production plus purchased water is estimated to be approximately 4,529,000 gallons. The city has three water

storage facilities (Alisal Road Reservoir, Alisal Ranch Reservoir, and Chalk Hill Reservoir) which have a combined storage capacity of approximately 1,260,000 gallons.

The city estimates that buildout of the general plan could ultimately result in a maximum peak daily demand of approximately 4,870,000 gallons, which is about 341,000 gallons greater than current supply capabilities. The city will therefore need to develop additional water supply production capabilities (eg., the development of an additional well) and additional storage capacity.

The Santa Ynez River Water Conservation District does not foresee any significant adverse impacts upon its ability to meet the demand for water associated with future growth in Solvang. Similarly, the Santa Barbara County Water Agency expects future water supplies to be more than adequate to accommodate growth in the city of Solvang. Nevertheless, the growth likely to occur in Solvang will place additional demands upon regional water supplies.

It is important to consider Solvang's need for water within the context of regional supply and demand since regional issues have a direct bearing on the city's ability to ensure adequate water supplies. The entire water supply for Santa Barbara County comes from its local groundwater basins and surface reservoirs; none is imported from outside of the county. The primary source of Solvang's water supply is the Santa Ynez Uplands groundwater basin, which provides approximately 86 percent of the city's water. The remaining 14 percent is drawn from surface water at the Cachuma Reservoir (through purchases from the Santa Ynez River Water Conservation District, Improvement District No. 1).¹ The Santa Ynez Uplands groundwater basin is an area of unconsolidated deposits within an approximate 138-acre square mile area north of the Santa Ynez River. The estimated working storage capacity of this basin is approximately 800,000 acre-feet. It is estimated that the present safe yield for extractions of this area is approximately 28,000 acre-feet.² ("Safe yield for extractions" is defined

1 Department of Water Resources, Southern District in Cooperation with Santa Barbara County Flood Control and Water Conservation District, Santa Barbara County State Water Project Alternatives, April 1985, p. 143.

2 Ibid., p. 29.

as the quantity of water that may be extracted safely from the groundwater basin over a long period of time without causing a condition of overdraft). The Cachuma, Gibraltar, and Jameson Lake reservoirs currently have a total capacity of approximately 219,750 acre-feet. They have a total average annual yield of approximately 34,300 acre-feet.

The surface water supplies in these reservoirs are considered to be of satisfactory mineral quality containing slightly more than 500 milligrams per litre of total dissolved solids. Similarly, the Santa Ynez Uplands groundwater basin is considered to be of relatively high quality with total dissolved solids ranging between 300 and 1,300 milligrams per litre.¹

The current annual demand for water in Santa Barbara County is approximately 284,200 acre-feet, of which 213,100 acre-feet (or 75 percent) is for agricultural uses while about 71,100 acre-feet (or 25 percent) is for urban uses. Of the Upper Santa Ynez Valley's annual water demand of approximately 34,200 acre-feet, nearly 89 percent is for agriculture while the remaining 11 percent is for urban uses. The Upper Santa Ynez Valley's annual demand for water currently exceeds dependable supplies by approximately 2,900 acre-feet. As with the rest of the county, the difference between demand and dependable supply is being met by long-term overdraft of the groundwater basins and by the use of excess water accumulated in surface reservoirs during wet years.²

Over the long-term, the total annual demand for water in the Upper Santa Ynez Valley is projected to increase to about 40,300 acre-feet in the year 2010 without the implementation of water conservation measures. With conservation measures, the area's total annual demand is projected to be about 33,700 acre-feet (year 2010), which is slightly below current demand levels. However, this demand is expected to exceed dependable water supplies by approximately 3,700 acre-feet even with the implementation of conservation measures. This difference between annual water demand and supply can be reduced to approximately 300 acre-feet (year 2010) with the provision of supplemental water supplies through the development of local water projects and/or the delivery of State Water Project (SWP) supplies.

1 Ibid., p. 33.

2 Ibid., p. 10

To meet future regional demands for water, the SBCWA has considered several alternatives for developing additional water resources. These alternatives include:

- Importation of state project water via San Luis Obispo County (Coastal Aqueduct);
- Importation of state project water via Ventura County (to South Coast area);
- Increased conservation of surface water by construction of new dams, reservoirs and spreading grounds;
- Desalination of seawater, oil field brines, wastewater and agricultural tailwater;
- Reclamation and re-use of wastewater;
- Weather modification through cloud seeding;
- Conjunctive use of surface and groundwater supplies;
- Watershed management;
- Construction of infiltration tunnels within the Santa Ynez Mountains;
- Mining of groundwater; and
- Increased consumer conservation.

These alternatives could be combined in a number of ways to augment regional water supplies. Their overall viability must be considered in terms of their yield, cost, flexibility, reliability, potential environmental impacts, water quality effects, and general financial feasibility.

To meet the projected water demand in the upper Santa Ynez Valley area, the most promising alternatives for providing supplemental water supplies are as follows:¹

- Cachuma Reservoir plus conjunctive use operations²

¹ Ibid., p. 67.

² "Conjunctive use" involves the operation of a groundwater basin in coordination with a surface water storage and conveyance system. The purpose is to replenish the basin during years of above-average water supply (eg., years of unusually high precipitation) to provide storage that can be withdrawn during drier years when surface water supplies are below normal.

- . Enlargement of Cachuma Reservoir with and without conjunctive use operations
- . New Gibraltar Reservoir with and without conjunctive use operations
- . State Water Project

Alternatives related to enlarging Cachuma Reservoir involve the raising of Bradbury Dam and are discussed in Section 2.1.3 of this element. The new Gibraltar Reservoir would be created by construction of a dam approximately 0.8 mile downstream from the existing Gibraltar Dam. The existing dam site was not selected for enlargement because of the unfavorable geology and topography of the area for a higher structure at the existing site. The proposed new reservoir would have a surface area of 2,300 acres and a gross storage capacity of 175,000 acre-feet. It would have storage space for about 70 years' accumulation of silt before planned storage capacity would be affected, thereby solving the severe siltation problem of the existing Gibraltar Reservoir. (The existing Gibraltar Reservoir has a storage capacity of 9,000 acre-feet.) The proposed new dam and reservoir, under a safe yield mode, would add 8,335 acre-feet per year to the annual yield of the present reservoir-tunnel-groundwater system.

The State Water Project (SWP) would involve delivery of an entitlement of 2,578 acre-feet into the Upper Santa Ynez Valley. This would require building a pipeline from the Santa Maria area to a turnout near Highway 154 at Santa Ynez, in addition to completion of the California Aqueduct. It would not be economically feasible to import SWP water to Upper Santa Ynez without the participation of the South Coast area, which includes the communities of Santa Barbara, Goleta, Montecito, and Carpinteria.

2.1.3 Water Rights/Bradbury Dam Issues

The city of Solvang currently has an Appropriative Permit which entitles the city to draw approximately 3,600 acre-feet annually from the Santa Ynez River underflow. However, the ultimate amount that will be licensed to the city is uncertain. The city's entitlement to this water basin could be reduced to approximately 2,700 to 2,800 acre-feet annually.

Underground water storage in the Santa Ynez River Basin is managed pursuant to the State Water Resources Control Board's Water Rights Decision No. 73-37 (WR 73-37). This decision imposes a condition on the Bureau of Reclamation's Lake Cachuma Permit to the benefit of all the water users downstream from Bradbury Dam, including the city of Solvang. Twenty-one wells located on the river between the Dam and the Lompoc Narrows are monitored on a monthly basis to determine water levels in relation to a full datum point (predetermined groundwater elevation). When the dewatered storage (amount of storage capacity between full datum point and groundwater levels) reaches a trigger point of 10,000 acre-feet, the Santa Ynez River Water Conservation District has a right to request releases of above Narrows Credit Water, if any, stored in Lake Cachuma. Releases occur primarily during the summer and fall months. As a result of order WR 73-37, the safe yield for the Santa Ynez Basin is a direct function of demand on the basin, rather than being a maximum fixed yield as determined by net natural recharge.

Since Solvang's groundwater supply is supplemented only by water from the Cachuma Reservoir, considerations regarding various measures to increase the reservoir's yield are important to the city. Key aspects of four alternative programs involving the reservoir are discussed below.

