

# THE CITY OF SANTA BARBARA GENERAL PLAN



## CONSERVATION ELEMENT

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**AUGUST, 1979**

Prepared for:

The Planning Division, City of Santa Barbara

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# INTRODUCTION

## LEGISLATIVE AUTHORITY

In making city and county governments responsible for the preparation and implementation of a Conservation Element in their General Plans, the California Legislature has recognized the need for a comprehensive planning program which protects the land and water resources under the jurisdiction of local and regional governmental entities.

Specific authority for this Element of the General Plan is contained in Government Code Section 65302(d) which requires the following:

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. Flood control.
3. Prevention and control of the pollution of streams and other waters.
4. Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.
5. Prevention, control and correction of the erosion of soils, beaches and shores.

## PURPOSE AND APPROACH

As a mandated part of the General Plan, the Conservation Element is intended to serve as the City's official policy guide in public and private development matters related to the preservation and enhancement of natural resources. The basic goal of this Element is to outline a comprehensive program to achieve and maintain a healthful natural environment which reflects a balance between human activities and natural processes. The intent of this Conservation Element is to identify, evaluate, and analyze the natural and cultural resources present in the City and establish policies which reflect not only the uniqueness of Santa Barbara, but also those which are responsive to the need to preserve the City's resources for future generations. This Element has been prepared in a manner which reflects the relationship between Conservation and the Land Use, Open Space, Safety, and Circulation Elements of the General Plan.

## CONTENTS AND USE OF THIS DOCUMENT

Given the urbanized nature of the City of Santa Barbara, this Element covers only those resources which are present within the City. Subject areas such as forests and minerals are not assessed due to their absence within the City. This Element therefore focuses on Cultural and Historic Resources, Visual Resources, Air Quality, Biological Resources, Drainage and Flood Control, and Water Resources. Agricultural Resources



are addressed briefly, as the supply of prime agricultural soils and agricultural activity is limited. Estuarine and Marine Resources are also discussed, but not at great length due to the pending completion of the City's Local Coastal Program.

Goals, policies, and implementation strategies for each resource are combined in a separate section at the end of the Element.

This document should be viewed as a flexible policy guide rather than an exhaustive inventory of all natural and environmental resources. It has been prepared to highlight key conservation issues and recommend implementation strategies. As conditions change and issues are resolved, this Element should be revised to reflect future conditions and community concerns related to the conservation of Santa Barbara's natural and non-renewable resources.

## **GENERAL DESCRIPTION**

The City of Santa Barbara is widely known as a beautiful and prosperous community. The physical setting of the City has shaped its past and will have important implications for its future. Sheltered from severe weather by the Channel Islands which lie parallel to the coast, the City has matured in a basin located at the approximate center of a narrow east-west trending coastal shelf. The Santa Ynez Mountains to the north and the Mesa hills to the southwest provide a topographic envelope which opens to the ocean at the southeast. The City, situated in and limited by this visually dramatic juncture of land and sea, possesses both sandy beaches and coastal bluffs.

The climate of Santa Barbara is Mediterranean, as is most of coastal southern California, with cool, wet winters and relatively hot, dry summers. The local extremes of temperature range from over 100 degrees to below freezing, with 72 degrees to 48 degrees being the average annual temperature range. Although its southerly location enables it to avoid the direct impact of harsh northwest storms, Santa Barbara is far enough north to receive precipitation from such storms as their fury diminishes. The average annual rainfall is approximately 18 inches and the growing season averages 342 days per year. Occasional fogs and blustering Santana winds are elements which add diversity to the City's climate.

Encompassing 10,741 acres, the predominant land use within the City is residential. The distribution of uses is indicated below.

## LAND USE IN THE CITY OF SANTA BARBARA (1975)

Land Use	Acres	% of City Land
<b>Residential</b>		
<b>Single-Family</b>	3,718	35
<b>Multiple-Family</b>	636	6
<b>Other Residential</b>	43	*
<b>TOTAL RESIDENTIAL</b>	4,397	42
<b>Commercial</b>	510	5
<b>Industrial</b>	161	1
<b>Public &amp; private Facilities</b>	1,274	12
<b>Vacant &amp; Private Facilities</b>	2,640	25
<b>Circulation Routes</b>	1,759	16
<b>TOTAL</b>	10,741	100

\* Less than 1 percent

SOURCE: Henningson Durham & Richardson, Downzoning EIR

The population, approximately 72,238 according to the 1975 Special Census, depends primarily upon property, pensions, and tourism for basic income. The percent of per capita income coming to Santa Barbarans from the City's basic economic sources in 1970 was as follows:

Property and Pensions Income	31%
Tourism - Visitor Expenditures	29%
Manufacturing - Research and Development	20%
University of California	8%
All other Elements	12%

Source: Keisker, 1969

The relationship between these income sources remained stable over the 1960-1970 period, and there is no reason to doubt that these relationships will continue into the future (Planning Task Force, 1974).

Attracted by the beauty of the physical setting, pleasant climate, attractive architecture, and "Old World" charm, tourists and visitors generate substantial income for the community. The Chamber of Commerce makes annual estimates of the volume of local business sales brought in by tourists and attendees at conferences held in the area. For 1975, the estimate was about \$81 million. In 1976, the total came to about \$87 million.

The influence of Spanish, Mexican, and Indian heritage produces a unique cultural environment to complement the City's physical setting. The annual Fiesta celebration recalls Hispanic traditions, and local architecture of compatible styles is encouraged and, in the central business district, required. Lectures, concerts, exhibits, and other events are routinely available, many at no charge to the public. The extensive

Continuing Education Program, several museums, a symphony orchestra, and a number of institutions of higher education contribute to the City's reputation as a cultural center.

Although its population has grown gradually through most of its history, Santa Barbara experienced a surge of growth after both World War I and World War II and again during the decade between 1960 and 1970. Since 1970 the population increase has declined, and the trend for the future indicates a relatively slow rate of growth. The City's policy of limiting the zoned residential capacity to approximately 85,000 persons, as well as a general decline in birthrate, are contributing factors to this future trend.

The community is now almost wholly urbanized, and the utilization, preservation, and maintenance of natural and cultural resources is of paramount concern. Much of what Santa Barbara is, a community with a distinct sense of place, depends upon how these resources are treated in the future. The constraints implicit to these resources are more clearly felt as their limited nature is recognized. Because the resources are limited, the potential for conflict relative to future development and preservation of these resources is magnified.

# CONSERVATION OF RESOURCES

## CULTURAL AND HISTORIC RESOURCES

### Introduction

Santa Barbara's heritage combines centuries of Indian culture with years of Spanish, Mexican, and American influence. This blending of cultures manifests itself in the style, character, pace, and appearance which have made our City one of the most widely acclaimed centers of archaeological, historical, and cultural significance in the State. Those structures and remnants of settlement which remain are cherished not only as links to our colorful and varied past but also as irreplaceable components of the City's ambiance. These "pieces of the past" add texture to the fabric of our community, giving it that special charm in appearance which draws tourists from around the world and contributes to the unique sense of place experienced by residents.

The City's commitment to the conservation of its archaeological, historic, and architectural resources is reflected in existing protective legislation and public policy, past and present activities of concerned individuals and groups, and, of course, the continued and respected presence of these resources within the community. However, the potential for loss or degradation of these resources exists and increases as pressure for new development increases.

In years past, valuable archaeological sites and significant architectural landmarks have been destroyed to make way for new developments that, at the time, signified "progress." Examples of resources which have been lost to such pressure include:

- Archaeologically significant Burton Mound, site of a Chumash Indian settlement, was developed into residential uses;
- Most of the Spanish-Mexican era adobes, including the unique Packard Winery Adobe and the Goux Adobe, have been razed (today only 19 of approximately 200 adobes remain);
- "La Barranca," the sprawling Hopi style pueblo home of celebrated artist Ed Borein, was torn down to make room for a housing development;
- The Gaspar Orena Mansion on upper Laguna Street was leveled in 1923 to provide the playground for Roosevelt School.

Santa Barbara has learned from what it has lost and has sought to protect the remaining significant resources in a manner which respects their irreplaceable nature.

### Significance of Resources

Historic and cultural resources encompass a wide variety of properties which were and are significant in American history, regional architecture, archaeology, and culture. The Federal Advisory Council on Historic Preservation has set forth the following criteria to assist in determining what constitutes historic significance:

“Districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feelings, and association and:

- That are associated with events that have made a significant contribution to the broad patterns of our history; or
- That are associated with the lives of persons significant in our past; or,
- That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant distinguishable entity whose components may lack individual distinction; or,
- That have yielded, or may be likely to yield information in history or prehistory.

Once historical or archaeological areas have been identified, steps should be taken to preserve them and if necessary restore them. It is not necessary that they be converted to public uses such as museums, but the public should be able to see, use, and enjoy these resources.” (National Study by the Federal Advisory Council on Historic Preservation).

In light of these criteria, many structures and areas in Santa Barbara can be considered to have significance. Not all of these resources have yet received official recognition of their significance.

### **Archaeological Resources**

The Cultural and Historic Resources map indicates the locations of known and suspected sites of archaeological significance. The mapped locations are purposely vague so as not to be helpful for those who would seek to despoil and/or pilfer artifacts from the sites. More precise maps are on file at the Santa Barbara County Planning Department. Several of the areas delineated on the map (i.e., adjacent to creeks, on the perimeter of Goleta Slough, and in the Burton Mound area of the waterfront) are noted because of their relation to the Chumash habitation.

Indian culture, appearing along the channel coast over 10,000 years ago, provides a distinctive foundation for the Santa Barbara area. Numerous villages of the Chumash were found to have flourished in the coastal plains and creekside areas that are now encompassed by the City. It was the Chumash’s well-developed material culture and their advanced social organization that significantly influenced the Spanish and Mexican cultures that were to follow.

Archaeological research indicates that the historic Indian population in Santa Barbara was the most advanced Indian group in California. Artifacts from coastal and interior sites are an integral part of current research into theories of cultural evolution. The preservation and conservation of these sites of prehistoric Chumash habitation is very important to future research. The archaeological resources in the Santa Barbara area include cave archaeology and rock art in the interior, and middens containing artifacts such as ornaments, tools, and shells along the more extensively inhabited coastal areas.

Archaeological resources are particularly vulnerable to urban development (e.g., residential and industrial construction, road improvements, etc.). Also, public access to, and vandalism of valuable sites are major sources of damage and destruction. In order to avoid conflicts arising between land-modifying development and the preservation of non-renewable archaeological resources, the incorporation of a study of archaeological resources into the planning process from the earliest planning stages is necessary. Before construction is begun on a project, it must be ascertained what

archaeological resources are present which might affect or be affected by the project. Such planning involves the systematic identification of archaeological resources via preliminary site surveys, evaluation of these resources, and formulation of means for their protection, relocation, or their scientific study prior to possible disturbance. Some sites, such as the one identified in the area of the old motorcycle track near the Airport, could be preserved entirely to remove the threat of future damage.

## **Historic Resources**

Several of the sensitive historic resource areas noted on the Cultural and Historic Resources map relate to habitation during the 18th and 19th centuries and are delineated due to their proximity to the Mission, the Royal Presidio, and other adobes. Specific structures of significance are also referred to individually on the map.

The City began in 1782 as a Spanish presidio, or fortress, which was constructed of adobe buildings with tile roofs. A cluster of adobe residences around the presidio formed the heart of what is now the downtown area. The site of the Spanish Royal Presidio is of archaeological and historical importance. Portions of it are contained within El Presidio de Santa Barbara State Historic Park. The Santa Barbara Trust for Historic Preservation and the State of California are cooperating in efforts to acquire the remainder of the site, protect certain features, study the archaeological remains, and reconstruct the fortress as an historic, cultural, educational, and civic resource.

The Mission Church, known as the “Queen of the Missions” was begun in 1786 on a gentle knoll away from the town’s center. The Mission has been altered through the years by four major earthquakes but remains much the same as the 1820 version.

Historic landmarks in Santa Barbara have been recognized in a variety of ways. The federal government provides for registration as “National Historic Landmarks” and in the “National Register of Historic Places.” The State of California registers “State Historic Landmarks.” These various designations can afford some degree of protection by requiring review of developments or modifications that could damage these resources. Additionally, registration can make property owners eligible for some forms of tax relief and can also make possible grant monies for preservation. A list of historic landmarks, their particular designations, and their addresses are included in Appendix A.

Local protection of historic landmarks is provided by the “Historic Structures Ordinance.” The ordinance officially declares that it is the City’s policy to recognize, preserve, enhance, perpetuate, and use structures, natural features, sites, and areas which have historic, architectural, archaeological, cultural or aesthetic significance (Chapter 22.22, Municipal Code, City of Santa Barbara). Landmarks designated under the provisions of this ordinance cannot be altered (on the exterior), relocated, or demolished. The Landmarks Committee, established under this measure, recommends to the City Council landmarks of historical significance to be designated. The current listing of Designated Landmarks is included in Appendix A. “Structures of Merit” are also listed. Although these structures do not receive the protection of the ordinance, they have received official recognition.

## Architectural Resources<sup>1</sup>

The variety of architectural styles which are comprised by the City's built environment are a significant cultural resource. These buildings reflect a rich heritage and are evidence of the different influences that have shaped the City since the mid-nineteenth century. By that time, American and English settlers had introduced wood-frame and brick construction, and Santa Barbara had taken on the typical appearance of a California town. Victorian styles: Italianate, Queen Anne, Stick and Eastlake, and Gothic revival prevailed through the mid-1870s. During the 1880s and 1890s, styles reflected the influence of San Francisco. In the mid-1890s, through the early part of the twentieth century, Mission Revival buildings were erected (the railroad station remains as an example).

In the early years of the twentieth century, the community began to strive to establish the Hispanic image of the City. The incorporation of the De la Guerra Adobe into the "El Paseo" shopping/office complex was a major step in this direction. The need to control the planning and design of buildings produced a planning commission in 1923 and an Architectural Board of Review two years later. The destructive 1925 earthquake afforded the opportunity to rebuild large parts of the central City in Spanish Colonial style. The influence of the Architectural Board of Review was dramatic during the months following the earthquake. This group was disbanded after operating for nine months and processing over 2,000 designs. Although architectural controls were not included in the City's ordinances, in the 1930s it became understood that Spanish style was a "must" for the central City. The Plans and Planting Committee unofficially worked to make sure that the City would be rebuilt in the Hispanic tradition.

After World War II, the Architectural Board of Review was re-established and was given design control over all commercial and apartment developments. The goal of conserving and protecting the community's architectural heritage by requiring good design and neighborhood compatibility in new development continues to be implemented by the Architectural Board of Review.

In order to give special protection and attention to the central core area which developed around the Royal Presidio, the "El Pueblo Viejo" landmark district was established in 1960. Preserving and enhancing the unique historic and architectural character of this area is the express purpose of this district. Refined in its geographical extent in recent years, El Pueblo Viejo requirements demand that any structure built or modified in the district be compatible with the Hispanic tradition. Emphasis is placed upon California Adobe, Monterey Revival, and Spanish Colonial Revival styles. The Landmarks Committee administers the requirements of the El Pueblo Viejo district.

Supported by widespread community sentiment, and bolstered by the economic reality that the architectural, historical, and archaeological resources are a primary focus of the City's tourism, efforts to perpetuate these resources must continue. Santa Barbara's wealth of styles has produced architecturally heterogeneous neighborhoods which contribute immeasurably to the comfortable character of the City. Both the Architectural Board of Review and the Landmarks Committee carry on the protective traditions begun over half a century ago.

Recognition of significant historical and cultural amenities, however, does not ensure preservation. The fate of the central core and those structures protected as Designated Landmarks is much brighter in this regard than are those structures and areas which, although important, are relatively common. Several of the areas currently zoned for the most intensive land uses are also of

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<sup>1</sup> This section is intended to be a brief overview of the architectural history of the City. Readers desiring a complete inventory and explanation of architectural styles of Santa Barbara are referred to Santa Barbara Architecture, which was invaluable in the development of this section.

remarkable architectural/historic/cultural value. As pressure for new development grows, it will become more difficult to conserve these older values. The residential neighborhoods of Oak Park, Laguna, and West Downtown, are examples of this situation.

Zoned for higher densities, the visual and historic/cultural amenities provided by such neighborhoods will probably be lost unless protective policies are adopted. Brinkerhoff Avenue, which is lined with relatively modest late 19th-century cottages now in residential/commercial use as an “antique shop row,” is also afforded no special protection.

The Landmarks Committee is currently conducting an architectural and historic survey of structures throughout the City. The survey is partially funded by a State grant from the Office of Historic Preservation in the Department of Parks and Recreation. It is intended that this inventory provide an architectural catalogue of the City’s buildings. Nominations for the Designated Landmark and Structures of Merit distinction will eventually be forthcoming from this effort. This survey, by identifying the range of building types, architectural styles and periods, and documenting facts about the buildings, could be a major step in the future of historic preservation in Santa Barbara. The list of “Noteworthy Buildings of Importance” included in Appendix A is an informal roster of structures which, while they have not been recognized under the City’s protective ordinance, may be likely candidates for designation in the future.

Future land use decisions which affect the community’s heritage, as reflected in the historic, architectural, and archaeological resources, must recognize the irreplaceable nature of these resources. The value of these resources are to be given equal weight to other factors being considered in the decision-making process. Goals, policies, and implementation strategies for the conservation of these resources can be found in the last chapter of this Element.

## **VISUAL RESOURCES**

### **Introduction**

The aesthetic qualities of the City of Santa Barbara vary as widely as the nature of the topography and the land uses. The manner in which the City’s visual resources are perceived is two-fold: first, those areas possessing aesthetic qualities attributable to natural or structural amenities; and second, those places from which scenic areas can be viewed. The close proximity of beach and mountain land forms offer a unique visual setting for Santa Barbara. The City, nestled amid mountain backdrops and surrounding foothills, contrasts with the ocean’s expanse to create a unique visual quality unparalleled in California.

Natural land areas possessing aesthetic attributes include the creeks and their riparian environment, hillsides and their native vegetation, the shoreline and its related amenities, and the remaining open space within the City. When considered in conjunction with the natural surroundings, the architectural character also becomes an important visual resource which contributes to the quality of life in Santa Barbara. These and other cultural resources are discussed in the previous section.

On one hand, it is important that land areas which are high in scenic value be conserved. On the other hand, it is just these scenic values which attract both tourism and residential development in areas of high visual sensitivity. Hillside developments provide vistas for residents who inhabit those structures. Yet, residential developments render hillsides less natural as topography and vegetation are modified. The ocean becomes increasingly harder to see from more and more



locations as low-lying buildings are replaced by taller ones. The General Plan serves not only to identify these visual resources, but also to recommend policies that will conserve and enhance those resources for all segments of the population.

## **Inventory of Resources**

### **CREEKS**

Mission, Arroyo Burro, San Roque, and Sycamore creeks constitute the major creek systems within the City. The creeks which provide drainage from the mountains and hills to the sea are largely natural in appearance and thus contribute significantly to the aesthetic quality of the City. In addition, they function as an important ecological resources while providing connecting linear open space links from the hillsides to the shoreline. The creeks also provide the potential for aesthetic enhancement of recreational, residential, and commercial areas.

Due to its central location with the City's creek network, Mission Creek is a predominant natural feature which bisects the City. As open space, the creekside environment of Mission and other creeks contributes to meeting the spatial and spiritual needs of the community residents by offering visual relief from the built environment. The Scenic Resources map indicates the extent and location of these riparian/creekside open space resources.

The absence of creek management in the past has resulted in alteration of creek environments through practices such as concrete channelization, defoliation of riparian vegetation, and dumping of debris into creeks. These actions and some creekside construction activities severely detract from the creek's visual value and indirectly contribute to degradation of the coastal environment as well.

### **HILLSIDES**

Major hillside topography does much to accentuate the visual contrast of Santa Barbara. Foothill open space provides a transition zone between residential development and the natural mountain areas. The Scenic Resources map includes delineation of hillsides which have a slope of 30% or greater. Due to the steepness of these slopes, they are especially prominent in the overall community landscape and provide a significant visual resource, as reflected in the City's Slope Density Ordinance. The natural character of the hillsides is aesthetically attractive in and of itself, with the real beauty of these hillsides lying in the scenic vistas they provide for residents and tourists alike. The areas of higher elevation provide views of both the ocean and the mountains.

The higher elevations also provide a visual resource to hillside residents of surrounding valleys and the ocean. For example, the Riviera provides views of the ocean and the Channel Islands. The Foothill neighborhood in the northeastern portion of the City also provides dramatic views of the Santa Ynez Mountains and the ocean. The Mesa area possesses magnificent scenic vistas of the City and its environs. The steep, wooded hillside of the Mesa's north slopes provides a visual backdrop for much of the City's downtown area while also providing for a 350-degree panoramic view. However, hillside development also creates scars on the landform which require many years to revegetate. This condition most affects those residents who view the hills from lower elevations.

## **SHORELINE**

The shoreline, harbor, and waterfront areas are key aesthetic assets which provide diverse recreational opportunities and passive enjoyment of the sea, sand, and scenic views. From the beaches, views of the ocean and the islands, with sailboats in the harbor, are the dominant visual elements. Cabrillo Boulevard, a designated scenic highway, has views of not only the ocean and Palm Park, but also of the Bird Refuge, Child's Estate, Montecito foothills, and the Santa Ynez Mountains. (See the Scenic Highways Element for a further description of Cabrillo Boulevard. Other scenic routes include parts of Sycamore Canyon Road, Stanwood Drive, Mission Ridge Road, and Mountain Drive.) The importance of the harbor and the shoreline as scenic resources cannot be overestimated, as the City's location at the juncture of land and sea is fundamental to the charm and character of the community. The significance of this resource is reflected by the designation of "unique visual sensitivity" on the Scenic Resources map.

Scenic corridors providing views of the hills and mountains, as seen from the beach and Cabrillo Boulevard, are valuable resources. Despite the presence of a substantial number of tourist-oriented developments on the inland side of Cabrillo Boulevard, view corridors continue to exist. If development is allowed in these remaining open areas without proper height, set back, and design limitations, the visual corridors could be blocked and inland views impaired, thereby causing a decline in the aesthetic amenities of the shoreline. Palm Park and the beachfront are particularly sensitive to such "filling in" of view corridors.

## **SPECIMEN AND STREET TREES**

The presence of trees throughout the City is invaluable in the preservation of the rustic, visually pleasing appearance of Santa Barbara. Widely distributed along many streets, the trees provide needed greenery and shade while concealing some buildings and unsightly utility lines and poles.

While it is not feasible to map all the trees in the community which contribute to this general visual resource, the Scenic Resources map does indicate the outstanding Stone Pine street trees (*Pinus pinea*) along Anapamu Street, as well as those historic and specimen trees protected by City ordinance. The Stone Pines which line the 300-800 blocks of East Anapamu Street are a prime example of the outstanding contribution that trees can make to the appearance of a neighborhood, and from higher elevations form a striking green belt in the heart of the City.

When integrated into landscaping plans for commercial and residential uses, trees make for more attractive development. Although there appears to be adequate tree coverage throughout the City, additional new trees and preservation of existing tree cover is needed to maintain and enhance this visual resource. According to the City Arborist, those areas most in need of additional street trees are the business/commercial districts and the major thoroughfares. Santa Barbara Beautiful is the primary, privately sponsored organization that aids in planting new street trees throughout the City. This street tree planting program provides trees through donation of funds by members of the public. Currently, the goal is to add 5,500 trees to the City. This type of promotion for new tree plantings is a significant step toward preserving and enhancing Santa Barbara's scenic quality.

In response to the need for the protection of trees from removal during construction, Chapter 15.24 of the Municipal Code, "Preservation of Trees," of the Tree Ordinance, was instated. Under this ordinance, it is "unlawful to cut down or otherwise destroy or authorize the destruction or cutting down of any tree that has been designated as an historic or specimen tree by the City Council..." (See Appendix B for a list of trees which currently receive protection under this ordinance.) The presence of trees is perhaps taken for granted, but if the tree population were allowed to diminish in

an uncontrolled manner, their absence would undoubtedly be noticed, and Santa Barbara would be deprived of a valuable aesthetic amenity. Continued protection and enhancement of trees is an important consideration in maintaining the visual resources of the City.

## **OPEN SPACE**

The Open Space Element (adopted in 1972) provides for the protection of “significant open and natural landforms through and around the community.” This Element includes the ocean, the mountains, and the major hillsides as categories of open space. The Wilcox Property, major creeks, the shoreline, Montecito Golf Course, Andree Clark Bird Refuge, Clark Estate, and Child’s Estate are included as significant areas of open space and/or visual features. These areas are indicated on the Scenic Resources map as is the “Kim Nursery” property on the westside. The Kim property, visible from the foothills and many downtown locations, is presently being developed for residential use, but some parts are to remain relatively undisturbed.

City Parks also provide significant open space within the community. Although they are not all indicated on the Scenic Resources map, the parks are valuable visual amenities and are considered as such, as well as recreational resources.

The Goleta Slough is a significant ecological resource and also provides open space. Infringement on the open character of this wetland is not compatible with maintenance of this habitat. Protective policies and regulations which ensure the continued preservation of the Slough as open space will be forthcoming in the City’s Local Coastal Program. Further discussion of the Goleta Slough is found in the Biological Resources section.

## **Threats to Visual Resources**

Vigorous planning and management of our visual resources is essential in order to prevent the eventual degradation of these resources which contribute substantially to the aesthetic, environmental, and economic well-being of the City.

Threats to the creekside environment are not as evident as those to other visual resources. There is presently a lack of local policy which recognizes the value of the creekside environment from a visual resources perspective. While creek setbacks are currently being proposed by the City and the County, there are no standards with regard to the appearance, design, or site layout of new development adjacent to or within the riparian environment. Presently, concrete retaining walls and artificial filling are the primary structural improvements for creekside development. As remaining vacant land along Mission Creek, for example, is developed, creekside vegetation, topography, and access are reduced or eliminated from the visual environment. This trend will continue until objectives, policies, and implementing regulations are adopted which recognize the major creeks within the City as visual amenities which provide opportunities for restoration and enhancement of urban resources.

The same type of unchecked development that has resulted in the degradation and artificial channeling of once natural, free-flowing streams and creeks, has also had a direct effect on the hillside regions of the City. Areas such as the Eucalyptus Hill neighborhood have been the site of conversion of natural hillsides into building sites. The extensive cutting and grading of hillsides that accompany residential development can cause irreversible environmental damage, thus diminishing the aesthetic character of the City. Development has also impaired scenic vistas from open, publicly

accessible sites on the hills themselves. Natural constraints to development such as excessive steepness of slopes have been overcome by environmentally damaging engineering practices throughout the hillside areas. In response to this trend, a Slope Density Ordinance was incorporated into the City's land use controls in 1975. The intent of this ordinance was to prevent the unnecessary scarring of hillsides through regulation of density on various slopes. However, this ordinance has not been effective, as is evidenced by major scarring on the north facing slopes of the Mesa Hills and other areas of the City. It is therefore suggested that the location of development in the hillside areas should be controlled in a manner which guarantees the preservation of the natural characteristics of the terrain and vegetation, even if revised ordinances prohibit development in certain areas altogether.

The conservation of the harbor, shoreline open space, and natural features that contribute to the beachfront character should be a major focus of the City's future planning policy. The Local Coastal Program, for example, is presently refining the City's policies in this regard. Sand build-up at the harbor entrance has forced closure of the harbor in the past, and constant dredging is required to keep it open. The harbor itself is threatened by potentially serious damage from southeasterly storms. Because future development in the shoreline area could enhance or damage existing aesthetic qualities, great care and thoughtfulness must precede major alterations within the coastal zone.

Unfortunately, the City's visual and aesthetic resources are most vulnerable to the pressures of increased land development and population growth. Through the years, the need for protection of these remaining amenities has become a vital concern of those wishing to maintain the essence of Santa Barbara's character and beauty. In response to this need, goals, policies, and implementation strategies have been formulated to conserve and protect the creeks, trees, hillsides, and shoreline, and are contained in the final chapter of this document.

## **AIR QUALITY**

### **Introduction**

Perception of air quality varies from person to person. Some people perceive air pollution as a haze of particulate matter which impairs the range of vision, while others experience burning eyes or difficulty in breathing. Still others do not consider Santa Barbara to have an air pollution problem at all, or blame the air quality on the larger metropolitan areas to the southeast.

Santa Barbara has been designated by the California Air Resources Board as a non-attainment area. This designation reflects the area's failure to meet certain national air quality standards. The air within the South Coast Air Basin, of which the City of Santa Barbara is a part, presently exceeds State and Federal standards for concentrations of oxidants, carbon monoxide, and suspended particulate matter. Air quality standards have been established as benchmarks for concentrations of potentially harmful pollutants. Standards are set at the lowest concentration found to cause harmful effect(s) (Brodine, 1977). These air pollution problems manifest themselves in the form of reduced visibility, eye irritation, impairment of plant growth, added cleaning and maintenance costs, accelerated deterioration of buildings, and, particularly for those with respiratory difficulties, a serious health threat.

## **Major Considerations**

Santa Barbara's air quality, like other natural resources, is limited. That is, at a given point in time, the local air-environment has a limited ability to dilute contaminants and remain clean enough for the population to breathe without experiencing adverse effects. Although local air quality appears to be very good when compared to some communities in Southern California, Santa Barbara is experiencing substantial locally generated air pollution.

## **FACTORS AFFECTING AIR QUALITY**

Air quality varies with the amount of pollutants emitted and the subsequent dispersion of the pollutants into the atmosphere. When the rate of dispersion does not equal the rate at which pollutants are added to the atmosphere, air quality problems arise. Inversions, light winds, and inland mountain ranges are factors which limit the local air environment's capacity to disperse pollutants.

An inversion acts as a "lid" obstructing the vertical diffusion of pollutants. The inversion layer in the coastal areas of Santa Barbara County is quite persistent in trapping pollutants and "is lower than that measured to the north or to the south" (Norsieck and Eschenroeder). The winter months are apt to be accompanied by frequent surface-based inversions (radiation inversion), and during the summer months higher-altitude inversions persist (subsidence inversion).

Local wind conditions are another factor which affect the dispersion of pollutants. Light winds accompanied by inversion thwart the scattering of primary pollutants. December, January, and February exhibit extreme surface stability with almost no mixing. Such stability is more prevalent during late evening and early morning hours. This stagnation functions to trap the primary pollutants while complex photochemical reactions take place, resulting in the production of secondary pollutants (e.g., smog). Local air quality problems are closely linked with these meteorological conditions.

Topographic features also affect local air circulation and, in the case of mountain ranges, encourage the build-up of pollutants by restricting air movement.

Over and above the atmospheric and topographic conditions which affect air quality, auto use is the single most determining factor of air quality in the South Coast. In addition to the increased reliance upon the automobile for transportation, Santa Barbara has recently experienced widespread proliferation of drive-through facilities which cater to convenience-oriented auto use. Autos idling in such facilities cause a substantial build-up of carbon monoxide, which can create health hazards. Convenience-oriented auto use results in low auto occupancy rates, single purpose auto trips, and foregone opportunities for public transit use, all of which add auto-related pollutants to the air. With approximately 70-95% of pollutant emissions having the automobile as their source, the prevention of further air quality degeneration must be based on strategies to reduce overall automobile use and vehicle miles traveled.

## **JURISDICTION AND STANDARDS**

Air quality control involves several levels of government. The Clean Air Act (1970) is the major Federal legislation addressing air quality. The Act deals with both vehicular and stationary emission sources. Pursuant to this Act, the Environmental Protection Agency has the vested authority to set air quality standards and to oversee State implementation of those standards. California's Air

Resources Board is responsible for establishing implementation plans for the attainment and maintenance of Federal State ambient air quality standards. The final authority for the actual implementation plans is vested with the Santa Barbara County Air Pollution Control District which enforces Federal and State rules and regulations.