Conjunctive Use with Existing Cachuma Reservoir

The implementation of a conjunctive use program without enlarging the reservoir's existing capacity would involve the construction of 22 new production wells. This alternative is projected to increase the reservoir's annual yield by approximately 3,500 acre-feet and is estimated to cost approximately \$6.9 million (1984 dollars).¹

Cachuma Reservoir Enlargement (27 feet)

This option would add 27 feet to the height of Bradbury Dam, increasing the storage capacity of Cachuma Reservoir to 300,000 acre-feet. The

¹ Ibid., p. 71.

increased capacity would add 7,770 acre-feet to the annual yield from Cachuma Reservoir. The dam enlargement, which may require some lowering of the water surface, but not a major dewatering of the reservoir, could cost \$51.7 million. When combined with a conjunctive use program, this alternative would result in an increased annual yield of about 13,520 acre-feet and is estimated to cost approximately \$60.8 million. The added yield would be shared by the South Coast and upper Santa Ynez and possibly the lower Santa Ynez areas.¹

Cachuma Reservoir Enlargement (33 feet)

This option would add 33 feet to the height of Bradbury Dam, increasing the storage capacity of Cachuma Reservoir to 326,500 acre-feet. The increased capacity would add 9,270 acre-feet to the annual yield from Cachuma Reservoir. The dam enlargement, which may require some lowering of the water surface, but not a major dewatering of the reservoir, would cost \$61.1 million. When combined with a conjunctive use program, this alternative would increase the reservoir's annual yield by about 15,013 acre-feet and is estimated to cost approximately \$71.0 million. The added yield would be shared by the South Coast and upper Santa Ynez and possibly the lower Santa Ynez areas.²

Cachuma Reservoir Enlargement (42 feet)

This option would add 42 feet to the height of Bradbury Dam, thus increasing the storage capacity of the reservoir to 364,500 acre-feet. This would add 10,590 acre-feet to the annual yield from Cachuma Reservoir. The enlargement, which may require some lowering of the water surface, but not a major dewatering of the reservoir, would cost \$80 million. When combined with a conjunctive use program, this alternative would result in an increased annual yield of about 17,490 acre-feet and is estimated to cost approximately \$90.0 million. The added yield would be shared by the South Coast and upper Santa Ynez and possibly the lower Santa Ynez areas.³

1 Ibid., pp. 71 and 88.

2 Ibid., p. 71.

2 Ibid., pp. 71 and 88.

2.1.4 Wastewater Recycling

The California Department of Water Resources notes that reclaimed water is generally the treated effluent from domestic waste water treatment plants that is utilized for a designated beneficial use. In each case, it must meet standards of the California Department of Health Services and the discharge requirements of the California Regional Water Quality Control Board (CRWQCB) for the specified use. The quality of the effluent, legal constraints on its use, environmental considerations, cost of providing adequate treatment, and public acceptance are other factors that have a bearing on the extent reclaimed water is utilized. The treatments that would usually be required to meet standards of the Department of Health Services and requirements of the CRWQCB range from primary treatment for irrigation of pasture, fodder, and seed crops; through secondary treatment for landscape and golf course irrigation; to advanced secondary treatment for the irrigation of food crops. Each step to upgrade the quality of the effluent becomes increasingly costly.

When reclaimed water replaces potable water for such uses as landscape or golf course irrigation, there is a benefit in that about 70 percent of the amount of potable water replaced becomes available for higher uses. (More reclaimed water must be applied to leach salts from the soil; therefore, there is not a one for one benefit.)

Reclaimed water used directly accounts for a small portion of the water supply in Santa Barbara County. Currently, ten plants treat and reuse 3,810 acre-feet of effluent per year for in-plant uses and pasture or fodder irrigation.

In addition to the direct beneficial use of treated effluent, there is the substantial incidental benefit of recharge to the groundwater basin when wastewater discharged to oxidation ponds infiltrates to the groundwater. Thus, most of the effluent from treatment plants in Cuyama, Santa Maria, San Antonio, and Santa Ynez subareas returns to replenish the groundwater reservoir and is available for reuse.¹

¹ Ibid., p. 31.

As noted previously in Section 2.1.2, the reclamation and re-use of wastewater is a consideration in the search for ways to meet future demands for water resources. Despite the political, economic, and legal obstacles to wastewater recycling, it is an important and technologically feasible method to ensure that water resources are used wisely.

Wastewater is currently being recycled in various areas of the nation for uses related to industry, recreation, groundwater recharge, and agriculture. In the Solvang area, approximately 275 of the 460 acre-feet of wastewater produced annually is currently reclaimed for irrigation and groundwater recharge purposes.¹ Future cooperative efforts between the city, the SBCWA, the Santa Ynez River Water Conservation District, and landowners may be one way to investigate and exploit further opportunities for using wastewater.

2.2 MINERAL RESOURCES

2.2.1 Sand and Gravel

Extracted sand and gravel resources are primary construction materials used in nearly all forms of urban development, from road construction to building construction. Thus, the use of sand and gravel is directly related to urban growth rates.

A major share of the cost associated with sand and gravel usage involves transportation costs. As a result, the more economically viable deposits of sand and gravel are often located in areas where pressures for urban development are greatest. It is therefore very important that land use development is not allowed to preclude the use of such resources.

The California Division of Mines and Geology (CDMG) is currently conducting a study of the Santa Ynez Valley area to identify areas where the potential for economically viable mineral resources is the greatest. The preliminary findings of the CDMG study indicate that the area of greatest

¹ Ibid., p. 31.

potential in Solvang is along the Santa Ynez River. This area includes the undeveloped portion of the city located south of Fjord Drive and where Alisal Road crosses the river. The actual potential for exploiting mineral resources in this area remains to be determined through the CDMG study. Nevertheless, it is important to note that sand and gravel extraction is occurring just west of the city along the Santa Ynez River at the Buellflat Rock and Granite Rock Company gravel pits.

2.2.2 Oil and Gas

There are no oil and gas fields identified within or near the city of Solvang. The nearest oil extraction occurs at the Zaca Oil Field located approximately eight miles to the north of the city. Oil is also extracted at the Barham Ranch Oil Field located approximately eight and one-half miles to the northwest of Solvang.

2.2.3 Other Resources

The only other mineral resources identified in the Solvang area are diatomite deposits found in several locations within or near the city. Also known as diatomaceous earth, such deposits consist of the remains of microscopic plants of marine origin known as diatoms. Diatomite deposits are loosely packed to form a light, highly porous, and permeable rock. The primary uses of diatomite are filtering media, insulation material, fine abrasives, and absorbents. Diatomite deposits are located northwest of Solvang's city limits in the Chalk Hill area, in Solvang's Alisal Heights and Mission Oaks neighborhoods, and just east of the city in the vicinity of Highway 246 and Alamo Pintado Creek. These deposits are "...composed largely of impure, coarsely stratified and massive diatomite, and (are) therefore of little or no commercial value."¹ Thus, there are no diatomite mining activities currently underway in the Solvang area.

¹ California Division of Mines and Geology, Geology of Southwestern Santa Barbara County (by T.W. Dibblee, Jr.), June 1950, p. 77.

2.3 AGRICULTURAL RESOURCES

2.3.1 Agricultural Soils

Generalized soil unit maps for the Solvang area have been prepared as part of the USDA Soil Conservation Service (SCS) comprehensive mapping program. The SCS mapping program rates the agricultural suitability of soils in terms of both the Land Use Capability Classification System and the Storie Index.

The Land Use Capability Classification System shows, in a general way, the suitability of soils for most kinds of field crops according to their limitations, risk of damage when used, and the way they respond to treatment. As shown below, capability groupings range from Class I (few limitations that restrict their use for agriculture) to Class VIII (soils having limitations that preclude their use for commercial production of crops).

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices, or both.

Class III soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife.

Class VI soils have severe limitations that make them generally unsuited to cultivation and that limit their use largely to pasture or range, woodland, or wildlife.

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife.

Class VIII soils and landforms have limitations that preclude their use for commercial production of crops and restrict their use to recreation, wildlife, or water supply, or to aesthetic purposes.

Another method of classifying agricultural soils is the Storie Index, which expresses numerically the suitability of soils for general intensive farming. The index rating is based on four factors: 1) the characteristics of the soil profile and soil depth, 2) the texture of the surface soil, 3) the dominant slope of the soil, and 4) an X factor based on drainage, salinity, alkalinity, general nutrient level of the soil, and erosion. Based on these four factors, agricultural soil suitability is given an index rating between 1-100 and put into one of the following six grades.

	<u>Index Rating</u>
Grade 1	80 to 100
Grade 2	60 to 79
Grade 3	40 to 59
Grade 4	20 to 39
Grade 5	10 to 19
Grade 6	less than 10

Soils in Grade 1 are considered excellent for general intensive farming. Grade 2 soils are good to well suited for general farming. Grade 3 soils are fairly well suited, Grade 4 soils are poorly suited, and Grade 5 soils are very poorly suited for general intensive farming. Grade 6 areas are not suitable for farming.

Based upon the Land Use Capability Classification System and the Storie Index, a definition of prime agricultural land can be found in the California Land Conservation Act, also known as the Williamson Act. As defined, prime agricultural soils are classified as soils which have capability groupings for Class I or II, and/or soils which have Storie Index ratings of 80 to 100 (Grade 1).

As shown on Table 1, nine basic soil types found within the Solvang study area are considered as prime agricultural soils. As shown on Exhibit 1, these soils are located generally along the Santa Ynez River, Adobe Creek, Alamo Pintado Creek, Alisal Creek, and Quiota Creek.

2.3.2 Agricultural Preserves

The following describes the purpose of the California Land Conservation Act (Williamson Act), methods for terminating agricultural preserves, and the status of the study area's agricultural preserve contracts.

THE WILLIAMSON ACT

The California Land Conservation Act, also known as the Williamson Act, was adopted initially by the State of California in 1965.¹ The Williamson Act was established with the basic intent of encouraging preservation of the state's agricultural lands.