A recent amendment to the Clean Air Act includes provisions for identifying and dealing with areas which do not meet and/or are not expected to meet the national air quality standards. Santa Barbara is one of those areas of non-compliance and therefore must develop an Air Quality Attainment Plan (AQAP) to demonstrate how the area intends to attain national standards in the future. The plan delineates the degree and manner in which the emission rates must be “rolled back” or reduced in order to meet the National Ambient Air Quality Standards by 1982.

National standards have been established to indicate concentration levels at which pollutants will have a harmful effect upon humans. These standards are displayed in Table 1. An area is not in compliance with the standards if it experiences pollutant concentrations in excess of the amount or frequency designated in Table 1. Although exceedance of such standards has long-term significance for the entire population, it can have particularly adverse health effects on those segments of the population designated as “sensitive receptors.” Sensitive receptors are those who are most vulnerable to air pollution, including persons with respiratory and heart ailments, the very young (under five years), and the elderly (over 65 years) (Office of Environmental Quality, 1977). Factors such as age, location of residence, income, mobility, and sex are also closely linked to pollutant sensitivity. (See Air Quality map for generalized locations of sensitive receptors.)

**TABLE 1**  
**STANDARDS, SOURCES, LOCAL EXCEEDANCE, EFFECTS**

	<b>Carbon Monoxide</b>	<b>Oxidants</b>	<b>Particulate Matter</b>
<b>FEDERAL STANDARDS:</b>			
<b>Primary</b>	8 hr.-9 ppm	1 hr.-.12 ppm	Annual average 75 ug/m <sup>3</sup> 24 hr. 260 ug/m <sup>3</sup>
<b>Secondary</b>	Same	Same	60 ug/m 150 ug/m
<b>Pollutant Source South Coast:</b>	Mobile source emissions  Incineration  Oil/gas production operations  Power generation plant operations	Secondary photochemical product from reactions of hydrocarbons and nitrogen oxides	Mineral extraction and production, demolition, burning of fossil fuels, oil with high sulfur content
<b>Locally Recorded Pollutant High:</b>	Santa Barbara:  2/74 – 32 ppm peak 29 ppm max. hr. average	South Coast:  9/75 - .25 ppm max. hr. avg. 6/76 - .32 ppm instantaneous peak	172.3 ug/m <sup>3</sup>
<b>Pollutant Effects</b>	Harmful effects from headaches, fatigue, and slowed reactions, to death. Can cause interference with oxygen transport in blood.	From mild eye irritation to possible impairment of lung function. Aggravation of respiratory and cardiac diseases, pulmonary dysfunction. Damage to vegetation (ornamental plants to commercial food crops).	Reduces visibility and if particles are small enough can be carried to lungs. Many of the suspended particulates are toxic and are deposited on the food stuffs of animals and humans.
<b>Source:</b>	Adapted from <i>Methodology Development for Coordinated Air Quality/Land Use Planning</i> , Office of Environmental Quality, County of Santa Barbara, Revised November 1977, p. 22.		

## POLLUTANTS AND LOCAL AIR QUALITY

While there are natural sources of pollutant emissions in the environment, the human population contributes quite significantly to localized concentrations of certain pollutants. Transportation, the generation of energy, manufacturing of goods, household heating, and waste disposal all contribute to the emission of contaminants into the air. Pollutants are generally classified into two distinct categories: primary and secondary pollutants. Primary pollutants are defined as those pollutants that are emitted directly from a source. This class of pollutants includes carbon monoxide, oxides of nitrogen, sulfur dioxide, hydrocarbons, and particulates. Secondary pollutants are those pollutants formed by chemical and photochemical reactions in the atmosphere such as photochemical oxidants. Ozone is the predominant component of the photochemical oxidant complex.

Oxidants are produced by complex reactions involving nitrogen oxides (NO<sub>x</sub>), reactive hydrocarbons, and oxygen in the presence of sunlight. Locally, the primary source for both nitrogen oxides and reactive hydrocarbons is the motor vehicle. In 1975, it was estimated that all such mobile sources accounted for over 92% of NO<sub>x</sub> and over 76% of hydrocarbons (Office of Environmental Quality, 1977). By 1985, it is anticipated that off-shore oil production and transport in the South Coast area will have increased to the extent that the major proportion of reactive hydrocarbons will be emitted from various phases of these oil operations (local AQMP).

Oxidants can reduce pulmonary functions in healthy individuals, irritate the eyes, decrease lung elasticity, and aggravate respiratory ailments (e.g., emphysema, asthma). The “smog” which is visible in the Santa Barbara area is photochemical oxidants (NO<sub>x</sub> produces the familiar brownish color).

The monitoring data of the Air Pollution Control District confirms that the standard for oxidants is exceeded on a regular basis in the South Coast between the months of May through September. In 1975 and 1976, serious concentrations of oxidants resulted in first stage health alerts. Future projections indicate that the standard for oxidants (measured as ozone) will not be met in 1982 unless drastic reductions are achieved in emissions of reactive hydrocarbons and nitrogen oxides.

Carbon monoxide, 90% of which is emitted from motor vehicles, is the greatest single pollutant by volume in the atmosphere (Office of Environmental Quality, 1977). This pollutant can be lethal in high concentrations. In lesser concentrations it can be “especially dangerous for people with heart disease, anemia, emphysema, asthma, and other respiratory ailments,” (Terry, 1975). Exposure to concentrated doses of carbon monoxide can produce headaches and distortion of both time and vision in healthy persons.

Concentrations of this pollutant are found in close proximity to busy streets, congested intersections, drive-through facilities, and other areas where vehicles idle for prolonged periods. The Air Quality map indicates such “hot spots” of carbon monoxide concentrations. The proximity of sensitive receptors to these “hot spots” is indicative of potentially harmful health effects for that population. The eight-hour standard for carbon monoxide is exceeded at the downtown monitoring station for many days each year. The standard is probably exceeded at a variety of other locations, but in the absence of monitoring data, this has not been confirmed.

Particulates range in size from microscopic to large enough to be seen with the naked eye. Fires, agricultural processes, power plants, and transportation are the major sources for particulates. Motor vehicles accounted for over 71% of the local particulate inventory in 1975 (Office of Environmental Quality, 1977). Particulates floating in the air are carried directly into the lungs where they can cause irritation of the pulmonary system and/or aggravation of respiratory ailments. Some types of particulate matter (i.e., photochemical aerosols) reduce visibility and consequently have an adverse



impact on Santa Barbara's visual quality. The disposition of particulates on buildings, clothing, etc., results in added burdens to cleaning and maintenance requirements and the associated costs.

### **RELATIONSHIP BETWEEN AIR QUALITY AND VEHICLE USE**

Motor vehicles are the source of approximately 70% to 95% of the total amount of each of the major pollutants emitted locally. Despite the fact that substantial reductions in auto emission have been brought about by federally mandated improvements in emission controls, significant violations of air quality standards still occur and are predicted to occur in the future. "...By 1985 all pollutant reductions achieved as a result of technological advances would be offset by increases in vehicle miles traveled" (Office of Environmental Quality, 1977). In the complex relationship of vehicle use and air pollution, the City of Santa Barbara only has effective jurisdiction over land use practices. Land use controls can affect the nature and distribution of commercial and residential uses which generate auto trips and can affect the supply and utilization of parking facilities.

Land use controls must internalize air quality considerations which are aimed at minimizing the need for auto use, minimizing auto trip length, and maximizing the use of alternative forms of transportation. Because the auto is the focus of the existing transportation system, the present land use pattern is oriented toward scattered residential and commercial development. This type of spatial distribution serves to make public transit ineffective and bicycle and pedestrian travel inadequate, leaving the auto as the only means of providing convenient transport for necessary work, shopping, and personal trips.

The City can utilize its control over the nature, location, and intensity of land uses in a manner which applies strong disincentives to developments which would encourage single occupant and/or single purpose auto trips. Similarly, incentives can be employed to promote developments which concentrate and/or mix uses in a manner which would result in decreased miles traveled and a reduction in auto dependency. Public parking, on-street parking, and off-street parking requirements can also be manipulated to discourage auto use (particularly by commuters) and foster the use of public transit. Car pooling and intracity "people movers" have been discussed in recent years as methods for decreasing traffic congestion in the downtown area. These additions are not likely to be successful unless accompanied by measures which make the status quo (i.e., the single-occupant auto trip) significantly less convenient. While applying disincentives to automobile use, it is essential that alternative forms of transportation (e.g., bus, bicycle) be made more convenient. As it becomes more expensive and inconvenient to use automobiles, alternate means of transportation must be encouraged.

### **Improving Air Quality**

The costs of air pollution include loss of tourist income, increased and additional cleaning costs, increased costs for medical treatment, loss of income due to sickness and decreased function, and damage to ornamental and food crops. Another cost directly associated with air pollution could be federal sanctions which are scheduled to be applied if the Santa Barbara area does not demonstrate, through its Air Quality Attainment Plan (AQAP), how local air quality is to achieve standards. Sanctions could include the withholding of federal highway construction funds and federal grants for sewage treatment and other public facilities.

Plans for improved air quality must recognize that pollutants do not respect political boundaries, and, as such, air quality within the City will be determined by the success of pollution controls

imposed throughout the entire region. The Air Quality Attainment Plan currently being developed by Santa Barbara County will demonstrate how this area proposes to attain air quality standards in the future.

Because the South Coast air environment has a limited capacity to dilute pollutants, strategies aimed at limiting emissions must be geared to ultimate thresholds established for problem pollutants. The Air Quality Attainment Plan should address the air resource “holding capacity” or “budget.” This complicated technical problem involves defining an area’s threshold for pollutants in order to determine allocation of the remaining capacity. In this regard, local agency cooperation with these efforts is needed to ensure optimum land-use/air quality planning. In the interim, until the region’s “holding capacity” has been defined, major development proposals should be thoroughly evaluated for adverse air quality effects.

The land use policies and implementation framework included in the air quality portion of the Goals, Policies, and Implementation Strategies section is intended to ensure community cooperation in regional efforts to improve air quality. The strategies included will not be easily accomplished as they will require change, cause some inconvenience, and have associated costs.

## **BIOLOGICAL RESOURCES**

### **Introduction**

The primary and overriding issue affecting biological resources is the conflict which has developed between urban land use and the preservation of a productive Citywide ecosystem. Urban uses exist in the City of Santa Barbara at least in part because the area is pleasant and in many ways a unique place to live. However, a part of the attractiveness of the region is the degree to which the ecosystem has been maintained in the past.

Provision for both urban use and the preservation of biological resources is dependent on the determination of land use suitability. Conflicts arise between land use capability, which only considers the physical structure of the environment, and land use suitability, which considers the biotic characteristics as well as the physical structure of the environment. Land use suitability must also reflect the value and sensitivities of the general public as expressed through City goals and policies.

Two major concerns have developed in the City because of the conflict between urban use and ecosystem preservation: urban encroachment into ecologically sensitive resources and current degradation of resources. Urban encroachment particularly affects City hillsides, streams, and marine resources.

Current degradation of resources is exemplified by the gradual deterioration of City streams, the Andree Clark Bird Refuge, and the Goleta Slough. As these and other important habitats in the City are lost, the general environmental quality of the City is reduced, thus making Santa Barbara a less attractive place to live and visit.

### **Native Terrestrial Resources**

## **BIOTIC COMMUNITIES**

An ecosystem is composed of biotic communities and the physical and chemical environment with which the communities are interrelated. A biotic community consists of all the populations of living organisms in a particular area. These populations can be divided into three classes: producers (plants), which capture and store energy and materials from the environment; users (animals), which redistribute energy and materials; and decomposers (bacteria), which break down complex organic molecules and return nutrients to the environment.

All living organisms have four basic needs for survival: food, water, shelter and space. The term “habitat” is generally used to define those areas of the environment that supply these basic needs. Because the physical environment provides these needs in different amounts and in different ways, a large variety of habitats is available. Each habitat or group of habitats has a distinctive biotic community associated with it. For convenience, a habitat or its associated community is generally described in terms of a dominant feature, such as a vegetation or soil type.

Terrestrial biotic communities in the City of Santa Barbara can be distinguished by the vegetation type found within them (see Biotic Communities map). The following is a synopsis of the major characteristics of these communities. (More specific information will be found in the Master Environmental Assessment for the City of Santa Barbara.)

Coastal Strand / Beach - Vegetation in this community consists of low-growing (two feet) perennial shrubs and herbs found on the loose sand above the high-tide line at the beach. The loose sand, sea salt, fog, and strong winds make this a particularly harsh habitat, and few species are adapted to survive and flourish here. The strand community has very few resident reptiles or mammals and no year-round resident bird species. Invertebrates are also relatively sparse, with only a few forms abundant at any time. Of these, most are inclined to drastic population changes due to the rapidly changing environment. Recreational use of the beach areas has created further disturbances and limited vegetation growth to small areas along Palm Park and at the toe of the coastal bluffs.

Coastal Bluff - This community is limited to the steep bluffs below Shoreline Drive. Sparsely distributed perennial shrubs and hardy annuals vegetate the slopes. Many of the plants are reduced to a mat form by prevailing winds and are often succulent species. Wildlife is limited to a few birds and arthropods.

California Annual Grassland - Annual grasses and weedy herbs introduced by Europeans have become naturalized in habitats formerly occupied by native perennial grasses. The grassland community is found on the gently rolling hillsides of the City, particularly in areas disturbed by people. Wildlife found here includes primarily grazers and seed-eaters, many of which are ground-burrowers. Decomposers are an important aspect of this community, as their activity maintains the fertility of the soil.

Coastal Perennial Grassland - Native bunchgrass can be found in two areas of the City, on a hillside in Parma Park and at the northeast end of Anapamu Street. These two sites are not considered pristine stands of *Stipa* species because the bunchgrass exists as scattered clumps in a largely annual grassland. While many wildlife species are able to exist in either type of grassland, the native grasses are the only food plants for several insect species.

Coastal Sage Scrub - Vegetation of this community is comprised primarily of low (one to four feet), drought-deciduous, aromatic, semi-woody shrubs and subshrubs, with some larger evergreens and annual or perennial grasses. This community is often referred to as “soft chaparral” and is limited to the lower, dry slopes of undeveloped hillsides in the City. A surprising number and variety of

animals are found in this community, most of which are permanent residents. This is due to the diversity of forage plants and availability of cover.

Chaparral - The organisms which compose this community are illustrative of the way in which the physical environment and the biotic community are interrelated. The community is found on hot, dry slopes, ridges and mesas within the City, and generally on thin, rocky soils. The vegetation consists of many varieties of shrubs, most showing similar adaptations to summer drought, such as stiff, thick, heavily cutinized and generally evergreen leaves. Several of the shrubs are also capable of condensing fog, thereby creating more moist conditions for growth. Organisms within the community are generally adapted to periodic wildfire. Good examples of this community are found in the northeastern sector of the City.

The diversity of shrubs is reflected by the many invertebrate species found in the community. Many vertebrate species nest in the almost impenetrable stands of shrubs. Decomposer species are somewhat lacking in chaparral communities because the drought adaptations also inhibit organic breakdown and soil conditions are generally unfavorable. Periodic fires aid in the decomposition of dead organic matter in this community.

Southern Oak Woodland - Coast Live Oak is the predominant tree type of this community in the City. The oak trees control the micro-environment around them as their extensive shade produces significantly lower summer temperatures and their leaf litter creates acidic soil conditions. The oaks provide shelter, food, and space for many animals. Pristine stands can be found along Las Canoas Road and west of Calle de Los Amigos.