Table 1
PRIME AGRICULTURAL SOILS

Soil Type	Capability ² Unit	Storie Unit
Agueda silty clay loam	I	90
Ballard fine sandy loam	I	80
Botella clay loam	I	73
Elder loam	I	100
Salinas silty clay loam	I	86
Salinas loam	I	90
Sorrento loam	I	100
Mocho fine sandy loam	I	100
Mocho loam	I	100
Ballard gravelly fine sandy loam	II	58
Cropley silty clay	II	67

To implement the objectives of the Act, a land contract procedure was established whereby local governments may stabilize taxes on certain qualifying lands in return for the owner's guarantee to keep the lands in agricultural preserve status for a ten-year period of time. When a landowner enters a land conservation contract under the Williamson Act, the compensation received for committing his property to agricultural uses is a reduction in property taxes.

Agricultural preserve contracts are made for a period of ten years duration. Each year, on the anniversary date of the contract, the contract is renewed automatically unless a notice of non-renewal is filed. In this way, each agricultural preserve contract at any given date is always operable at least nine years into the future.

1 California Government Code, Title 5, Division 1, Chapter 7, as amended.

2 It should be noted that these land use capability classifications apply only when these soils are irrigated. None of these classifications would be I or II if the given soil type is non-irrigated.

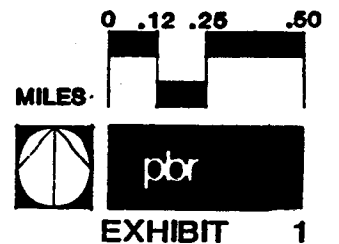


SOURCE: U.S. DEPARTMENT OF
 AGRICULTURAL SOIL SURVEY OF
 NORTHERN SANTA BARBARA AREA

Prime Agricultural Soils



SOLVANG GENERAL PLAN
 CITY OF SOLVANG





Although there are no agricultural preserves established within Solvang pursuant to the Williamson Act, the land use element of the Solvang General Plan designates 101 acres for continued or future agricultural use.

TERMINATION OF AGRICULTURAL PRESERVES AND LAND CONSERVATION CONTRACTS IN SANTA BARBARA COUNTY

Agricultural preserves located in unincorporated areas in the vicinity of Solvang are currently the responsibility of the county of Santa Barbara. Uniform Rule No. 7 adopted by the county of Santa Barbara in 1971 and amended in 1984, establishes standards for the withdrawal of agricultural preserve contracts and the termination of land conservation contracts. The following is a summary of processes by which such actions may occur.

Nonrenewal. Either party to the contract, ie., a landowner or the county, may issue a "Notice of Nonrenewal" to the other party. Pertinent features of the non-renewal mechanism include the following:

- . Either the landowner or the governing jurisdiction may decide not to renew the contract;
- . Written notice of non-renewal is required in advance of the annual renewal date;
- . The property remains in agricultural preserve status for the remainder of its term (nine years); and
- . Once a notice of non-renewal is filed, the assessed value of the affected land is gradually adjusted over the remaining term of the contract to approach the unrestricted value.

Cancellation - Petition by Owner. A landowner may petition the Board of Supervisors for cancellation of the contract if circumstances warrant immediate action on the contract. Prior to granting final approval to such cancellation, the Board of Supervisors is required to conduct public hearings after proper review and comment is provided by the county Planning Commission, the Agricultural Preserve Advisory Committee, and the county Tax Assessor. Other requirements involving the payment of fees, and the conformance of remaining land with the criteria for land eligible for preserve status, must be met prior to cancellation of a contract.

Cancellation - Annexation by City. Upon the annexation by any city of any land under an agricultural preserve or land conservation contract, the city shall succeed all rights, duties, and powers of the county if the subject land was within one mile of the city at the time the contract was initially executed, the city protested the contract pursuant to Section 41253.5 of the Government Code, and the city stated its intention not to succeed to the contract in its resolution of intention to annex.

Eminent Domain or Other Acquisition. Upon the termination of an action in eminent domain for the condemnation of the fee title, or of an acquisition in lieu of eminent domain, for a public improvement by a public agency, for land subject to contract, the contract shall be null and void for all land actually taken or acquired, as of the date the action was filed. If, in either such action, only part of the land under contract is acquired, and the remaining land is not able to meet county preserve criteria, a notice of non-renewal shall be filed immediately by the county against such remaining land.

Successors in Interest. When title to land subject to contract passes to successors, and in so doing creates circumstances whereby the land, or the remaining land subject to contract no longer meets county preserve criteria, a notice of nonrenewal shall be filed immediately by the county against such unqualified land.

2.4 AIR RESOURCES

2.4.1 Air Pollutants: Types, Sources, Effects, and Standards

Air pollution is generally defined as the contamination of the outdoor atmosphere resulting from human activities. In its so-called pure state, air is a gaseous mixture of nitrogen (78 percent), oxygen (21 percent), carbon dioxide (0.03 percent), inert gases such as argon (less than one percent) and traces of water vapor.

Air contaminants may be associated with natural occurrences such as volcanic eruptions, forest fires, etc. The air pollutants associated with human activities are generally classified as primary and secondary contam-

inants. Primary contaminants are those emitted directly by a source into the atmosphere. Secondary contaminants are formed in the atmosphere by chemical reactions of primary contaminants. The key primary and secondary air pollutants of concern are described below.

Ozone (O_3) is a colorless gas with a sharp odor. It is formed in the atmosphere by a complex series of sunlight-induced chemical reactions involving oxides of nitrogen and hydrocarbons. Peak concentrations generally occur during the middle of the day since the reaction rate is directly related to the intensity of sunlight.

Carbon monoxide (CO) is a colorless, odorless gas formed by the incomplete combustion of fossil fuels. Approximately 92 percent of CO in the atmosphere is emitted by mobile sources such as trucks and automobiles. Thus, CO concentrations are generally highest in or near areas of high traffic volumes.

Oxides of nitrogen (NO_x) are composed of nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless gas emitted from mobile sources and stationary sources. NO_2 is a brownish gas formed in the atmosphere by the oxidation of NO emissions.

Sulfur oxides (SO_x) are byproducts of fossil fuel combustion. The principal oxide of sulfur produced in combustion is sulfur dioxide (SO_2), a colorless gas with a pungent odor. Stationary sources such as power plants and petroleum refineries are primary sources of SO_2 emissions. SO_2 readily combines with oxygen to form sulfur trioxide (SO_3), which reacts quickly with water vapor to form sulfuric acid.

Total suspended particulate (TSP) is a complex mixture of materials suspended in the atmosphere such as soil particles, sea salt, sulfates, nitrates, lead, and a variety of organic compounds.

Table 2 summarizes the principal sources and effects of air pollutants. Table 3 summarizes ambient air quality standards established by both the state of California and the federal government. These standards define the maximum air pollutant levels believed to be acceptable for the general public and that are not expected to result in long-term adverse effects on health, aesthetic values, or property.

TABLE 2

AIR POLLUTANT SOURCES AND EFFECTS

POLLUTANT & SOURCES	GENERAL INFORMATION ON POLLUTANT EFFECTS
<p>NO₂ (<u>Nitrogen Dioxide</u>) Mobile sources, combustion of fossil fuels.</p>	<p>Produces distinctive brownish atmospheric discoloration. Causes eye, nose and throat irritation in humans and affects the lungs, causing increased susceptibility to respiratory infection. Can cause suppression of plant growth.</p>
<p>CO (<u>Carbon Monoxide</u>) Mobile sources, incineration petroleum production, power generation plants.</p>	<p>Harmful effects are headaches, slowed reactions and fatigue. Can cause interference with oxygen transport in blood.</p>
<p>SO₂ (<u>Sulfur Dioxide</u>) Mobile sources, petroleum production. Burning of fossil fuels with high sulfur content.</p>	<p>Forms sulfuric acid aerosols which corrode building materials, boat and car finishes, etc. These acid aerosols penetrate the lungs and damage tissues. Rapidly converts to SO₄ (particulate aerosols) in the atmosphere.</p>
<p>O₃ (<u>Ozone</u>) Secondary photochemical product from HC + NO_x reacting in the presence of sunlight and critical temperatures.</p>	<p>From mild eye irritation to possible impairment of lung function. Aggravation of respiratory and cardiac diseases, pulmonary dysfunction. Damage to vegetation: from ornamental plants to commercial food crops.</p>
<p>TSP (<u>Particulate Matter</u>) Mineral Extraction & production, demolition/construction, agricultural practices, natural sources(wind blown), fire, paved and unpaved roads.</p>	<p>Reduces visibility, and if in small enough particles, can be carried to the lungs. Many of the suspended particulates are toxic and are deposited on the food stuffs of animals and people.</p>
<p>SO₄ (<u>Sulfates</u>) Due to conversion of SO₂ from stationary and mobile sources.</p>	<p>Aggravation of respiratory and pulmonary disease. Produces significant reduction in visibility. Damage to vegetation.</p>