Riparian Woodland and Creeks - Water is the major limiting factor to the abundance and diversity of terrestrial organisms, and, within the City, the creeks are the major natural supply of readily available water. Because of this, riparian areas are very important as they provide water to wildlife from several communities. Riparian woodlands provide a balanced combination of the four basic needs in a terrestrial habitat, but these areas have been altered greatly by urban development within the City. Extensive riparian woodlands and natural creek areas are now limited to the upper portions of Mission and Sycamore Creeks and along most of Arroyo Burro.

Freshwater Marsh - Vegetation in this community is composed of floating, emergent, and submerged herbaceous perennials with little or no woody tissue. Most of the wildlife associated with this community are intimately dependent on water, with many species having aquatic larval forms. The only extensive freshwater marsh in the City is contained in the upper end of Goleta Slough, though elements of this community are found in reservoirs, creeks, and ditches throughout the City.

Coastal Saltmarsh - This community is distinguished by salt-loving herbaceous plant species lying in the intertidal zone of Goleta Slough and, to a small extent, at the mouth of Mission Creek. The saltmarsh community is further considered in Marine and Estuarian Resources.

### **Relationship to Ecosystem Preservation**

Because the biotic community is closely interrelated with the physical environment, it reflects changes within the ecosystem that may not be measured in other ways. Many organisms are sensitive to minor changes in their environment, and these species can be used to index the environmental quality of an ecosystem. Often these “index” species are rare because they depend on precise environmental characteristics. When people alter environmental characteristics on a massive scale, these species become increasingly scarce and may become extinct.

## **RARE, ENDANGERED OR THREATENED WILDLIFE**

The continual expansion of human development has created conflicts between activities and the survival of wildlife. Though extinction is a natural result of a changing environment and continued evolution, the rate at which species are disappearing has increased dramatically in the last few centuries. It has been estimated that the current extinction rate among most groups of mammals is about a thousand times greater than the “high” rate that occurred at the end of the last glaciation, when the geologic record suggests that there were massive extinctions of large birds and mammals (Ehrenfeld, 1972). The rate may be even higher for other animals, particularly invertebrates. Federal and State governments have recognized this problem and enacted legislation protecting wildlife determined to be endangered, rare, or threatened. Under the Federal Endangered Species Act of 1973, an animal may be determined to be endangered or threatened (rare) because of any of the following factors:

- The present or threatened destruction, modification, or curtailment of its habitat or range;
- Over-utilization for commercial, sporting, scientific, or educational purposes;
- Disease or predation;
- The inadequacy of existing regulatory mechanisms; or
- Other natural or man-made factors affecting its continued existence.

Species are considered endangered if they are liable to become extinct in most of or throughout their range. Species are considered threatened if they are likely to become endangered within the foreseeable future. The California Endangered Species Act of 1970 has made similar findings, but uses the word “rare” or “threatened.” The following rare, threatened, or endangered wildlife species may be found in the City of Santa Barbara (U.S. Fish and Wildlife Service, 1976, 1977, 1978; CA Department of Fish and Game, January, 1976. All of these species are found on both lists except the last two.)

American Peregrine Falcon (*Falco peregrinus anatum*) - this falcon is endangered due primarily to food chain contamination by persistent pesticides and other pollutants, and to illegal taking by falconers. Human disturbance and occasional shooting are also factors contributing to its decline. The bird has been sighted at Goleta Slough (City of Santa Barbara, February, 1978).

Southern Bald Eagle (*Haliaeetus leucocephalus leucocephalus*) - this endangered eagle occurs statewide, particularly along the coast near wetlands, reservoirs, and large lakes. It is endangered due to irresponsible shooting, removal of nest trees, human encroachment into breeding and feeding habitat, power line electrocution, environmental pollution, and persistent pesticides. Migrants occasionally occur around Goleta Slough and the Andree Clark Bird Refuge (Santa Barbara County Planning Department, 1978).

California Brown Pelican (*Pelicanus occidentalis californicus*) - this large shorebird became endangered due to reproductive failure cause by environmental pollution and persistent pesticides. Their population has been increasing in recent years, and nesting sites have been established on Santa Cruz Island. Several birds frequently roost in the harbor area and other coastal wetlands, but feed primarily offshore (Western Marine Laboratory, 1974).

California Least Tern (*Sterna albifrons browni*) - this small bird formerly nested in large numbers along sandy beaches throughout Southern California. Destruction of its nesting sites and feeding areas, along with human disturbance, has endangered it. While it has not nested recently in the

Santa Barbara Region (Atwood, 1977), it is capable of re-establishing former nesting sites if disturbances are limited and an adequate supply of small fish (generally in estuaries) is nearby.

Light-footed Clapper Rail (*Rallus longirostris levipes*) - development of coastal wetlands throughout Southern California has limited this endangered species to a few remnant saltmarshes. Goleta Slough is one of only ten areas identified in the state as appropriate habitat (California Fish and Game, 1976); the population at the Slough has been small and the 1977 census failed to find any clapper rails there (Wilbur, 1978). The Slough currently lacks extensive stands of cordgrass (*Spartina foliosa*), which are the primary habitat of the Light-footed Clapper Rail.

Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*) - this endangered sparrow (State list only) is a year-round resident of coastal saltmarshes in Southern California and is restricted almost entirely to pickleweed (*Salicornia sp.*) marshes. Continued development of these wetlands has eliminated essential habitat of Belding's Savannah Sparrow. While Goleta Slough was estimated to contain 28 nesting pairs in 1977, this is considered very small in proportion to the Slough's size and is a substantial reduction from 50 pairs in 1973 (Massey, B.W., 1977).

Black Rail (*Laterallus jamaicensis coturniculus*) - this small bird is listed as rare by California Fish and Game because its habitat, coastal and inland wetlands, has been largely destroyed. Because it is highly secretive and occurs only in limited numbers, it is rarely seen. The actual distribution and abundance of this species is as yet undetermined (City of Santa Barbara, February, 1978).

#### **RARE AND ENDANGERED PLANT SPECIES**

The Federal Endangered Species Act of 1973 includes authority for establishing rare and endangered plant species, and the Smithsonian Institute (1974) was asked to provide a list of candidate species. To date, of the plant species which have been listed as endangered on the Federal list, only one occurs in the City. At the State level, the Fish and Game Commission designated 29 native plants as endangered or rare on October 6, 1978, in accordance with the provisions of the Native Plant Protection Act. None of these plants occur in the City. A private group, the California Native Plant Society (CNPS), has published a rare and endangered species list which may be used to identify sensitive plants in the City. Table 2 lists those plants which do or may occur in the City, along with the Society's endangerment code and local habitat.

TABLE 2

SENSITIVE PLANTS WHICH MAY OCCUR  
IN THE CITY OF SANTA BARBARA

Scientific Name	Common Name	CNPS REVD Codes*	Smithsonian Code**	Habitat in City
<u>Cordylanthus maritimus</u> spp. Maritimus	Saltmarsh bird's beak	3-2-2-2	E+	Found in Coastal Saltmarsh at Goleta Slough
<u>Dicentra ochroleuca</u>	Yellow dicentra	1-2-1-3	E	Dry, disturbed places in Chaparral below 3000'; no known location in City
<u>Pholisma arenarium</u>	Pholisma	2-2-2-2-	N	Coastal Strand; no known location in City
<u>Sanicula hoffmannii</u>	Hoffman's sanicle	2-2-1-3	N	Coastal Sage Scrub,; no known location in City
<u>Lasthenia conjugens</u>	Contra Costa Bueria	3-2-2-3	T	Possibly found in ephemeral ponds in Goleta Slough – probably introduced from northern California; has not been recorded in Santa Barbara region since 1950

Nomenclature and habitat according to Munz, P.A. 1974; "A Flora of Southern California", and Smith, C., 1976; "A Flora of the Santa Barbara Region."

\* Status, as defined by the California Native Plant Society (Powell, 1974):

First Number: Rarity

- 1 - Rare, of limited distribution, but distributed widely enough that potential for extinction or extirpation is apparently low at present.
- 2 - Occurrence confined to several populations or one extended population.
- 3 - Occurs in such small numbers that it is seldom reported; or occurs in one or very few highly restricted populations.

P.E - Possibly extinct or extirpated.

Second Number: Endangerment

- 1 - Not endangered
- 2 - Endangered in part
- 3 - Totally endangered

Third Number: Vigor

- 1 - Stable or increasing
- 2 - Declining
- 3 - Approaching extinction or extirpation

Fourth Number: General Distribution

- 1 - Not rare outside California
- 2 - Rare outside California
- 3 - Endemic to California

\*\* Status, as defined by the Smithsonian Institute (1974):

- E - Endangered; those species of plants in danger of extinction throughout all or a significant portion of their national ranges.
- + - Recognized as endangered by the Federal government, 28 September 1978.
- T - Threatened; those species of plants likely to become endangered within the foreseeable future throughout all or a significant portion of their national ranges.
- N - Not included in Smithsonian list.

## Biotic Community Sensitivity

The loss of rare species from a community indicates possibly detrimental, environmental changes are affecting the entire ecosystem. The extent to which a biotic community can withstand these changes is dependent on the type of environmental stresses which naturally occur in the habitat and the ability of the organisms to change their environment. Communities which cannot adapt to new environmental stresses can be considered relatively sensitive to development activity. These communities often require an extensive amount of time to recover through the process of ecological succession. This aspect of the City of Santa Barbara's terrestrial communities is illustrated in Table 3.

**TABLE 3**  
**SENSITIVITY AND RECOVERY TIME**  
**OF TERRESTRIAL COMMUNITIES IN THE CITY OF SANTA BARBARA**

<b>Biotic Community</b>	<b>Sensitivity</b>	<b>Recovery Time*</b>
Coastal Bluff	Very High	Indeterminate
Coastal Strand/Beach	Very High	Indeterminate
California Annual Grassland	Low	1-2 years
Coastal Perennial Grassland	Very High	Indeterminate
Coastal Sage Scrub	Medium	5-10 years
Chaparral	Medium	8-12 years
Southern Oak Woodland	High	100 years
Riparian Woodland/Creeks	Medium	20-30 years
Freshwater Marsh	High	5-10 years
Saltwater Marsh	High	5-10 years

\* The time necessary for the community to recover if all vegetation is removed, but no other environmental changes are made.

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Urban growth has depleted several biotic communities within the City's boundaries. The following major resource areas are considered particularly sensitive to continued growth:

Goleta Slough - Landfilling for the construction of Santa Barbara Airport has limited the wetland habitats available for saltmarsh and freshwater marsh communities. Sedimentation from upland sources is a critical problem as small changes in elevation affect tidal flushing within the saltmarsh. Littoral drift of sediments continually closes the mouth of the Slough, limiting tidal flushing and causing oxygen depletion of Slough waters.



Coastal Perennial Grassland - native grasslands were largely replaced by exotic annual grasslands during the last 400 years, primarily as a result of grazing pressure. In the recent past, grassland habitat was converted to urban areas because of the ease of developing the coastal plains. Only a few stands of bunchgrass (*Stipa spp.*) remain in the City, interspersed with annual grassland; however, none are in pristine condition.

Riparian Woodland/Creeks - urban development has encroached on City creeks, substantially altering the creek environment. This has caused increased bank erosion coupled with downstream siltation, abundant growth of noxious algae, and loss of many organisms formerly associated with the creeks, such as steelhead trout. Continued streamside development will further damage this resource.

While the preceding resource areas contain the most sensitive communities in the City, other areas also contain valuable terrestrial habitats which should be considered in the development of land use policies. These include undisturbed stands of Southern Oak Woodland and Coastal Sage Scrub which contain elements unique to the City of Santa Barbara. An example would be the stand of oaks located on the north slope of the Wilcox property.

## **Estuarine and Marine Resources**

The immediate coastal waters and tidelands have long been recognized as critical habitats of especially high biological productivity. This productivity is due, in part, to the relatively stable environment of the ocean, the influx of nutrients from land, and tidal activity which transports wastes and nutrients within this system. The California Coastal Act of 1976 acknowledges the value of these lands, and requires local jurisdictions to adopt a Local Coastal Program establishing goals and policies regarding use of the Coastal Zone. The City has developed draft portions of its program, including reports on Water and Marine Resources: Environmentally Sensitive Habitat; and Diking, Dredging, Filling and Shoreline Structures (City of Santa Barbara, February, July, August, 1978). Because the Local Coastal Program takes precedence over the Conservation Element in the Coastal Zone, this portion of the Element should be reviewed to incorporate the City's program when it is adopted.

## **INTERTIDAL AND NEARSHORE HABITATS**

Intertidal communities within the City of Santa Barbara include the rocky shores of the western mesas and the open coast beaches. Rocky shore organisms as shown on Figure 1 are fairly abundant in three locations. These organisms are extremely hardy because they must withstand wave action, and current recreational use of the area has not significantly affected them (City of Santa Barbara, July, 1978). Most invertebrates associated with the open shore of the sandspit and public beaches are adapted to burrowing, which decreases wave shock. This habitat is much harsher than the corresponding rocky shore habitat, and few organisms can adapt to it.

Both the rocky shore and beach communities support significant numbers of shorebirds that forage in these habitats.

Kelp bed and reef habitats are particularly important because of their high productivity (Figure 1). Kelp beds provide forage and shelter for many fish and invertebrate species. Some regulated kelp harvesting has been allowed in the area, but it has not adversely affected this important resource. Reefs provide shelter and breeding areas for local fish populations. Currently, the Santa Barbara sewage outfall discharges wastes at

the west end of the One-Mile Reef (Figure 1), but no harmful effects from the waste discharge have been found in recent tests (City of Santa Barbara, July, 1978).

Future growth within the City may have substantial effects on these habitats. Development above the cliffs can increase rates of cliff retreat which is adverse for local biotic populations. Coastal plain development affects intertidal and near-shore habitats by increasing run-off with higher contaminant loads, altering sedimentation patterns, and increasing sewage waste disposal into coastal waters.

## **FISHERIES**

The reefs and kelp beds off the coast provide important fishery areas, with rockfish, English sole, petrale sole, and other flatfish being the most common commercial landings (Smith, E.J., 1976). The rocky intertidal and subtidal areas below the mesas provide habitat for spiny lobster and abalone. Both of these species are currently declining for many reasons, particularly overfishing and environmental disruptions (City of Santa Barbara, July, 1978).

**Figure 1. Intertidal and nearshore habitat.**

## **GOLETA SLOUGH**

Estuaries are partially enclosed coastal waters with a free connection to the sea. Fresh water flows into these areas, carrying nutrients, while the tidal action transports nutrients and wastes in the system. Because food, shelter, and water are relatively abundant, estuaries are highly productive habitats and many fish species and free-swimming invertebrates use the estuary as nursery grounds. Goleta Slough is the only significant estuarine habitat in the City, as urban encroachment and landfills have reduced the El Estero to a few remnant saltmarsh patches along the Central Drainage Channel.

Two important vegetative communities are present at Goleta Slough: coastal saltmarsh and freshwater marsh. Coastal saltmarsh vegetation is generally composed of extensive stands of a limited number of species because of the environmental stresses associated with abrupt changes in salinity, temperature, ion concentration, and water level. However, these species grow rapidly because of the ample water supply, nutrient mixing by tidal action and reduction of competition with other species. Much of the marsh vegetation dies back during the winter and is decomposed by various bacteria and fungi and eaten by small invertebrates. This decomposing organic matter is washed into the tidal channels and the ocean by tidal action, and provides the primary food source for coastal animals in the nearshore area.

The freshwater marsh also benefits from an ample water supply, and is a highly productive habitat. Many animal species are found in this habitat, which is becoming increasingly rare in the southern coastal region.

An inventory of the Slough's biotic resources (City of Santa Barbara, February, 1978) shows that the area supports a large and highly diverse flora and fauna. The City's Local Coastal Program emphasizes the importance of the Slough, and recommends a management plan for this resource.

## **Agricultural Resources**

Agriculture has historically been important to the economy of the cities and south coast of Santa Barbara County. As the City has urbanized, however, commercial agricultural uses have gradually been replaced by other uses of the land. Today, the primary pursuits are related to avocado orchards, specialty crops, nursery stock and ornamental plants.