SOURCE: SANTA BARBARA COUNTY AIR POLLUTION CONTROL DISTRICT, 1985 ANNUAL REPORT

TABLE 3

AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS(1)		NATIONAL STANDARDS(2)		
		CONCENTRATION(3)	METHOD(4)	PRIMARY(3,5)	SECONDARY(3,6)	METHOD(7)
Oxidant	1 Hour	0.10 ppm (200 ug/m3)	Ultraviolet Photometry	-	-	-
Ozone	1 Hour	-	-	0.12 ppm (235 ug/m3)	Same as Primary Standard	Ethylene Chemiluminescence
Carbon Monoxide	8 Hour	9.5 ppm (10 mg/m3)	Non-Dispersive Infrared Spectroscopy (NDIR)	10 mg/m3 (9 ppm)	Same as Primary Standard	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 Hour	20 ppm (23 mg/m3)		40 ug/m3 (35 ppm)		
Nitrogen Dioxide	Annual Average	-	Gas Phase Chemiluminescence	100 ug/m3 (0.05 ppm)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 ug/m3)		-		
Sulfur Dioxide	Annual Average	-	Ultraviolet Fluorescence	80 ug/m3 (0.03 ppm)	1300 ug/m3 (0.5 ppm)	Paraosanoline
	24 Hour	0.05 ppm (131 ug/m3)		365 ug/m3 (0.14 ppm)		
	3 Hour	-				
	1 Hour	0.25 ppm (655 ug/m3)				
Suspended Particulate Matter(PM10)	Annual Geometric Mean	30 ug/m3	Size Selective Inlet Hi-Volume Sampler	-	-	
	24 Hour	50 ug/m3		-	-	
Suspended Particulate Matter	Annual Geometric Mean	-	-	75 ug/m3	60 ug/m3	High Volume Sampling
	24 Hour	-		260 ug/m3	150 ug/m3	
Sulfates	24 Hour	25 ug/m3	Turbidimetric Barium Sulfate	-	-	-
Lead	30 Day Average	1.5 ug/m3	Atomic Absorption	-	-	-
	Calendar Quarter	-	-	1.5 ug/m3	Same as Primary Standard	Atomic Absorption
Hydrogen Sulfide	1 Hour	0.03 ppm (42 ug/m3)	Cadmium Hydroxide STRactan	-	-	-
Vinyl Chloride (Chloroethelene)	24 Hour	0.010 ppm (26 ug/m3)	Tedlar Bag Collection, Gas Chromotography	-	-	-
Visibility Reducing Particles	1 Observation	In Sufficient Amount to Reduce The Prevalling Visibility(8) to Less Than 10 Miles When the Relative Humidity is Less Than 70%.		-	-	-
APPLICABLE ONLY IN THE LAKE TAHOE AIR BASIN:						
Carbon Monoxide	8 Hour	6 ppm (7 mg/m3)	NDIR	-	-	-
Visibility Reducing Particles	1 Observation	In Sufficient Amount to Reduce The Prevalling Visibility(8) to Less Than 10 Miles When the Relative Humidity is Less Than 70%.		-	-	-

SOURCE: SANTA BARBARA COUNTY AIR POLLUTION CONTROL DISTRICT, 1985 ANNUAL REPORT

2.4.2 Existing Air Quality Conditions

Ambient air quality in Santa Barbara County is measured through a system of monitoring stations established at various locations throughout the county. These stations are operated by the Santa Barbara County Air Pollution Control District (SBAPCD), the California Air Resources Board (CARB), Vandenberg Air Force Base, and the privately funded Environmental Research Foundation. While most of the monitoring stations measure a full range of air pollutant types, others measure only one or two types of air pollutants.

There are no monitoring stations located in the immediate vicinity of Solvang. The nearest station is located at the Santa Ynez Airport, however the only air pollutant measured at this station is ozone. Therefore, the monitoring station considered most representative of Solvang's ambient air quality is maintained by Vandenberg Air Force Base in Lompoc. Annual air quality data for 1984 through 1986 for this station are provided in Table 4.

Table 4
 AMBIENT AIR QUALITY¹
 Number of Days State/Federal
 Standard Exceeded; [Maximum Concentration*]

Pollutant	Year	Locally		Countywide	
		State/Federal Standard Exceeded	[Maximum Concentration*]	State/Federal Standard Exceeded	[Maximum Concentration*]
Ozone	1984	0/0	[.09]	21/4	[.16]
	1985	0/0	[.11]	14/3	[.23]
	1986	2/1	[.10]	20/1	[.16]
Sulfur dioxide	1984	0/0	[.01]	0/0	[.08]
	1985	0/0	[.02]	0/0	[.08]
	1986	0/0	[.02]	0/0	[.03]

Pollutant	Year	Locally		Countywide	
		State/Federal Standard Exceeded	[Maximum Concentration**]	State/Federal Standard Exceeded	[Maximum Concentration**]
Particulates	1984	5.5/0	[128]	41.7/1.2	[345]
	1985	ND/0	[192]	0/0	[93]
	1986	0/0	[.91]	32.1/1.3	[512]
Sulfates	1984	0/NA	[16.2]	1.2/NA	[27.7]
	1985	0/NA	[16]	0/NA	[15.5]
	1986	0/NA	[17.6]	0/NA	[21.4]

* Parts per million

** Micrograms per cubic meter

¹ Based upon air quality data for 1984 through 1986 published by the California Air Resources Board and the SBAPCD.

As shown on Table 4, existing air quality in the Solvang area is generally good. However, it should be noted that the SBAPCD designated the northern part of the county (including the Solvang area) as a non-attainment area for ozone precursors (oxides of nitrogen and reactive hydrocarbons). As shown on Table 4, state and federal standards for ozone were exceeded both locally and countywide. However, since the monitoring station for Solvang is more than forty miles from the city, representative data for Solvang is not available. Development of a monitoring station in the Solvang area would yield more accurate data on actual air quality in and around the city.

2.4.3 General Plan Buildout Effects

Pursuant to the Land Use Element, the land use mix established for this general plan program is summarized in Table 5.

Table 5
LAND USE MIX AT GENERAL PLAN BUILDOUT

<u>Land Use</u>	<u>Acres</u>
Estate Residential	77.5
Low Density Residential	184.4
Low/Medium Density Residential	269.7
Medium Density Residential	289.3
High Density Residential	80.7
Retail Commercial	16.4
General Commercial	3.5
Tourist Commercial	63.5
Light Industry	4.5
Public Institutional	43.8
Professional/Office	14.2
Open Space/Recreation	223.6
Agriculture	101.0
Parking	2.5
Resort Facility	31.8

Table 6 provides a summary comparison of total annual emissions for the city's existing land use mix versus total annual emissions for the city's future land use mix. As shown, buildout under the adopted land use plan would lead to a substantial increase in total annual emissions.

Table 6
EXISTING VERSUS FUTURE EMISSIONS¹
(Tons/Year)

<u>Pollutant</u>	<u>Stationary Sources</u>		<u>Mobile Sources</u>		<u>Total Emissions</u>	
	<u>Existing</u>	<u>Future</u>	<u>Existing</u>	<u>Future</u>	<u>Existing</u>	<u>Future</u>
Carbon monoxide	3.96	8.13	1441	5446	144.96	5454.13
Oxides of nitrogen	21.62	43.77	73	278	94.62	321.77
Hydrocarbons	0.46	.97	181	748	181.46	748.97
Particulates	0.55	1.12	-	-	0.55	1.12
Oxides of sulfur	1.63	3.30	-	-	1.63	3.30

The county of Santa Barbara is an area which exceeds ambient air quality standards for ozone and total suspended particulates. Pursuant to the Federal Clean Air Act Amendments of 1977, the county of Santa Barbara has prepared an "Air Quality Attainment Plan" (AQAP) which outlines a program designed to achieve healthful levels of air quality in the region. The AQAP takes into account the additional sources of pollution likely to accompany anticipated growth and development in the county.

It is therefore important to ensure that the city of Solvang's projected growth does not contribute substantially to adverse long-term effects upon air quality associated with cumulative growth in the county. It is also important to ensure that Solvang's local air quality environment retains its good quality.

Given the fact that automobile emissions represent the predominant source of emissions in the region, land use policies which provide for reduced

¹ Based upon South Coast Air Quality Management energy consumption factors and the California Air Resources Board's URBEMIS #1 Air Quality computer model (which does not model particulate and SOx emissions).

automobile use are essential for the region's ability to attain and maintain healthful air quality levels. Such measures are described at length in the Air Quality Supplement to the Land Use Element of the Santa Barbara County Comprehensive Plan (adopted March 9, 1981). Key measures are outlined below.

1. Encourage the development of future housing at higher densities since higher density residential developments generally exhibit lower trip generation rates compared to single-family tracts.
2. Encourage the mixture of residential and commercial uses in and around commercial areas.
3. Encourage the development of neighborhood commercial establishments to serve the needs of nearby residents.
4. Encourage development which maintains a balanced relationship between jobs and housing to minimize the extent of commuter travel.
5. Establish a network of bicycle trails to facilitate non-automobile transportation.
6. Encourage new developments to provide convenient access from bikeways and public transit stops.
7. Restrict the development of auto-dependent facilities such as drive-through restaurants.
8. Integrate long-range planning and project approval procedures with air quality planning requirements.