The location of prime soils (Class I and II soils as defined by the Soil Conservation Service) is scattered throughout the City, with substantial prime acreage in the La Cumbre Road vicinity. However, a majority of the City's prime soils have already been converted for urban uses. There is little, if any, prime land still in large, undivided tracts.

Continued commercial agriculture on the remaining pieces of prime land is deterred by some basic conflicts with adjacent land uses. For the farmer/rancher, urban neighbors create problems of trespass, vandalism, and pilferage. For residents adjacent to farmland within the City, noise, dust, odors, operation of heavy machinery at sleeping hours, and chemical spraying constitute nuisances which may interfere with daily living and could present health hazards. For these reasons, and the problems of substantial parcelization, high land costs, high property taxes, and no option for Land Conservation Act contracts (Williamson Act of 1965), commercial agriculture within the City of Santa Barbara will, for the most part, continue in a transition to small home orchards and community gardens or to urban uses.

## **INVENTORY OF CROP PRODUCTION**

In 1990, there were 133 parcels in the single-family zones of the City which are more than three acres in size (74 parcels, three to five acres in size; 34 parcels, five to ten acres; 25 parcels, over ten acres), excluding

parcels containing present or future parks or institutional uses (i.e., schools, reservoirs, seminaries). This accounts for a total of a little over 1,000 acres or about five percent of the City. Many of these parcels are developed with single-family residences and related accessory uses, including agricultural uses. Some parcels, particularly along the northern edge of the City, are developed exclusively with agriculture. Other parcels remain vacant and have potential for residential or agricultural uses or both.

Ornamental and Nursery Stock - There are two remaining growing grounds in the City for ornamental plants and nursery stock. They are located on Yankee Farm Road off Cliff Drive and on Calle Canon on the northern edge of the Mesa.

Many of the large growing areas for ornamental plants and nursery stock are found just outside the City limits, in Goleta and in Carpinteria. Substantial production from orchards, potted plants and other greenhouse-grown plant materials contribute to the economic base of the South Coast in general.

Avocado Orchards - The foothill areas above the coastal plain are prime areas for avocado production. Hass, Fuerte, Bacon, Zutano and other avocado varieties are all suited to the mild climate of Santa Barbara. In addition, this high-cash crop can be grown on steeper slopes and less fertile soils than Class I or Class II prime soils. Although handicapped by heavy clay soils and fungal root rot in some areas, avocado orchards are currently a crop which generates considerable interest locally.

In 1978, there were about 190 acres of avocados grown within the City limits (Rich, personal communication, 1978). From 1978 to 1994, the total number of acres appears to have changed very little, although the distribution has changed. Several parcels are 30-40 acres in size, but the typical orchard is only 1-5 acres. These orchards are scattered throughout the City. Some orchards are located on Braemar Drive, others on the western City boundary, with many also along the northern edge of the City in the foothills. The high cash value of avocados makes small family orchards economic to harvest and merchandise. The larger undeveloped parcels (½ acre to 5+ acres) in the foothill and Mesa portions of the City may see increased conversion to small, private avocado orchards. This would be encouraged by maintenance of the slope density ordinance or additional slope constraints on foothill development for residential uses. Where additional building sites for homes are improbable on these larger parcels, owners may attempt to offset property taxes and supplement income by removing natural vegetation and planting avocado orchards.

Clearing hillside brush for avocado orchards can be far more unsightly and environmentally damaging (siltation, drainage alteration and flooding aggravation) in the short-term than creating individual hillside homesites, one at a time. However, avocado orchards do result in buffer areas that slow wildfire progress by eliminating highly flammable ground cover and replacing dry natural vegetation with irrigated trees.

Lemon and Orange Orchards - There are no commercial citrus orchards still maintained in the City of Santa Barbara (Santa Barbara Lemon, Goleta Lemon Association, personal communication, 1978). The agricultural lands of the South Coast are highly suited to citrus production, but encroaching urban development and variable cash returns on citrus produce have eliminated the local commercial crop. Goleta and Carpinteria still have citrus crops harvested and shipped, but there is no longer any commercial contribution from the City. There are many family orchards, however, which are picked for home use.

Contemporary Community Gardens - There has been a major trend back to "urban gardens," similar to the victory gardens of World War II. Intense interest in development of backyard and community gardens is evident throughout the United States.<sup>2</sup>

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<sup>2</sup> Results of a 1977 Gallup Poll on Home Gardening showed that six million households (currently without land to garden upon) would participate in community gardens, if available. Nationally, one-third of all community gardens in 1977 were city-sponsored.

Santa Barbara has had several community gardens in the recent past which have served as models for other communities (Chapala Street garden, El Mirasol garden, the Mesa garden and the Yanonali Street garden, all operated by the Community Environmental Council of Santa Barbara, and the Pilgrim Terrace garden operated by the residents of Pilgrim Terrace). In addition, there are numerous private fruit, vegetable and flower gardens which are found scattered throughout the City. Many of these provide a recreational outlet for people, as well as edible and saleable produce. The Rancheria garden, near City College, and El Mirasol garden, in the Lower Eastside, each offer about one-half acre of land for community gardening primarily for the residents in those areas. The Pilgrim Terrace garden provides land for gardening primarily by the residents of Pilgrim Terrace Homes.

### **FARMER'S MARKET**

In 1980, the first certified Farmer's Market was established in Santa Barbara. It was held in several locations throughout Santa Barbara until it settled into its present location in 1985. This event occurs on Saturday mornings in the City Commuter Parking Lot at Cota and Santa Barbara Streets. It is operated by Santa Barbara Certified Farmer's Market, Inc. It has proven to be very successful in its sale of fruits, vegetables, flowers and similar products.

In 1988, the Old Town Merchants Association and the operators of the earlier Farmer's Market received permission to close the 400 block of State Street on Tuesday evenings in order to establish a second Farmer's Market. The purpose of the Old Town Market was to return lost business to the lower Downtown Area during the closure of State Street due to Crosstown Freeway construction. The location was later moved to the 500 block of State Street. The Old Town Market sells similar produce to the Saturday market. When the Crosstown Freeway construction was completed and the State Street Underpass opened in mid-1991, the continued existence of the Old Town Market was reassessed. The Planning Commission reviewed the Old Town Market in late 1993, determined that it was still an appropriate use on State Street and issued a Conditional Use Permit. It was also expanded to include both the 500 and 600 blocks of State Street. At the same time, a Conditional Use Permit was granted for the continuance of the Saturday Farmer's Market at the City Commuter Parking Lot. In 1994, the Planning Commission approved a third Farmer's Market location on Coast Village Road that operates on Friday mornings.

The majority of the sellers at the Farmer's Market are residents of Santa Barbara County with most of the rest from Ventura and San Luis Obispo Counties. A few sellers also come from the Central Valley. The Farmer's Market provides an alternative shopping source to area residents and tourists, generally at prices that are lower than available at the local supermarket. At the same time, the Farmer's Market provides an outlet for growers who are able to sell at prices which are higher than wholesale and with reduced packing costs, which improves their profit. It also draws people to the Downtown at times when they might not otherwise come and creates a community gathering place (Mark Sheridan, Santa Barbara Certified Farmer's Market, Inc., personal communication, September 1990).

### **The Future of Agriculture in the City**

As the City becomes more urban, the larger parcels are likely to be subdivided into smaller lots and developed with residential uses. However, on the northern edge of the City, in particular, the land is steep (slopes in excess of thirty percent) and, even after subdivision, parcels are likely to remain larger in size. These parcels will continue to be likely locations for agricultural uses, particularly avocado orchards.

In other areas of the City, smaller parcels will continue to be used to grow specialty food crops. Many of these crops will be grown organically or with minimal pesticides and sold locally, especially through the Farmer's Market.

Generally speaking, agriculture in the City is not important on a state or national level, although avocados are one of California's leading agricultural cash crops. However, agricultural production does contribute in several ways to the area. Agriculture provides a living to a small portion of the City's residents. The crops grown contribute to the variety of produce available to local consumers and provide competition to major growers. Mature orchards often contribute to the aesthetics of the community through variation in texture, color and the break up of suburban areas of the City. Agricultural areas serve as animal habitat and provide green corridors for animals to travel from one natural habitat area to another. More importantly, agriculture provides fire protection by removal of dense, flammable ground cover and replacement with irrigated vegetation with high moisture content which slows all but the most powerful wildfires. Dispersal of agriculture in the City fringe will help reduce the fire hazard for the entire City.

Because, first and foremost, the City is an urban area with emphasis on a high quality of life for its residents and visitors, the types of agriculture allowed should be limited. Commercial dairying and commercial animal and poultry husbandry should not be allowed due to the production of noxious odors and flies. Agricultural accessory uses such as canning would also be incompatible with adjacent residential uses. Pesticide and heavy equipment use should be restricted in order to minimize their effects on neighbors, as well. Neighborhood compatibility is very important in determining what types of agricultural operations are acceptable.

Another important aspect of the City is its interest in protection of the environment, both natural and man-made. Grading and irrigation for agricultural purposes should be closely reviewed to assure that water use is limited, environmentally sensitive habitats are protected, viewsheds are preserved and downstream flooding, siltation and erosion are prevented. Particular emphasis should be placed on preservation of oak groves, riparian and bunchgrass habitat and skyline trees. Issues such as noise, dust, odors, operation of heavy equipment and chemical spraying must also be addressed.

## **Other Urban Biotic Resources**

### **SANTA BARBARA HARBOR**

Four biotic communities are associated with the harbor: a quiet bay community, formerly found on the pilings and floats of the marinas and now located only on Stearns Wharf; a bottom community; an open water community; and a rocky intertidal community on the breakwater. The bay community is probably the most biologically productive of the harbor communities; however, most of these organisms are considered nuisances because they eventually destroy the pilings and floats and damage boat bottoms. The harbor communities are not as productive or stable as natural communities because of continual environmental stresses caused by poor water circulation, periodic dredging, and intense human activity (Western Marine Laboratories, 1974).

A critical problem within the harbor is the dumping of waste materials and the use of toxic compounds to prevent boat fouling which have contributed to the harbor's low water quality. Proposed harbor expansion should consider this potential impact.

While most of the organisms found within the harbor are common forms, the Brown Pelican and California Least Tern, both endangered species, occasionally forage for fish in the harbor (Western Marine

Laboratories, 1974. See section on Rare, Endangered, and Threatened Wildlife.). The possible effects of harbor pollution on local individuals of these species is unknown.

## **URBAN RESOURCES**

The urban biotic community generally lacks a major necessity for the survival of organisms, which is space. The primary constituent of the community is the human population, and other organisms within the community are dependent on the manipulation of energy by humans. Because of this, individuals of common wildlife species are often widely separated, and maintenance of breeding populations is difficult. Those species which are highly mobile, such as birds, insects, and annual plants with wind-borne seeds, are the most successful in an urban community. There are four important biotic resource areas of the urban community in the City.

Wilcox Property - This property contains a large, landscaped garden of native plant species.

Andree Clark Bird Refuge - This brackish pond was created especially for migratory waterfowl; however, the lack of management, misuse of the park, and gradual eutrophication has diminished its habitat value (City of Santa Barbara, August 1978).

Horticulture Plantings - Landscaping within the City has been influenced by several noted horticulturists and includes many unique and rare species. An inventory of Santa Barbara's trees has been published (Beittel, 1976; Muller, Broder & Beittel, 1974), with particularly important plantings listed, such as those in Franceschi Park, Alameda Plaza, Orpet Park, and around the County Courthouse. An area of special interest is the grounds of the old Verhelle Kentis nursery in the areas of Manitou and Chuma roads, where *Kentia* palms have established a breeding population.

Golf Courses - These areas function similarly to annual grassland communities, and many species found normally in grasslands also occur here.

Goals, policies, and implementation strategies for biological resources are discussed in the last chapter of this document.

## **DRAINAGE AND FLOOD CONTROL**

### **Introduction**

San Roque, Arroyo Burro, Mission, and Sycamore Canyon creeks are the four major drainages in the City of Santa Barbara. Of these, Mission and Sycamore creeks pose significant flood hazards where they pass through urbanized portions of the City. The Central Drainage Area in the lower east side of the City is a separate 1,600 acre watershed which lies between Mission and Sycamore creeks. There has been frequent flooding of the Central Drainage Area due to inadequate local drainage. This condition, however, has been substantially reduced with completion of the Eastside Storm Drain. Near the Santa Barbara Municipal Airport are the drainages of San Pedro, Las Vegas, Carneros, and Tecolotito creeks. The Airport is shown within the boundary of the 100-year standard project flood.

Santa Barbara's major flooding threat results from high-intensity rainfall which produces heavy runoff in a short period of time. Often, flood waters are laden with channel debris, especially after fire has denuded chaparral vegetation in the foothills, or where stream channels have not been recently swept clean of



accumulated debris by creek runoff. Narrow, crooked stream channels with steep gradients such as are found on the South Coast are especially prone to rapid runoff.

Brush, trees, and other debris are often washed downstream and caught, obstructing the flood flow. As the flow increases, these barriers too are swept loose, creating a wall of water and debris which can be highly destructive downstream. Debris which collects around bridges and culverts can create a damming effect which is capable of washing out structures if their structural capability is exceeded. When this debris is finally deposited downstream, flood waters may reach elevations higher than they would otherwise.

Damaging floods occurred in 1862, 1875, 1877, 1883, 1888, 1907, 1909, 1911, 1914, 1918, 1938, 1941, 1943, 1952, 1967, 1969 and 1978. Although flood control improvements have substantially alleviated the conditions leading to flooding in the downtown area (channelization and realignment of portions of Mission Creek, Eastside Storm Drain project, etc.,) there is still a major hazard to structures and to lives from flooding in the City (Corps of Engineers, 1975).

An evaluation of the 100-year standard project flood limits for San Roque, Arroyo Burro, Mission, and Sycamore creeks shows that there are approximately 2,725 permanent structures within, or partially within, these limits which could be subject to flooding (HUD, 1978). It is not possible to forecast dollar costs and loss of life from future flood episodes, but the number of structures currently exposed to hazard by their location within the 100-year flood limits is an indication of the large magnitude of this problem. Implementation of land use regulations which promote wise floodplain management can substantially alleviate future flooding in areas which will be urbanized in the future. Such management strategies include creek setbacks, regulation of creekside land uses by the Zoning Ordinance, participation in the Federal Flood Insurance program, construction of additional fixed-work flood prevention structures where necessary, and continued refinement of flooding and floodway fringe area maps.

Development of creekside areas is more difficult to manage. Areas bordering lower Mission Creek and Sycamore Creek have already been substantially urbanized, and it is also in these areas that the greatest areal extent of flooding is projected to occur. Obviously, structures cannot be removed solely because they lie in flood hazard zones. However, measures can be taken to require that replacement of such structures be prohibited if they are severely damaged or lost to floods. This approach can be modified to allow rebuilding if it can be demonstrated that the structure has been satisfactorily "flood proofed" and that no increase in flood height is induced by replacement of the structure, or that subsequent flood control fixed works have altered the limits of the 100-year standard project flood. Flood-proofing is defined as a combination of structural provisions, changes, or adjustments to properties and structures subject to flooding primarily for the reduction or elimination of flood damages to properties, water sanitary facilities structures, and contents of buildings in a flood hazard area (ASPO, 1972).

(Insert )

Source: Adopted HUD, 1978.

## **Major Creeks**

### **MISSION CREEK**

A 4.4-mile section of Mission Creek traverses the City from the northern City limits to the Pacific Ocean. It flows from Mission Canyon to Oak Park, then parallel to U.S. Highway 101 from Junipero to Gutierrez Streets, and finally to the ocean directly east of Stearns Wharf at the foot of State Street. Its drainage area is approximately 11.5 square miles.

Mission Creek poses the most substantial flooding problem to the City in terms of hazard to existing structures. About 2,380 of the 2,725 structures within the limits of the 100-year flood are subject to flooding from Mission Creek and its overflow.