Implementing measures such as those listed above are key ways that the city of Solvang could contribute to minimizing the potential adverse air quality effects associated with future growth and development in the city.

2.5 BIOLOGICAL RESOURCES

2.5.1 Introduction

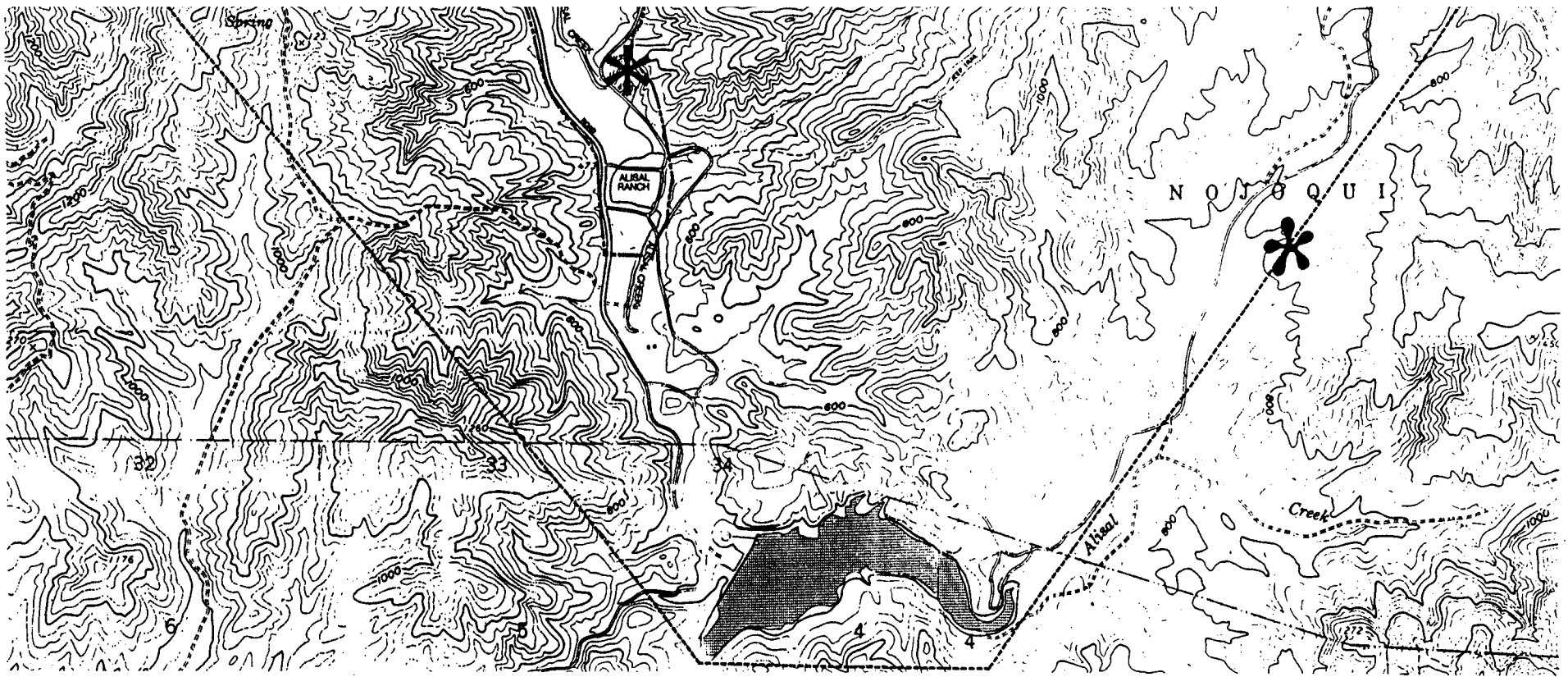
A commitment to the conservation of biological resources begins with the recognition that human beings are part of our environment rather than apart from it. Our well being, if not our ultimate survival, depends upon our ability to minimize the degree to which human activities upset the fragile balance of natural systems. Given our incomplete understanding of the intricate web of relationships within our biosphere, a conservative approach is necessary in weighing pressures for increased urbanization with the need to preserve sensitive ecosystems.

To facilitate efforts to minimize the destruction of important biological resources due to development, this subsection of the Conservation and Open Space Element provides an inventory of sensitive areas within Solvang and a description of key considerations related to buildout of Solvang pursuant to the Land Use Element of the General Plan.

2.5.2 Inventory of Biological Resources

Biological resources exist throughout the city of Solvang. The most common forms of biological resources include landscaping introduced in conjunction with urban development, agricultural fields, skyline trees, and grassland and chaparral on undeveloped hillside areas. While important, these resources are not as sensitive as oak woodlands, rare and endangered species, and areas classified as wetlands.

According to the California Natural Diversity Data Base (NDDB) maintained by the California Department of Fish and Game (CDFG), the only rare or endangered species identified in the city of Solvang is the least bell's vireo (Vireo bellii pusillus). This bird is classified as endangered by both the CDFG and the United States Fish and Wildlife Service (USFW). Its typical habitat is riparian vegetation and it has been observed along Alisal Creek in the vicinity of Oxbow Place (Exhibit 2). Another bird species of concern is the spotted owl (Strix occidentalis) reported near the Solvang General Plan's southeast study area boundary approximately one



LEGEND



LEAST BELLS VIREO



SPOTTED OWL

NOTE: THE OCCURRENCE OF THE SPECIES IS PRESUMED TO BE WITHIN A 5-MILE RADIUS OF THE SYMBOL.

SOURCE : DEPARTMENT OF FISH AND GAME

Rare and Endangered Species



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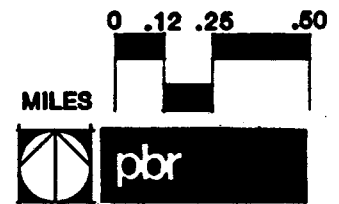


EXHIBIT 2

A second area of concern is along Alamo Pintado Creek located southeast of Mission Santa Ines. The riparian vegetation found along this portion of the creek is currently in vacant areas planned for low density residential development. Buildout of the general plan could result in the removal or disturbance of the riparian vegetation. Further upstream, Alamo Pintado Creek traverses a vacant area located south of State Route 246 and east of Old Mill Road. The riparian vegetation in this area could be removed or disturbed by the extension of Alamo Pintado Road to Elverhoy.

A fourth area of potential adverse effects is along Adobe Creek between Chalk Hill Road and the city's northern boundary. The riparian vegetation found along this portion of the creek is located just west of Fredensborg Canyon Road. Most of this area has been granted to the city in the form of development rights, for riparian protection. This area has been designated as estate ranchette and open space in the general plan.

It should be noted that the riparian vegetation present along Alisal and Adobe Creeks is also of concern. However, the Solvang General Plan provides for the continuation of existing land uses along Alisal Creek and Hans Christian Andersen Park along Adobe Creek and therefore does not pose additional threats to the existing vegetation.

Great care should be taken during future development activities in these areas to ensure that specimen trees are preserved and that potential adverse effects upon riparian vegetation are minimized. Policies 4.a and 4.b of this element are established to protect riparian areas.

2.6 CULTURAL/SCIENTIFIC RESOURCES

2.6.1 Introduction

Cultural resources generally consist of archaeological sites and historic sites that offer important links to our prehistoric and historic heritage. Although the California Government Code does not require consideration of cultural resources in general plans, the city of Solvang has chosen to include such considerations because of the prevalence of these resources and their inherent importance to the community. It should also be noted

that the preservation of these resources is mandated by the California Environmental Quality Act and is important for two basic reasons. One reason is respect for the values of Native Americans and their concern that the remains of their ancestors are left undisturbed. The second reason involves the value of these resources for anthropological and historical research. Historic structures also represent a major concern since they reflect the Solvang area's heritage as an early California settlement and its evolution as a Danish community.

A related concern is the scientific value of paleontological resources. These resources consist of subsurface prehistoric fossils. They are important for their value as specimens used in the study of the Earth's natural history.

The following subsections briefly describe the cultural and scientific resources of concern in Solvang.

2.6.2 Archaeological Resources

The area in and around Solvang was settled by Native Americans as far back as 7000 B.C. Tribes of hunter-gatherers associated with the Chumash peoples were active for thousands of years in the Santa Ynez Valley area and evolved into what became known as the Inezeno group. Several former Inezeno villages have been identified in the vicinity of Solvang, including the following:

- . Xonxoni ata
- . Zanaxuwi
- . Zalaxulapu (Mission Santa Ines site)
- . Kalawasaq

Due to the extent of Native American settlement, archaeological resources are found over a wide area, particularly in those locations where permanent water supplies were available. These resources range from limited activity sites such as resource extraction camps, rock shelters with dwellings, burial grounds, and ceremonial structures.