### **SYCAMORE CREEK**

Sycamore Creek runs a 2.7-mile course through the City between the Stanwood Drive/Sycamore Canyon Road intersection and the ocean at East Beach. Its drainage area is about 4.0 square miles. It constitutes a substantial watershed from which flooding frequently occurs. Sycamore Creek is heavily urbanized through the Eastside and East Beach neighborhoods. Areas along Milpas, Salsipuedes, and Cacique Streets experience minor flooding after even moderate rainfall.

Through the Eastside neighborhood, Sycamore Creek is reported to be polluted by animal wastes flushed down from upstream. High coliform bacteria counts during low water periods are evident, posing a potential health hazard (Planning Task Force, 1974).

### **ARROYO BURRO CREEK**

This creek flows 4.5 miles through the City from the northern City limits to the ocean. It passes through the Hope Avenue neighborhood, under U.S. Highway 101 east of La Cumbre Road, along Las Positas Road, and to the ocean at Arroyo Burro Beach Park. Its drainage area is about 9.5 square miles.

Overbank flows result in sheet flow outside the main stream channels along both Arroyo Burro and Mission Creeks. These flows break out during the 100- and 500-year floods and can inundate large areas with depths up to three feet. Due to the wide areal extent of these breakouts, and because they occur in residential areas, they would be responsible for substantial flood damage (HUD, 1978).

### **SAN ROQUE CREEK**

San Roque Creek joins Arroyo Burro Creek just southwest of the YMCA on Hitchcock Way, south of Upper State Street. It runs a 1.2-mile course within the City limits from Foothill Road to its confluence with Arroyo Burro Creek and has a drainage area of about 4.7 square miles.

Historic records show negligible evidence of serious flooding along San Roque Creek. This creek passes through older residential areas, and it appears that structural protection is adequate since there is little evidence of serious flood damage from previous floods in Santa Barbara.

### **AIRPORT AREA CREEKS**

The reaches of Tecolotito, Las Vegas, San Pedro, and Carneros creeks within the City limits were studied for their relationship to airport flood hazard (HUD, 1978). These creeks drain from the steep, mountainous reaches of the Goleta watershed into the relatively flat coastal plain and then to the Goleta Slough. San

Pedro and Las Vegas Creeks lie immediately east of the airport and are shown as a single drainage course. Tecolotito and Carneros creeks converge at Goleta Slough west of the airport.

### **Flood Hazards**

Flood boundaries have been mapped for all major creeks in the City. The 100-year flood has been adopted by the Federal Insurance Administration as the base flood for purposes of floodplain management measures (HUD, 1978). Limits of the 100-year flood are shown in the Flood/Fire Hazard and Tsunami Run-up map for Mission, Sycamore, Arroyo Burro, and San Roque creeks. This map also shows the limits of the 100-year flood which affect the City airport area (Tecolotito and Carneros creeks, and San Pedro and Las Vegas creeks).

The 100-year flood boundary includes the *floodway* and the *floodway fringe*. The floodway is the channel of the stream, plus any adjacent flood plain areas, that must be kept free of encroachment in order that the 100-year flood be carried without substantial increase in flood heights. The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe.

In cases where the boundary of the floodway and the 100-year flood coincide, only the floodway boundary is shown, and is the basis for floodplain management (HUD, 1978).

### **MISSION CREEK FLOOD HAZARD**

The Flood Insurance Study shows a narrow area of floodway above Alamar Avenue and State Street. This widens rapidly to a nine-block corridor between San Pascual Street and Mountain Avenue just south of U.S. Highway 101 between Mission and Islay Streets. This is primarily from overflow of Mission Creek where it would break out of its banks at about Pueblo Street.

The floodway corridor narrows again as it crosses U.S. Highway 101 at Carrillo Street until it reaches the downtown area of the City. A second outbreak of the creek is shown from Ortega Street through the State Street signals on U.S. Highway 101, across the Southern Pacific Railroad tracks and to the ocean. A six-block area between Chapala and Santa Barbara streets is shown as inundated by the 100-year storm.

In addition, limited drainage of the lower central City area could create inundation of a six-block area bounded by Ortega, Santa Barbara, and Quarantina Streets to U.S. Highway 101, and below U.S. 101 to the Southern Pacific Railroad. Castillo Street above the harbor is also a significant inundation area. Leadbetter Beach west of the harbor is also within the fringe.

### **SYCAMORE CREEK FLOOD HAZARD**

Sycamore Creek is confined to a narrow floodway with no flood fringe for a major portion of its run through the City. At about Cacique Street on the lower Eastside, a 100-year storm would flood a section several blocks wide near the Old Coast Highway, Salinas Street, portions of East Beach, and the Child's Estate.

### **ARROYO BURRO CREEK FLOOD HAZARD**

The floodway and floodway fringe for Arroyo Burro Creek are mapped as a narrow corridor through the Hope neighborhood. An overflow of the creek is shown below U.S. Highway 101 and also below the confluence of San Roque Creek with Arroyo Burro Creek. This covers the area along Palermo Drive from north of Amalfi Way to Barcelona Drive. Las Positas Road north of Portesuello Avenue is also shown as flood fringe for about 1,000 feet.

### **SAN ROQUE CREEK FLOOD HAZARD**

San Roque Creek does not pose flood hazards to so widespread an area as do Mission and Sycamore creeks. Above its point of confluence with Arroyo Burro Creek, its flood plain is confined to a narrow creek bed. About 750 feet above Foothill Road, at the large meander, San Roque Creek has its widest flood fringe. It is roughly 500 feet in width.

No major areas of outbreak from San Roque Creek are indicated for a 100-year flood (Impacts of Growth).

### **AIRPORT CREEKS FLOOD HAZARD**

The four creeks which empty into the immediate vicinity of Santa Barbara Municipal Airport pose substantial flooding hazard to the Airport during a 100-year flood.

Floodway limits (within the creek bed and floodplain of the 100-year flood) include everything from just north of Hollister Avenue down to Moffett Lane at Ward Memorial Freeway for Las Vegas and San Pedro creeks. Hollister Avenue, Firestone Road, and Arnold Street are all within the floodway from Carneros and Tecolotito creeks, as is the Goleta Slough.

The flood fringe of the four creeks includes all portions of the Airport facility, including each runway, terminal buildings, parking lots, and access roads.

The last section of this Element contains goals, policies and implementation strategies which ensure that adequate drainage and flood control is provided for the City.

## **WATER RESOURCES**

### **Introduction**

A major issue in the determination of how best to approach the future use of City water resources is the significant difference between the City's need for new sources and that of the County. The City has in the past established a water system capable of supplying its needs for the present and the near future. Many County areas, on the other hand, have grown beyond the capability of various districts to supply adequate water, and future growth cannot be accommodated. Various alternatives have been proposed to solve this Countywide problem with the principal concern being the supply of the needed water at the least possible cost to the consumer. Unfortunately, the most efficient solution for the County may not be the most efficient solution for long-term City needs.

A somewhat related issue is the tendency of an assured future supply to induce growth. All water supplies must include some "excess" capacity to accommodate increased demand during prolonged dry periods. The smaller this margin of safety, the more likely it will also function as a constraint on growth. Therefore, some individuals or groups may well oppose development of an increased water supply, not because they are

against adequate water, but because they oppose growth. This approach has been tried by some jurisdictions in California in the past, and with near-disastrous results during the recent drought.

## Supply/Demand Relationships

### EXISTING SUPPLIES

Existing sources of supply are shown diagrammatically on Figure 2. Gibraltar Reservoir via the Mission Tunnel has been the primary source (60%) for the City with deliveries averaging approximately 10,000 acre-feet in recent years (Don Owen, 1976). However, the usable storage in the reservoir has been declining at an average rate of 275 acre-feet per year due to siltation, and is now at a capacity of approximately 8,000 acre-feet (Figure 3).

(insert Figure 2)

Figure 2. Sources of the Santa Barbara City water supply (from City of Santa Barbara, 1977).

Cachuma Reservoir has also been a major source of water for the City, accounting for 23% from 1952 to 1975 (Don Owen, 1976). This source will increase in importance as the City's entitlement increases. The present contract value is 6,800 acre-feet per year, which is expected to increase to approximately 8,950 acre-feet per year (based on revised project yield) in 1990.

Jameson Lake has been an additional source of Santa Ynez River water with supply being via the Montecito County Water District (Figure 2). However, this source has averaged less than 3% of the total supply, and is expected to remain relatively small.

The only significant local source of water is the Santa Barbara groundwater basin. This source was heavily pumped during the 1960s and supplied an average of about 2,500 acre-feet per year for this period. However, this level of use resulted in an overdraft (i.e., extraction exceeding replenishment) of the basin, and pumping has since been reduced. The safe yield of this basin has been estimated at approximately 2,000 acre-feet per year; however, a program of monitoring wells and stream gauges has been underway for the past two years to refine this estimate. Preliminary results will be forthcoming in early 1979 and the study is expected to require an additional five years to complete. The current extraction rate is 1,700 acre-feet per year.

(insert Figure 3)

Figure 3. Historic and projected usable storage at Gibraltar Reservoir. (Source: Don Owen & Associates, 1976).

The interrelationship of the sources discussed above is shown diagrammatically in Figure 4. Groundwater has been a more significant source only during the 1960s; Cachuma has been a relatively constant source

over the period shown; and Gibraltar has been primarily the source that has met increasing demand. However, unless the desilting program can be implemented in the near future, Gibraltar will decline as the primary source of City water. Increasing entitlements from Cachuma can maintain the level of supply for a time, but in the absence of alternative sources, the supply will decline significantly after 1990.

(insert Figure 4)

Figure 4. Historical and projected water supplies and projected water demand. (Source: Don Owen & Associates, 1976).

**EXISTING AND FUTURE DEMAND**

The future demands for water in the City have been estimated by Don Owen & Associates (1976) based on past use and projected future populations. Past rates of use are estimated from known and interpolated population data combined with actual water use for the years 1960 through 1974. Based on this analysis, consumption has varied from a low of 163 gallons per day per person to a high of 203 gallons per day per person, depending primarily on rainfall during the year. The consumption for a normal year is estimated at 180 gallons per day per person.

Estimates of future water demand have been based primarily on land use zoning or future population levels. Assuming 2.3 persons per dwelling unit, 80 gallons per day per person for household use, and 1.6 acre-feet per year per acre for outside use, the zoning approach to estimating ultimate water demand yields a value of 17,200 acre-feet per year. However, because actual land use densities do not follow directly from planned densities, the City Water Commission has requested that future water requirements be based on the population goals of 85,000 which is the “planning objective common to both water and land use planning programs” (Don Owen & Associates, 1976). Based on this approach, the Owen report estimates future water requirements for the Santa Barbara Water Service Area as follows:

**Demand (Acre-feet per year) for:**

<b>Year</b>	<b>Population</b>	<b>Normal Year</b>	<b>Dry Year</b>	<b>Wet Year</b>
1980	73,900	14,900	15,500	13,400
1990	78,800	15,900	16,500	14,300
2000	83,100	16,800	17,400	15,100

These estimates of future demand are for the City Water Service Area which presently includes the Mission Canyon area of the County and a part of the Goleta County Water District served by the City, but does not include that part of the City served by the Goleta County Water District.

In 1976, the District terminated the agreement with the City in these “overlap” areas effective June 30, 1979. While all the problems related to the termination of this agreement have not been settled, the City and the District have agreed to certain principles summarized as follows:

1. The overlap areas will be detached from the Goleta County Water District, and the City will assume the responsibility for water service.
2. The City will sell 240 acre-feet per year to the District for the next ten years, and up to 63% of surplus water as determined by the City.
3. The airport area will be supplied by the Goleta County Water District but with water from the City’s Cachuma entitlement.
4. The City may utilize the Goleta groundwater basin to store up to 2,500 acre-feet per year for five years. Return of the stored water is to be at a rate of up to 1,250 acre-feet per year. (This aspect of the agreement will provide storage for excess water pumped from the Santa Barbara groundwater basin during the testing of the basin for the conjunctive use program).

To allow time to implement the principles summarized above, the existing agreement has been extended for one year. Implementation of these principles will increase the population to be served by the City by about 8,500 (based on data from the Don Owen report), and will increase the demand on City supplies by about 2,000 acre-feet per year (Michael Hopkins). The projected water requirements of the City, not including this demand, are shown on Figure 5 along with projected supplies based on existing facilities and programs. These relationships indicate a balance between supply and demand will occur about 1985 to 1990. However, with the 2,000 acre-feet increase, demand could exceed supply before 1985.

Additional factors that may influence the supply/demand relationship are increased supplies for nearby County areas and additional annexations to the City. The latter could increase demand, while the former would likely reduce development pressure in the City. Also, water conservation techniques are estimated to reduce demand by approximately 400 acre-feet per year by the year 2000. (Don Owen & Associates, 1976.) This aspect of the conservation of City resources has been implemented by resolution of the City Council which required installation of low-flow shower heads, toilet installations, etc., in all new developments.

## **FUTURE SUPPLIES**

Steps are now underway to expand City water supplies by three methods: desilting of Gibraltar Reservoir, conjunctive use of the Santa Barbara groundwater basin, and wastewater reclamation.

Desilting of Gibraltar Reservoir - The Gibraltar desilting program consists of two phases. Phase I is a pilot program to test the feasibility of an air-driven dredge pump not yet used for this purpose in this country, and Phase II is an implementation program that would proceed if the pilot program is successful (City of Santa Barbara, 1977). Phase I, Stages A and B, would extend over a period of approximately ten years and cost about \$2,200,000. A federal EPA grant of \$1,000,000 on a 50/50 cost-sharing basis has been obtained to implement this test phase of the program. If the new type of pump and the procedure generally prove to be feasible, then the Phase II implementation program would be undertaken. This program is expected to extract about 1,000,000 cubic yards of silt, adding 620 acre-feet of storage capacity per year at an annual cost of \$875,000 (1977 dollars). This rate of extraction would be in excess of twice the average siltation rate of 225 acre-feet per year, so that the 20-year operation of this program would return Gibraltar to near its capacity of approximately 15,000 acre-feet (with the raised height of the dam).

Conjunctive Use of the Groundwater Basin - The conjunctive use of the groundwater basin as proposed in the Don Owen report is based on the use of this natural resource as a “water bank.” Excess flows on the Santa Ynez River would be diverted and stored in the basin during wet years. During dry years, the stored water could be pumped to meet demands in excess of those normally available.

The basin has produced an average of approximately 14% of City supplies. This production, however, has been quite variable, and may have, at times, exceeded the safe yield of the basin. Figure 5 shows the relationships between groundwater production in excess of about 2,000 acre-feet per year results in a lowering of water levels during years of normal rainfall, whereas reduced extraction (e.g., during the years 1971-1975) results in a rise in the water level. Water-bearing rocks within the basin include alluvium of various ages (alluvium of Muir, 1968, and younger alluvium, older alluvium and terrace deposits of Upson, 1951) and the Santa Barbara Formation. The older rocks of Tertiary age are considered non-water-bearing, but may yield small quantities of water locally. These water-bearing rocks are offset by faults that form barriers or partial barriers to the movement of groundwater. The most important of these is the Mission Ridge fault (Figure 6).

(insert Figure 5)

Figure 5. Groundwater elevation and production for the Santa Barbara basin, 1950 through 1975. (Source: Don Owen & Associates, 1976).

The Mesa fault is probably of lesser importance as a groundwater barrier because differences in water levels across the fault appear to be minor. However, this fault is generally considered the boundary between storage units 1 and 2 of the Santa Barbara basin. A third fault, unnamed by Muir (1968) and located just offshore of the City, is important as a barrier to the intrusion of seawater into the basin.

Conjunctive use of the basin would involve intentionally lowering the water table so that potential problems such as seawater intrusion can be carefully monitored and evaluated. A storage location is needed for the pumped water so that it is not wasted during this step of the process. A solution for this problem is found in the principles for resolution of “overlap” areas discussed above which provide for the use of the Goleta groundwater basin to store pumped water during the testing and evaluation of this potential source.



## Figure 6. Santa Barbara groundwater basin.

### Legend

Fault; hatchured where forms boundary of groundwater basin; dashed where approximately located.

Fault; may affect levels within groundwater basin.

Boundary of water-bearing rocks; hatchured on water-bearing side; dashed where approximately located.

Major stream supplying surface flow to recharge basin.

Minor source of surface runoff to recharge basin.

(Adapted from Michael F. Hoover, Geologic Hazards Evaluation of the City of Santa Barbara, October 27, 1978.)

Wastewater Reclamation - A third project for the conservation of City water resources is the use of reclaimed wastewater, now discharged to the ocean, for irrigation of landscaping at various parks, schools, and along freeways in the City.

These potential uses of wastewater amount to approximately 660 acre-feet per year (Don Owen & Associates, 1976). Problems related to the implementation of such a project are disrepair of the existing collecting system and a high salt content of influent attributed to seawater infiltration and water softeners (Don Owen & Associates, 1976). Projects are underway to correct the majority of these problems, and a grant which provides up to 87½% Federal funding is available as a result of a joint powers agreement between the City and other South Coast agencies.

Alternative Supplies - In addition to these ongoing programs, alternative supplies include the utilization of local runoff by constructing dams on coastal streams. The construction of dams on coastal streams has been investigated, and is not cost effective in comparison to other alternatives. The issue of importing State Project water was rejected by County voters in March, 1979.

Summary of Future Supplies - Desilting of Gibraltar Reservoir offers the greatest potential for maintaining and increasing City water supplies. If the project proves to be feasible, storage would be increased by approximately 345 acre-feet per year. If reversal of the present trend of reduced storage is included, the overall increase would be about 620 acre-feet per year. In a ten-year period, half the life of the project, the increased storage would amount to more than 6,000 acre-feet.

Other projects could provide smaller but significant increases in supply. The conjunctive use program is expected to provide an average of 2,050 acre-feet per year, and 650 to 700 acre-feet of reclaimed wastewater could be used in place of domestic water for irrigation of landscaping at parks, schools and along the

freeway. Continued enforcement of existing water conservation measures could provide an additional 400 acre-feet per year by the year 2000.

Of these potential sources, the most significant are Gibraltar desilting which would increase storage by 12,000 acre-feet by the year 2000, and the conjunctive use program with a potential yield of approximately 2,000 acre-feet per year. The desilting and the conjunctive-use programs will both require testing to establish their feasibility. The ability to meet future demand is, therefore, primarily dependent on the results of these testing programs.

## **Water Quality**

### **QUALITY OF EXISTING SUPPLIES**

The quality of existing City water supplies is dependent primarily on the quality of the flow in the Santa Ynez River and facilities available for transmission and treatment for domestic purposes. Biologic contamination is not a problem in the City, and the principal measure of water quality is the total of dissolved solids or salts in the water. The salts in City water are approximately 650 mg/l (milligrams per liter), and the hardness component is 340 mg/l. The value for total dissolved solids exceeds the Federal standard of 500 mg/l, but is well within the State standard of 1000 mg/l.

Some hydrogen sulfide enters the water supply during transport, primarily from highly mineralized water seeping into Tecolote Tunnel. This very undesirable component is removed during treatment at the Cater Filtration Plant by conversion to sulfate, a common "salt" component. The capacity of this plant is presently ten million gallons per day (nominal capacity), and plans are being prepared for increasing capacity to approximately 24 million gallons per day.

### **GROUNDWATER QUALITY**

The quality of water in the Santa Barbara groundwater basin is affected primarily by the quality of water that percolates into the basin directly from rainfall and indirectly from runoff from the mountains to the north of the City. Since the rock and soil terrain of this source area are similar to those of the Santa Ynez River, the quality of runoff into local basins is similar. The quality of the stored groundwater is slightly higher because of the better quality of the component of direct infiltration from rainfall.

Areas with high concentration of septic tank systems tend to degrade groundwater quality because of the increased content of dissolved solids, particularly nitrate, in the effluent. Further expansion of the use of septic tanks in the city should be discouraged.

Potential effects of a conjunctive-use program are difficult to quantify, but are expected to be minimal (SBCWA, 1978, VII-7). A lowered water table may result in an increased mineral content, but the quality of the groundwater will reflect primarily the quality of the replenished water. Therefore, a slight increase in mineral content from 625 mg/l to approximately 650 mg/l may accompany a conjunctive use program.

The use of reclaimed water for irrigation purposes is expected to "eventually have a deleterious effect on local groundwater mineral quality" (SBCWA, 1978) because the salts normally carried to the ocean would be returned to the basin. The precise amount of salt increase, however, will depend on the degree of treatment and level of desalination. The Water Agency (1978) has estimated that the salt concentration of groundwater will increase at a rate of 20 mg/l/year with use of reclaimed water with partial desalination at a rate of 750 acre-feet per year.

## **HARBOR WATER QUALITY**

The water quality of the Santa Barbara Harbor is also a subject of concern. Currently, Marina 1 has no sanitary facilities (i.e., marine heads) for use by boat owners or visitors although other marina sections do have facilities. Bilge and head pumping is prohibited within the harbor and the three-mile limit. However, some boats may be discharging directly into the harbor. These factors, along with the animal wastes of the pets of visitors and persons who live aboard their boats within the harbor, contribute to the potential for degraded water quality within the harbor.

The following chapter contains goals, policies, and implementation strategies which ensure the proper maintenance and protection of water resources for the City.

# GOALS, POLICIES, IMPLEMENTATION STRATEGIES

## ORGANIZATION OF RECOMMENDATIONS

In this chapter, general planning goals, policies, and implementation strategies are recommended for the City of Santa Barbara. These recommendations constitute the plan for the conservation, development, and utilization of resources within the City and are the heart of the Conservation Element.

The recommendations comprise general planning goals, general policies, and suggested implementation strategies. The general goals provide statements of the basic purpose of the Conservation Element so that consistent planning is possible. They are necessary guidelines which can be held up against future proposals to determine their effect on the community. The general policies complement the planning goals and define specific directions for the City to take in conserving, developing, and utilizing resources. The implementation strategies are suggested refinements of the general policies. Methods for implementation of the goals and policies need not be limited to those listed in this section, as other effective strategies may become apparent in the future.

While it would be desirable to fully implement each of the implementation strategies, it is recognized that there are competing demands for preservation, enhancement, development, and conservation of resources and the City's economic resources are limited. Therefore, priorities for the implementation of these strategies shall be determined by the City Council after consideration of economic, social, and environmental concerns weighted according to balance and priority.

A finding of project consistency with this Element shall be made to the goals and policies only.

## CULTURAL AND HISTORIC RESOURCES

### Goals

- Sites of significant archaeological, historic, or architectural resources will be preserved and protected wherever feasible in order that historic and prehistoric resources will be preserved.
- The Hispanic tradition of architecture reflected in the El Pueblo Viejo district of the central City shall be perpetuated.
- Selected structures which are representative of architectural styles of fifty or more years ago (pre-1925) will be preserved wherever feasible.

## **Policies**

- 1.0 Activities and development which could damage or destroy archaeological, historic, or architectural resources are to be avoided.
- 2.0 The Designated Landmark distinction shall continue to be extended to those structures and sites which have recognized significance.
- 3.0 The establishment of historic districts should be encouraged as a method to provide for historic and cultural resources which warrant protection.
- 4.0 The requirements and restrictions administered by the Landmarks Committee and the Architectural Board of Review will apply to City and other public agencies as well as private projects.

## **Implementation Strategies**

- 1.0 Activities and development which could damage or destroy archaeological, historic, or architectural resources are to be avoided.
  - 1.1 In the environmental review process, any proposed project which is in an area indicated on the map as “sensitive” will receive further study to determine if archaeological resources are in jeopardy. A preliminary site survey (or a similar study as part of an environmental impact report) shall be conducted in any case where archaeological resources could be threatened.
  - 1.2 Potential damage to archaeological resources is to be given consideration along with other planning, environmental, social, and economic considerations when making land-use decisions.
  - 1.3 Publicly owned areas known to contain significant archaeological resources should be preserved by limiting access and/or development which would involve permanent covering or disruption of the sub-surface artifacts.
- 2.0 The Designated Landmark distinction shall continue to be extended to those structures and sites which have recognized significance.
  - 2.1 The current list of Noteworthy Structures of Importance should be scrutinized for nominees for becoming Designated Landmarks.
  - 2.2 Results of the architectural survey of the City should be examined specifically for potential nominees for becoming Designated Landmarks.
- 3.0 The establishment of historic districts should be encouraged as a method to provide for historic and cultural resources which warrant protection.
  - 3.1 Brinkerhoff Avenue and the Laguna, Oak Park, Upper Eastside, and West Downtown neighborhoods should each be examined for suitability as special preservation/design review districts.

- 3.2 In any neighborhood districts designated as special preservation/design review districts, replacement structures, new construction, and exterior remodeling should be carefully evaluated by the Landmarks Committee for neighborhood compatibility.
- 3.3 Within the boundaries of preservation/design review districts, special attention should be given to height limitations in order to prevent blockage and/or other aesthetic degradation of significant structures or areas.
- 4.0 The requirements and restrictions administered by the Landmarks Committee and the Architectural Board of Review will apply to City and other public agencies as well as private projects.
- 4.1 Municipal Code Chapters 22.22 and 23.68 should be reviewed and revised to assure that both public and private projects are reviewed by the Landmarks Committee and the Architectural Board of Review.

## **VISUAL RESOURCES**

### **Goals**

- Restore where feasible, maintain, enhance, and manage the creekside environments within the City as visual amenities, where consistent with sound flood control management and soil conservation techniques.
- Prevent the scarring of hillside areas by inappropriate development.
- Protect and enhance the scenic character of the City.
- Maintain the scenic character of the City by preventing unnecessary removal of significant trees and encouraging cultivation of new trees.
- Protect significant open space areas from the type of development which would degrade the City's visual resources.

### **Policies**

- 1.0 Development adjacent to creeks shall not degrade the creeks or their riparian environments.
- 2.0 Development on hillsides shall not significantly modify the natural topography and vegetation.
- 3.0 New development shall not obstruct scenic view corridors, including those of the ocean and lower elevations of the City viewed respectively from the shoreline and upper foothills, and of the upper foothills and mountains viewed respectively from the beach and lower elevations of the City.
- 4.0 Trees enhance the general appearance of the City's landscape and should be preserved and protected.
- 5.0 Significant open space areas should be protected to preserve the City's visual resources from degradation.

- 6.0 Ridgeline development which can be viewed from large areas of the community or by significant numbers of residents of the community shall be discouraged.

### **Implementation Strategies**

- 1.0 Development adjacent to creeks shall not degrade the creeks or their riparian environments.
- 1.1 Setbacks, as required by the Federal Flood Insurance Program, should be enforced (see Drainage and Flooding section).
  - 1.2 Examine undeveloped parcels having creek frontage for possible purchase and retention as open space.
  - 1.3 Developments which require retaining walls or other topographic modifications of the creekside environment should not be permitted unless consistent with sound flood control management and soil conservation techniques.
  - 1.4 Develop a creek beautification ordinance.
- 2.0 Development on hillsides shall not significantly modify the natural topography and vegetation.
- 2.1 Development which necessitates grading on hillsides with slopes greater than 30% should not be permitted. The Slope Density Ordinance and Grading Ordinance should be so amended.
  - 2.2 Performance Bonds should be required to ensure achievement of revegetation of graded areas.
  - 2.3 Use of native or naturalized and fire retardant vegetation should be encouraged for landscaping on major cut and fill slopes where development occurs on hillsides.
  - 2.4 All development on hillsides should be required to landscape the downslope side so as to hide or break up large surface area views of structures facing down slope.
  - 2.5 Height restriction ordinances should be changed to allow for “step-down” development design on hillsides to hide or break up large surface area views of structures facing down slope.
- 3.0 New development shall not obstruct scenic view corridors, including those of the ocean and lower elevations of the City viewed respectively from the shoreline and upper foothills, and of the upper foothills and mountains viewed respectively from the beach and lower elevations of the City.
- 3.1 In the absence of Local Coastal Program policies, develop a design overlay zone to limit building heights.
  - 3.2 The northerly side of Cabrillo Boulevard from Castillo Street to Los Patos Way should be designated a special design review district. Restrictions should be developed for this district which establish setbacks and height limitations formulated to ensure the preservation of views and view corridors from the beach toward the mountains.

- 3.3 When the Local Coastal Program is finalized, this element should be revised, as needed, to preserve and enhance the harbor, shoreline, and other coastal resources.
- 4.0 Trees enhance the general appearance of the City's landscape and should be preserved and protected.
- 4.1 Mature trees should be integrated into project design rather than removed. The Tree Ordinance should be reviewed to ensure adequate provision for review of protection measures proposed for the preservation of trees in the project design.
- 4.2 All feasible options should be exhausted prior to the removal of trees.
- 4.3 Major trees removed as a result of development or other property improvement shall be replaced by specimen trees on a minimum one-for-one basis.
- 4.4 Private efforts to increase the number of street trees throughout the City should be encouraged.
- 5.0 Significant open space areas should be protected to preserve the City's visual resources from degradation.
- 5.1 The City should consider purchase or the obtainment of development rights of significant open space where no other means can be found to protect visual resources from degradation.
- 5.2 Parks and other public lands which provide panoramic views or scenic vistas, especially those at higher elevations, shall be protected and maintained for the enjoyment by the public.
- 6.0 Ridgeline development which can be viewed from large areas of the community or by significant numbers of residents of the community shall be discouraged.
- 6.1 Develop a comprehensive analysis of the ridgeline areas of the City to review zoning and development regulations related to protecting the visual qualities of the community.

## **AIR QUALITY**

### **Goals**

- Maintain air quality above Federal and State ambient air quality standards.
- Reduce dependence upon the automobile.

### **Policies**

- 1.0 Reduce single occupant automobile trips and increase the utilization of public transit.



- 2.0 Improve the attractiveness and safety of bicycle use as an alternate mode of travel for short- and medium-distance trips.
- 3.0 Promote the use of car pooling through special provisions for the priority use of parking facilities and other employee disincentives to auto traffic in commercial areas (per TMIS) as an alternative to construction of additional parking facilities.
- 4.0 Discourage and, where possible, prohibit land uses which unnecessarily contribute to air quality degradation.

## Implementation Strategies

- 1.0 Reduce single occupant automobile trips and increase the utilization of public transit.
  - 1.1 Institute appropriate traffic and parking implementation measures (from TMIS and WATS studies) as soon as possible.
  - 1.2 Cooperate with M.T.D. to improve bus zones and routes throughout the City.
  - 1.3 Investigate providing for bus pre-emption of traffic signals.
  
- 2.0 Improve the attractiveness and safety of bicycle use as an alternate mode of travel for short- and medium-distance trips.
  - 2.1 Revise the zoning ordinance to require the installation of secure bicycle storage facilities for all new commercial development and redevelopment.
  - 2.2 Encourage the construction of off-street bikeways or the payment of in lieu fees in all new developments, and improve bikeways on public streets wherever feasible.
  - 2.3 Seek State, Federal, or other funds for use in providing a bicycle fleet for short-distance City business trips of short duration.
  - 2.4 Update the Bicycle Master Plan to better reflect the desires and needs of the community.
  - 2.5 Resurface streets and roadways with relatively high levels of bicycle use.
  
- 3.0 Promote the use of car pooling through special provisions for the priority use of parking facilities and other employee disincentives to auto traffic in commercial areas (per TMIS) as an alternative to construction of additional parking facilities.
  - 3.1 Encourage City employees to car pool through the construction of park-and-ride, carpool parking lots on the downtown fringe.
  - 3.2 Provide incentives for employers and employees of private business to encourage car pooling by using park-and-ride lots offering reduced or free rates.
  - 3.3 Exhaust all reasonable parking management strategies prior to the construction of new public off-street parking lots.
  