Several archaeological surveys and studies have been performed throughout much of Solvang. These surveys have been concentrated primarily in the vicinity of Mission Santa Ines, along Alamo Pintado Creek, along the Santa Ynez River, and adjacent to the city's northwest boundary in the area west of Chalk Hill Road. The key archaeological finds in Solvang include pre-historic resources discovered adjacent to Alisal Creek just south of the Santa Ynez River. Other key finds include portions of the Mission Santa Ines aqueduct system located in the general area northwest of the Alamo Pintado Road/State Route 246 intersection, and the "Mission corral" located southwest of the existing Mission Santa Ines.

Based upon the prehistoric and historic settlement patterns identified through earlier studies, unknown archaeological resources could be found throughout much of Solvang. The areas most likely to contain such resources are considered as "areas of high sensitivity" and are located primarily along the banks and terraces overlooking the Santa Ynez River, Alisal Creek, Alamo Pintado Creek, and Adobe Creek (Exhibit 4). Most of the remaining area within Solvang is considered to be of "moderate sensitivity" in that the potential for locating archaeological resources is not as high as it is for areas in the immediate vicinity of major watercourses.

2.6.3 Historic Resources

There are more than a dozen buildings and landmarks in and around Solvang that reflect various periods of Solvang's rich heritage as the site of an early California Mission, late nineteenth century American settlement, and early twentieth century Danish settlement.

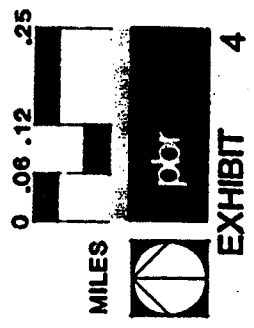
Mission Santa Inez provides a strong historical influence on the Solvang area. Two years after the founding of the Mission (end of 1806), there were 570 people listed on the Mission rolls. Two hundred and seventy-seven of these were the previous converts from Santa Barbara and Purisima Conception Missions, many of whom had probably originally come from this region. The balance was made up of local Chumash, who had enlisted for religious instruction on the first day of founding. Also residing at the Mission was the military guard composed of a corporal and five soldiers and their families. The construction of the mission proceeded rapidly, and by 1812 most of the major buildings had been completed around a quadrangle with measurements ranging from 315' to 350' on a side.



SOURCE: ARCHAEOLOGICAL AND HISTORICAL INVENTORY, MICHAEL P. LAUGHLIN

LEGEND

-  AREAS OF MODERATE SENSIBILITY
-  AREAS OF HIGH SENSIBILITY



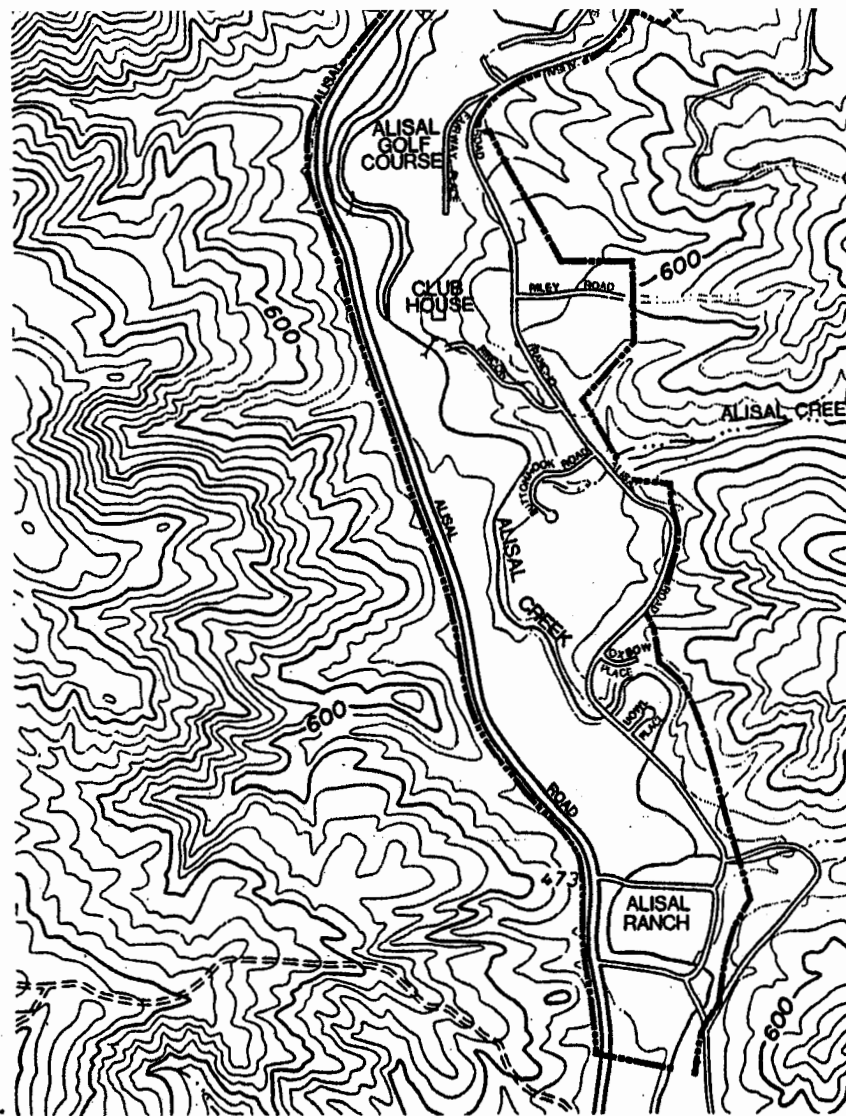
Archaeological Sensibility
SOLVANG GENERAL PLAN
 CITY OF SOLVANG

There are presently two types of remains associated with the Mission. The first type are the intact structures. The second type of artifacts would be the residual type which have perhaps entered watershed areas and are fragmented and disjointed in nature. The area most likely to contain these types of finds would be the area south of the Mission in the Alamo Pintado Creek watershed. Neither should be ruled out as valuable sources of historical insight.

To a great extent, the Danish American period in Solvang was an expression of events and family traditions which began in Denmark. Danish migration to the United States prior to 1870 was a highly individualistic affair, and the motivating forces were largely religious and political persecution in the homeland. Danish migration was mostly to Minnesota, Wisconsin and Iowa; however, at the Danish Lutheran Church Convention it was announced that a new Danish colony would be established on the west coast. On January 23, 1911, final papers were signed to purchase 9,000 acres in the Santa Ynez Valley, and included land from what is now Alisal Road on the east to Santa Rosa Rancho on the west.

Greatly influencing present day Solvang's street and parcel layout was the first division of land for the town in 1911. Up until the end of World War II, Solvang looked like any other rural town. At the end of World War II, the Saturday Evening Post ran an article on Solvang prompting the curious to visit. Ferd Sorensen, known as the "father" of Solvang's Danish architecture, constructed the first Danish style buildings on Copenhagen Drive (then Main St.), and transformed the California Mission-style archways of Rasmussen's into a Danish colonnade. In 1945, he built an authentic Danish provincial home and windmill on Old Mill Road. Solvang's present downtown consists of row-type structures with Danish facades. Around the town, numerous subdivisions and other structures have emerged since World War II to provide housing and services to Solvang's local residents.

Some historic structures in Solvang such as Mission Santa Ines, are of statewide significance, while other resources, such as the large concrete "milk bottle" remaining from the Burchardi Dairy and the Easter cross on Alisal Heights, have more local significance. Exhibit 5 identifies seventeen important historic buildings still remaining in the Solvang area.



- 1 WULFF'S WINDMILL (exists)
- 2 PHELPS FARM (exists)
- 3 RUSSELL FARM (exists)
- 4 PETERSON FARM (no longer exists)
- 5 MERRILL FARM (exists)
- 6 BETHANIA LUTHERAN CHURCH (exists)
- 7 SOLVANG WOMEN'S CLUB (exists)
- 8 MARCUS NEILSON HOME (exists)
- 9 HORNSYLD HOME (exists)
- 10 MISSION SANTA INES (exists)
- 11 HAYNE BROTHER'S ADOBE (exists)
- 12 HANLEY HOUSE (no longer exists)
- 13 JEPSON HOUSE (no longer exists)
- 14 RASMUSSEN FARM (exists)
- 15 GRIST MILL (exists in ruins only)
- 16 JANIN ADOBE (no longer exists)
- 17 MILK BOTTLE (being moved)
- 18 EASTER CROSS (exists)
- 19 SOLVANG CEMETERY (exists)
- 20 SOLVANG SCHOOL
- 21 ELVERHOY MUSEUM/BRANDT-ERICKSEN HOUSE

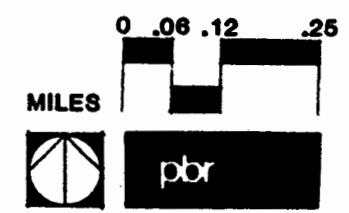
SOURCE: ARCHAEOLOGICAL AND HISTORICAL INVENTORY, MICHAEL P. LAUGHLIN

Historic Structures



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2.6.4 Paleontological Resources

Paleontological specialists at the University of California, Santa Barbara-Department of Geology indicate that there are no known areas in or around Solvang that have a significant potential for paleontological resources.¹

2.7 ENERGY RESOURCES

2.7.1 Available Energy Supply

Solvang's non-transportation energy supply consists of natural gas and electricity. Natural gas is supplied by the Southern California Gas (SCG) company. Some of SCG's supply originates from natural gas produced in the oil field of Santa Barbara County. However, most of the natural gas distributed by SCG is transported from Texas via the El Paso Gas Company pipeline.

Electricity is supplied to Solvang by the Pacific Gas and Electric Company (PG&E). The city is served by PG&E's substations in Buellton and Santa Ynez. PG&E generates electricity using a combination of primary energy resources - oil, natural gas, hydropower, coal, geothermal, and nuclear. Although the actual mix of these primary sources varies from year to year, oil and natural gas are the principal fuels used in PG&E's electrical generation.

2.7.2 Existing Energy Demand

The Energy Conservation Element of the Santa Barbara County Comprehensive Plan indicates that residential and industrial land uses are the predominant consumers of energy. Consumption patterns in Solvang are typical of those in Santa Barbara County as summarized below in Table 7.

¹ Telephone discussion with Dr. Jim Valentine, December 21, 1987.

Table 7
ENERGY CONSUMPTION PATTERNS BY LAND USE TYPE

Land Use	Natural Gas Consumption (as % of Total)	Electrical Consumption (as % of Total)
Residential	38	28
Industrial	43	39
Commercial	16	26
Agricultural	3	7

The consumption patterns of natural gas and electricity also have been determined in terms of "end use" characteristics (ie., how gas and electrical energy is ultimately used) as summarized below in Table 8.

Table 8
END USE PATTERNS OF NATURAL GAS AND ELECTRICITY

Energy Use	Percent of Total
Space Heating	17
Space Cooling	4
Water Heating	8
Refrigeration	6
Lighting	10
Pumping	13
Industrial Process	28
Other	14

Tables 9 and 10 below provide specific energy consumption factors applicable to land uses in Solvang.

Table 9
AVERAGE MONTHLY CONSUMPTION OF NATURAL GAS¹

Land Use	Quantity
Single Family Residential	6,665 cubic feet per unit
Multi-Family Residential (4 or less units)	4,105 cubic feet per unit
Multi-Family Residential (5 or more units)	3,918 cubic feet per unit
Office	2.0 cubic feet per square foot
Retail Commercial	2.9 cubic feet per square foot
Hotel/Motel	4.8 cubic feet per square foot
Industrial	244,967 cubic feet per customer

¹ Source: Southern California Gas Company, 1986.

Table 10
ANNUAL ELECTRIC ENERGY USAGE¹

Land Use	Quantity
Residential	6,081 kilowatt hours per square foot
Office	8.8 kilowatt hours per square foot
Restaurant	47.3 kilowatt hours per square foot
Retail	11.8 kilowatt hours per square foot
Food Store	51.4 kilowatt hours per square foot
Warehouse	3.4 kilowatt hours per square foot
School	6.3 kilowatt hours per square foot
Hotel/Motel	6.8 kilowatt hours per square foot
Miscellaneous	8.8 kilowatt hours per square foot

2.7.3 Effects of General Plan Buildout

The Solvang General Plan Land Use Element identifies the mix and quantity of land uses to be developed in Solvang. Based upon the energy consumption factors provided in Section 2.7.2 and the maximum general plan buildout scenario, Solvang's ultimate natural gas consumption is projected at approximately 332 million cubic feet annually while electrical consumption is projected at approximately 101 million kilowatt hours annually. This increase is within the parameters of SCG's and PG&E's projected load growth for the Santa Ynez Valley area.

As new development occurs and older structures are refurbished, opportunities to implement energy conservation measures should be taken. Appropriate planning and structural design techniques will serve to minimize increasing demands for non-renewable resources and will reduce Solvang's vulnerability to future energy supply shortages. Further, such measures will serve larger regional and national interests in terms of minimizing Solvang's dependency on non-renewable energy supplies.

Energy conservation through appropriate planning techniques includes land use planning that encourages increased density, i.e., the total energy consumed in multi-family housing is less than the same number of single family detached dwelling units. Energy savings also can be achieved through

¹ Source: Southern California Edison, 1985 (PG&E indicates that SCE factors are valid for application in Solvang).

land planning that encourages a balance between residents and employees (i.e., reducing the need for long commutes from home to work) and planning that maximizes opportunities for the use of non-automobile or public transportation.

Title 24 of the California Administrative Code contains building code provisions regarding energy conservation measures to be used in structural design. These measures involve proven technologies such as building insulation, weatherstripping, insulation of water heaters and pipes, water flow restrictors, and energy-efficient lighting systems. By incorporating Title 24 considerations into the design review process, the city can contribute to the goal of minimizing increased energy consumption levels.

In addition to conservation measures, the city can encourage the exploitation of renewable energy resources such as solar energy. For example, land use planning that facilitates solar access serves to encourage the use of renewable solar energy for space heating and water heating rather than continued use of fossil fuels.

2.8 OPEN SPACE AND VISUAL RESOURCES

2.8.1 Importance of Open Space

As stated in Government Code Section 65561, "...the preservation of open space land...is necessary not only for the maintenance of the economy of the state, but also for the assurance of the continued availability of land for the production of food and fiber, for the enjoyment of scenic beauty, for recreation and for the use of natural resources."

The inherent importance of providing for adequate open space is to supply breaks in the pattern of development which offer visual relief from urban environments. Further, the provision of open space is important to facilitate the wise use of natural resources and to protect public health and safety. Section 1.3 of this element cites Government Code Section 65560(b) identifies four basic categories of open space considered necessary and appropriate for the provision of a balanced urban development pattern. These categories are described below in relation to conditions in Solvang.

First, open space for the preservation of natural resources is important to protect sensitive ecological systems. For example, wetlands habitat areas and rare and endangered plant and wildlife communities are often designated as open space to preclude development activities that might destroy significant biological resources. In Solvang, wetlands vegetation has been identified along the Santa Ynez River, Adobe Creek, Alamo Pintado Creek, and Alisal Creek.

Second, open space used for the managed production of resources is important to maintain adequate supplies of food and fiber. Thus, agricultural lands and mineral resource zones are often designated as open space to ensure their continued productivity as well as to offer visual relief as open space. In Solvang, the area located north, east, and south of Mission Santa Ines and the Santa Ynez River is an example of land designated for agricultural use, but will most likely remain as open space due to access constraints, slope and potential flooding.

Third, open space used for outdoor recreation is important to meet the community's recreational and cultural needs. Parkland, bike trails, riding/hiking trails, and greenbelts which link different recreation areas are examples of this type of open space. As described in the parks and recreation element, several areas within Solvang have been designated for open space/recreation uses.

Fourth, open space for public health and safety is important to preclude or minimize potential hazards associated with floods, fires, slope stability, and earthquakes. Further, public health and safety interests may necessitate the designation of open space areas to protect the quality of water resources. The Creekside Open Space area along Alamo Pintado Creek is an example of open space use.

2.8.2 Types of Open Space

PERMANENT OPEN SPACE

In general, land uses expected to remain committed to open space usage during the life of a general plan are regarded as permanent open space.

For example, Hans Christian Andersen Park, Solvang Park, and the Alisal Golf Course are typical of permanent open space uses. Other types of permanent open space areas include school playgrounds, cemeteries, the Santa Ynez River, and areas where development rights have been deeded to the city or where open space easements exist, such as Fredensborg Canyon, the north edge of the Alisal Green and Meadow areas and the canyon in the Nyborg area.

INTERIM OPEN SPACE

Interim open space areas are typically private properties that are currently vacant or used for agriculture. Unlike permanent open space uses, which are usually publicly owned sites, vacant and agricultural lands can be expected to be developed sometime during the life of the general plan. Until such time as development occurs, these land uses offer temporary open space values. In Solvang, the vacant land located south of Mission Santa Ines between Alamo Pintado Creek and Alisal Road is an example of interim open space since it is designated for future residential development. The Skytt Mesa is also in this category since a portion of it is designated for future residential and commercial use. The areas outside the city are designated for semi urban uses with one, five and ten-acre parcel designations.

2.8.3 Significant Open Space and Visual Features

The area outside the city offers significant open space features. The existing ranch and agriculture lands promote the image of Solvang as a village in a rural setting. The area within the city also offers several open space features. Key open spaces include the Alisal Golf Course along Alisal Creek in the southern portion of the city, the Santa Ynez River bisecting the city, Hans Christian Andersen Park and Adobe Creek in the western part of the city, Alamo Pintado Creek along the eastern edge of the city, the Skytt Mesa, which forms the western edge of the city and the Duff Mesa on the eastern edge.

The southern portion of the city is flanked by the open spaces of the Santa Rosa Hills at the foot of the Santa Ynez Mountains. To the north of Solvang, the Purisima Hills offer scenic views to Solvang's residents and visitors. One of the prime visual resources is the view from the Mission Santa Ines to the southeast. This area remains largely undeveloped. These areas should be preserved to maintain Solvang's visual image and promote environmental protection.

3.0 GOALS, OBJECTIVES, AND POLICIES

GOAL 3.1

TO PROTECT AND CONSERVE THE CITY'S NATURAL AND CULTURAL RESOURCES

Objective 1.0

Ensure that the quality of the Santa Ynez River and its tributaries do not violate state and federal water quality standards as a result of development within the city of Solvang.

Policy 1.a The city shall cooperate with District 3 of the Regional Water Quality Control Board and other agencies within the Santa Ynez Valley in the implementation of the 208 water quality program.

Policy 1.b The city shall require the incorporation of adequate erosion control measures into development projects that may otherwise impact water resources adversely. Such measures shall include sandbagging of newly graded slopes, prompt planting of disturbed areas, phasing of grading and construction activities to minimize exposed areas susceptible to erosion, and the routing of runoff flows through desilting basins prior to discharge into any watercourse. Such provisions shall be included in a grading ordinance.

Policy 1.c The city shall implement a periodic street sweeping program to minimize the urban pollutant load which enters the city's drainage system.

Policy 1.d The city shall preserve important groundwater recharge areas as open space. Further, the city shall restrict land uses which may create potential water quality hazards from locating within or near groundwater recharge areas.

Objective 2.0

Maintain and protect adequate domestic water supplies for all residents and uses, both present and future, within the city.

Policy 2.a The city shall require all new developments to incorporate water conservation measures into project design to the greatest extent practical. Such measures may include, but are not limited to, the use of plumbing fixtures which reduce water usage (in accordance with Title 24 of the California Administrative Code or its successor) and landscaping which maximizes the use of drought-tolerant plant species and drip irrigation systems.

Policy 2.b The city shall use reclaimed water for irrigation of public landscaped areas to the greatest feasible extent.

Policy 2.c The city shall cooperate with the Santa Ynez River Water Conservation District by providing the district with general plan buildout projections and by keeping the district fully informed of amendments to the general plan which may affect the district's planning for the provision of adequate water supplies.

Policy 2.d The city shall encourage the extension of the state water project for the purpose of insuring and maintaining an adequate water supply for the city.

Objective 3.0

Conserve areas that may be identified by the California Division of Mines and Geology as significant Mineral Resource Zones.

Policy 3.a The city shall not allow development to render economically viable mineral resource zones inaccessible.

Objective 4.0

Preserve areas of important biological habitat and protect sensitive, rare, and endangered species of flora and fauna.

Trees
Policy 4.a The city shall require that all development proposals provide adequate mitigation measures for identified significant biological resources, including selective preservation, replanting, and/or sensitive site planning techniques.

Policy 4.b Permanent open space preserves designated for the purpose of protecting biological resources shall be managed primarily for their inherent ecological value. Recreational uses shall be considered a secondary activity.

Objective 5.0

Prevent the loss of important historical, archaeological, and paleontological resources.

Policy 5.a The city shall complete an inventory of local historic resources and cultural landmarks and shall establish a list of significant resources (such as the Santa Ynes Mission) to be preserved.

Policy 5.b The city shall require that sites proposed for future development are to be evaluated by certified archaeologists and/or paleontologists in accordance with the California Environmental Quality Act. Where potentially significant adverse impacts are identified, the city shall require appropriate mitigation measures such as in situ preservation or professional retrieval.

Policy 5.c The city shall implement the objectives and policies established in the community design element of the general plan which promote the preservation of historic landmarks, focal points, and special features.

Objective 6.0

Reduce the city's demands upon conventional, non-renewable sources of energy.

Policy 6.a The city shall require new developments to incorporate alternative energy systems.

Objective 7.0

Preserve the existing agriculturally zoned land uses.

Policy 7.a The city shall strive to maintain and encourage the preservation of the existing prime and unique agricultural zoning within the city's general plan study area and/or sphere of influence.

GOAL 3.2

TO PROTECT AND ENHANCE SENSITIVE OPEN SPACE AREAS AND VIEWSHEDS

Objective 1.0

Preserve existing open spaces at appropriate locations throughout the city.

Policy 3.a The city shall restrict development along the Santa Ynez River, Alisal Creek, Adobe Creek, Alamo Pintado Creek, and the area between Manzanita Drive and Willow Drive to those uses which retain the open space character of these areas (eg., parks, open space spines, golf courses, etc.)

Policy 3.b The city shall implement the objectives and policies established in the community design element of the general plan which promote the preservation and enhancement of open space features.

Policy 3.c The city shall consider the purchase of property, development rights or other appropriate means to acquire and protect open space and viewsheds.

Objective 2.0

Encourage the preservation of the city's hillside areas and natural landforms.

Policy 2.a The city shall enact a hillside development ordinance which contains development standards to: 1) maintain the natural visual character of the hillsides by integrating architecture and landscaping into the hillside setting, 2) minimize grading impacts, 3) architecturally integrate any structures within the prominent ridgelines designated in the general plan, 4) encourage the contouring of manufactured slopes to blend with natural slopes, 5) encourage the use of innovative designs which adapt to the natural topography, 6) encourage the blending of colors and materials with the hillside environment, and 7) provide for the planting of slopes with appropriate vegetation.

Hillside

Objective 3.0

Maintain the quality of views to the north and to the southeast of the city as well as the overall visual quality of the city's landscape.

Policy 3.1 The city shall require new developments to be subjected to visual impact analysis where potential impacts upon sensitive locations are identified.

Policy 3.2 The city shall require that new structures and improvements be integrated with the surrounding environment to the greatest possible extent.

Policy 3.c The city shall enforce its adopted design guidelines as specified in the community design element of this general plan.

4.0 THE CONSERVATION AND OPEN SPACE PLAN

As discussed in Section 2.0 of this conservation and open space element, a wide variety of natural resources, cultural resources, and open space areas are subject to the effects of urban development. To ensure that

these issues receive proper consideration, the implementation of the policies established in this conservation and open space element is primarily the responsibility of city government and citizen involvement. Through its site plan review process, the city takes into consideration the compatibility of proposed development activities with natural resources, cultural resources, and open space areas.

The Planning Department is responsible for ensuring that proposed general plan amendments and land development proposals are processed pursuant to the California Environmental Quality Act (CEQA). In keeping with this responsibility, the Planning Department is able to identify potential adverse effects associated with proposed actions as related to natural resources, cultural resources, and open space. Potential adverse effects that are deemed significant should be either avoided or mitigated unless a statement of overriding considerations is adopted by the city.

As the ultimate authority in Solvang regarding land use policies, the City Council is responsible for approving or denying proposed general plan amendments and development proposals. The City Council has a related responsibility to certify that CEQA has been complied with adequately and, if necessary, to adopt statements of overriding considerations specifying why any significant impacts to natural resources, cultural resources, or open space are outweighed by other public interests.

An additional method to ensure the preservation of open space is the development of a sphere of influence/greenbelt agreement. This is currently being formulated by the city. Further, the Land Trust for Santa Barbara County works with property owners to keep their land in open space for a period of years in exchange for tax savings.

5.0 GLOSSARY

Conservation: The management of natural resources to prevent waste, destruction, or neglect.

Erosion: The process by which soil and rock are detached and moved by running water, wind, ice, and gravity.

Land Capability Classification (U.S. Soil Conservation Service): A grouping of soils into classes (I-VIII), subclasses, and units according to their suitability for agricultural use, based on soil characteristics and climatic conditions.

Minerals: Any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum (Public Resources Code Section 2005). Gold, sand, gravel, clay, crushed stone, limestone, diatomite, salt, borate, potash, etc., are examples of minerals. Despite the statutory definition of "mineral," the city of Solvang considers geothermal, petroleum and natural gas resources along with their planning for minerals.

Non-Renewable Natural Resources: Inanimate resources that do not increase significantly with time and whose use diminishes the total stock (eg., minerals, fossil fuels and fossil water).

Prime Agricultural Land: "Prime agricultural land" means the following:

- 1) All land which qualifies for rating as Class I or Class II in the Soil Conservation Service land use capability classifications.
- 2) Land which qualifies for rating 80 through 100 in the Storie Index Rating.
- 3) Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture.
- 4) Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a non-bearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars (\$200) per acre.

Renewable Natural Resources: Resources that can be replaced by natural ecological cycles or sound management practices (eg., forests and plants).

Riparian Habitat: The land and plants bordering a watercourse or lake.

Storie Index: A numerical system (0-100) rating the degree to which a particular soil can grow plants or produce crops, based on four factors, including soil profile, surface texture, slope, and soil limitations.

Unique Farmland: Land which does not meet the criteria for "Prime Farmland" or "Farmland of Statewide Importance" that is currently used for the production of high economic value crops such as oranges, olives, avocados, rice, grapes and cut flowers. The California Department of Conservation maintains a current list of Unique Farmland crops.

Watershed: The total area above a given point on a watercourse that contributes water to the flow of the watercourse; the entire region drained by a watercourse.

Wetlands: Areas that are permanently wet or periodically covered with shallow water, such as saltwater and freshwater marshes, open or closed brackish marshes, swamps, mud flats, and fens.