- 4.0 Discourage and, where possible, prohibit land uses which unnecessarily contribute to air quality degradation.
  - 4.1 Prohibit the construction of, and/or conversion to, drive-through facilities.
  - 4.2 Develop a program to equitably phase out all existing drive-through facilities.
  - 4.3 Institute controls that will address the construction of any new facilities which add significantly or will cumulatively result in a significant increase in air quality degradation.
  - 4.4 Encourage cooperation between City and County jurisdictions to develop additional air quality monitoring stations to obtain better information regarding air quality.

## **BIOLOGICAL RESOURCES**

### **Goal**

- Enhance and preserve the City's critical ecological resources in order to provide a high-quality environment necessary to sustain the City's ecosystem.

### **Subgoals**

- Develop a permanent park, recreation, and open space system which maintains important ecological systems while providing open space and recreational needs.
- Maintain, protect, and enhance marine resources within the City boundaries.
- Increase public understanding of the relationship between the maintenance of the City ecosystem and the welfare of the general public.
- Encourage the conservation of existing tracts of agricultural land and provide for expansion of agricultural land uses in a manner which maximizes compatibility with adjacent land uses.

### **Policies**

- 1.0 A set of land use suitability guidelines shall be developed for use in land planning and the environmental review process.
- 2.0 Redevelopment and renovation of the central city shall be encouraged in order to preserve existing resources.
- 3.0 Goleta Slough shall be preserved and restored as a coastal wetland ecosystem.
- 4.0 Remaining Coastal Perennial Grasslands and Southern Oak Woodlands shall be preserved, where feasible.
- 5.0 The habitats of rare and endangered species shall be preserved.
- 6.0 Intertidal and marine resources shall be maintained or enhanced.
- 7.0 Prime agricultural lands shall be conserved wherever possible and expansion of agricultural uses shall be allowed subject to maximizing compatibility with adjacent land uses and restricting effects on the environment.
- 8.0 The use of City-owned vacant properties for community gardens shall be encouraged.
- 9.0 The biotic resources of the Harbor shall be maintained, so far as possible within the framework of the LCP and other Harbor Restoration plans.
- 10.0 Programs shall be developed to maintain a productive urban biotic community.
- 11.0 Where Biological Resources policies conflict, the policy most protective of the natural environment shall prevail.

## Implementation Strategies

- 1.0 A set of land use suitability guidelines shall be developed for use in land planning and the environmental review process.
  - 1.1 Develop criteria to evaluate and assess the ecological significance of biotic communities found to exist within the City. This information would be used to identify healthy, abundant communities, as well as rare or endangered communities.
  - 1.2 Conduct a study to recommend suitable land uses and/or acquisition priorities for pristine or near-pristine communities previously inventoried by the City (Santa Barbara Planning Task Force, 1974).
  - 1.3 Where not preempted by the Federal Flood Insurance Program, land use regulations will be developed for the creek influence zones of Mission, Sycamore, San Roque, and Arroyo Burro creeks.
    - a. Assign the task of conducting a biological study of the creek influence zones to the Community Development Department. This study is to determine the general land uses within the zone which would be compatible with the maintenance of the existing biological communities of the creeks, and is not intended to consider the development of public recreation facilities within the creeks.
    - b. Enact a flood control and creek ordinance which would include provisions to restrict channelization in natural creek bottoms and structural developments within the 100-year floodplain in natural creek areas.
    - c. Conduct a feasibility study on the replacement of concrete bottoms of channelized creek sections with natural bottoms and/or the use of mitigation measures to increase the habitat diversity of channelized creeks.
    - d. Increase fines under Municipal Code Chapter 14.56, which restricts dumping into creeks, and charge the Santa Barbara Flood Control District with reporting violations and the City Police Department with investigating such reports.
- 2.0 Redevelopment and renovation of the central city shall be encouraged in order to preserve existing resources.
  - 2.1 Develop a program of tax incentives and transferable redevelopment rights to encourage the rehabilitation, restoration, or redevelopment of deteriorating neighborhoods.
  - 2.2 Modify existing subdivision requirements and performance standards to provide adequate landscaped area where housing is being replaced with higher-density housing.
  - 2.3 Identify trees of horticultural value within the City and institute a program to replace such trees on a one-to-one basis if they are lost (due to causes other than non-compatibility with Santa Barbara's climate).
- 3.0 Goleta Slough shall be preserved and restored as a coastal wetland ecosystem.
  - 3.1 Develop a master plan for the ecological management of the Slough. The plan should provide for maintenance of the wetlands by natural physical and biological actions as much

as possible. The Master Plan should make provision for educational facilities in the Slough region, but not within the Slough, to be developed and administered by the City in cooperation with the University of California at Santa Barbara. All areas of the Slough and airport land extending north to Hollister Avenue, exclusive of the airport facilities, should be included in the Master Plan.

- 3.2 Continue to restrict pedestrian and vehicular access in order to reduce adverse environmental impact to the Slough.
  - 3.3 Rezone the Goleta Slough, as defined by the City, as open space.
  - 3.4 Initiate a study to consider the environmental and economic impacts of replacing and/or relocating sewage facilities currently degrading the Slough.
- 4.0 Remaining Coastal Perennial Grasslands and Southern Oak Woodlands shall be preserved, where feasible.
- 4.1 Conduct a study to determine whether access should be restricted into the remaining grasslands and what types of limited recreational uses, in conjunction with educational and scientific use, would be compatible with their preservation. In the interim, access should be restricted, if possible, to only carefully monitored scientific studies.
  - 4.2 Develop guidelines and regulations which protect, preserve and enhance Southern Oak Woodlands habitat and individual oak trees.
- 5.0 The habitats of rare and endangered species shall be preserved.
- 5.1 Require that a complete vegetation survey be conducted at an appropriate time of the year for any proposed action which would cause large-scale changes in vegetation patterns in Coastal Strand, Coastal Sage Scrub, and Chaparral communities, and the Goleta Slough. The survey should be funded by those proposing the potential environmental change. If any rare and endangered plants are located, mitigation measures will be required to maintain and preserve the plant's habitat in the area in which it has been found.
  - 5.2 Include provisions in the Goleta Slough master plan to aid in the recovery of the Light-footed Clapper Rail.
  - 5.3 Include an analysis in the Goleta Slough master plan of the current reduction of Belding's Savannah Sparrow and implement such measures as necessary and feasible to reverse this trend, provided that such measures do not affect populations of other rare and endangered organisms.
  - 5.4 Prohibit the use of long-term, persistent pesticides by the City and conduct a study of the use of other pesticides by City parks, schools, and other agencies with the intention of developing limits on such use.
- 6.0 Intertidal and marine resources shall be maintained or enhanced.
- 6.1 Post Fish and Game laws on the taking of intertidal organisms at beach access points and encourage vigorous enforcement of those laws by the appropriate agency.

- 6.2 Restrict cliff-top developments on the Mesa by appropriate setbacks (determined by site specific geologic surveys required as a part of subdivision) to prevent acceleration of cliff erosion. Mitigation measures to prevent cliff-face “weeping” should also be instituted.
  - 6.3 Prohibit off-shore dumping of sediments near kelp beds or reefs.
  - 6.4 Conduct a study to determine disposal sites for dredged material such that the material can aid in beach replenishment without significantly impacting major marine resources.
  - 6.5 Continue monitoring of organisms at the sewage outfall in conjunction with the Coastal Water Research Project. Such monitoring will be used to determine the environmental impact of Santa Barbara’s sewage outfall over a long term.
  - 6.6 Conduct a feasibility study on the construction of wastewater reclamation facilities, provided this can be accomplished without significant degradation of the groundwater basin.
- 7.0 Prime agricultural lands shall be conserved wherever possible and expansion of agricultural uses shall be allowed subject to maximizing compatibility with adjacent land uses and restricting effects on the environment.
- 7.1 Develop a zoning mechanism for agricultural land uses which includes performance standards in the Municipal Code which maximize compatibility with adjacent land uses, including but not limited to pesticide use and storage, drainage, habitat protection, noise, operation of heavy equipment and employee parking.  
  
One performance standard shall require that specified grasses shall be seeded in all cleared orchard areas between October 1 and November 15 after clearance. Such seeds shall be hand broadcast according to specified formulas and mowing shall occur after the seeded grass has matured each spring in order to allow continued perpetuation. Compliance shall be monitored by City staff.
  - 7.2 Develop a program of incentives and regulations which would encourage the retention of prime agricultural land.
- 8.0 The use of City-owned vacant properties for community gardens shall be encouraged.
- 8.1 Encourage the provision of small areas of community gardening where new multiple housing units are planned.
  - 8.2 Inventory those City-owned lands which are vacant and have water service to the site.
  - 8.3 Notify interested persons of the number, size, and availability of vacant, City-owned lands which are suitable for use as new community gardens.
- 9.0 The biotic resources of the Harbor shall be maintained, so far as possible within the framework of the LCP and other Harbor Restoration plans.
- 9.1 Construction which would substantially decrease the current rate of tidal flushing in the Harbor should be avoided if feasible alternatives are available.

- 9.2 Continue the study of littoral sand drift with the objective of developing feasible alternatives to additional breakwater construction to reduce sand deposition in harbor channels.
  - 9.3 Evaluate the feasibility of onshore boat storage and pull-out facilities as an alternative to harbor expansion.
  - 9.4 Provide for onshore disposal of toxic wastes from shipyard facilities.
- 10.0 Programs shall be developed to maintain a productive urban biotic community.
- 10.1 Prepare a Master Plan for the Andree Clark Bird Refuge. The Master Plan shall include:
    - a. Determination of existing biotic conditions in the Refuge.
    - b. A detailed management plan for restoration and maintenance of the Refuge.
    - c. Provisions for development of educational programs run by volunteers.
  - 10.2 Require the City Parks Department and Animal Control to investigate the advisability of trapping dogs which are currently running loose in the Andree Clark Bird Refuge. These animals would be returned to the owners only after payment of fines imposed under Section 6.08.030 of the Municipal Code.
  - 10.3 Develop an ecological reserves program in conjunction with land-use suitability guidelines to acquire and/or preserve parcels within the City large enough to represent natural biotic communities.
  - 10.4 Encourage the use of native or fire retardant shrubs or trees, particularly those that provide food for wildlife, in landscaping of golf courses, and as a mitigation measure for land development.
  - 10.5 Develop a program to regulate off-road recreation vehicle use within the City. The program should include:
    - a. Restrictions on ORV use to land already damaged by current use or areas of low ecological value as determined through land use suitability criteria.
    - b. License private property owners to develop ORV parks which are managed such that the deleterious impacts of ORV use (including wind and water erosion and sedimentation) are limited to those licensed areas.
    - c. Approve an ordinance designating ORV use on private and public lands (other than those area licensed as ORV parks) a nuisance subject to fines if that use causes significant environmental impacts. A study should be made prior to ordinance approval to determine the amount of ORV use which causes significant environmental impact.
- 11.0 Where Biological Resources policies conflict, the policy most protective of the natural environment shall prevail.

## **DRAINAGE AND FLOOD CONTROL**

## Goals

- Ensure that human habitation of the City's floodplains does not adversely affect public health, safety, and welfare.
- Encourage recreation, conservation and open space uses in floodplains.
- Provide Federal Flood Insurance for structures already built within flood hazard zones.<sup>3</sup>

## Policies

- 1.0 The City shall participate in the Federal Flood Insurance Program so that property owners may receive disaster assistance.<sup>3</sup>
- 2.0 Floodplain management programs shall be implemented through the Building Officer of the Division of Land Use Controls, and the Flood Control Division.
- 3.0 Hazard reduction programs shall be implemented in urban sections of the City already built in hazardous flood-prone areas.
- 4.0 Goals and policies of this element are interrelated with those of the Safety and Open Space Elements and shall be considered together in land use planning decisions.

## Implementation Strategies

- 1.0 The City shall participate in the Federal Flood Insurance Program so that property owners may receive disaster assistance.<sup>4</sup>
  - 1.1 Adopt the provisions of the Program and make application to the Federal Flood Insurance Administration.<sup>4</sup>
  - 1.2 Maintain records of future peak-flow conditions.
  - 1.3 Provide for update and revision of floodway/flood fringe maps as specified in the Federal Flood Insurance Program.
- 2.0 Floodplain management programs shall be implemented through the Building Officer of the Division of Land Use Controls, and the Flood Control Division.
  - 2.1 Prohibit the construction of new structures in stream channels (except stream measurement or flood control-related facilities).
  - 2.2 Encourage light-intensity use in the floodway or floodway fringe with the requirement that such uses shall not impair the flood-carrying capacity of the stream.

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<sup>3</sup> The City is participating in the Federal Flood Insurance Program as of December 1978.

<sup>4</sup> The City is participating in the Federal Flood Insurance Program as of December 1978.



- 2.3 Require adequate setbacks from flood channels of any new development as defined under the Federal Flood Insurance Program, for those properties within the identified flood hazard area.
  - 2.4 Encourage the use of permeable or pervious surfaces in all new development to minimize additional surface runoff.
- 3.0 Hazard reduction programs shall be implemented in urban sections of the City already built in hazardous flood-prone areas.
- 3.1 Restrict the replacement of old structures within the floodway fringe unless the applicant has satisfactorily demonstrated that the structure will not impair flood flow, and has proved that the floodway fringe boundaries as designated by the HUD maps should be adjusted.
  - 3.2 Regulate buffer zones along creeks to protect against bank erosion from public or private practices including grading, brush cleaning, trail maintenance, dumping or construction of private structures such as bridges or walkways across creeks. Routine debris removal by the City for flood reduction is exempted.
  - 3.3 Undertake flood control work projects as rapidly as possible where necessary to protect existing structures.
- 4.0 Goals and policies of this Element are interrelated with those of the Safety and Open Space Elements and shall be considered together in land use planning decisions.
- 4.1 Encourage the use of natural building materials for flood control channels such as stone, heavy timber, erosion control shrubs, and wire revetment with plantings of native or naturalized flora wherever they provide a comparable degree of flood protection.
  - 4.2 Creeks and their banks constitute a scenic open space resource within the City in their natural state; thus, the Open Space Element also recognizes the importance of keeping structures out of the stream channels for preservation of City resources.
  - 4.3 The Safety Element recognizes the hazard to lives and property of encroachment of structures into stream channels and on stream banks; thus, it also supports the findings of this Element on the basis of hazard reduction.

## **WATER RESOURCES**

### **Goal**

- To maintain existing and protect future potential water resources of the City of Santa Barbara.

### **Policies**

- 1.0 Provide for a continued supply of water to the City which meets all Regional, State, and Federal health standards.

- 2.0 Develop plans for implementation of water conservation regulations.
- 3.0 Implement monitoring program of groundwater resources in the Santa Barbara basin.

### **Implementation Strategies**

- 1.0 Provide for a continued supply of water to the City which meets all Regional, State, and Federal health standards.
  - 1.1 Work with the County, the State, and Regional Water Quality Control Boards, and other agencies directly involved in land use policies within the Santa Ynez River drainage to ensure that this major water supply is not significantly degraded.
  - 1.2 When deemed necessary, channelization of major creeks within the City should be conducted in such a manner as to retain as much of a natural state along the creeks as possible. The use of concrete channelization shall be discouraged in order to maximize groundwater recharge.
  - 1.3 Encourage innovative use of permeable or pervious surfaces such as turfblocks or other materials in all new development in order to maximize groundwater recharge.
  - 1.4 Prohibit the expansion of the use of septic tank systems.
  - 1.5 Provide sanitary facilities for use by boat owners or visitors at Marina 1.
  - 1.6 Enforce restrictions on bilge and head pumping within the harbor and within the three-mile limit.
- 2.0 Develop plans for implementation of water conservation regulations.
  - 2.1 Require all new development to incorporate water conservation features and devices into project design in order to minimize future increases in water demand.
  - 2.2 Encourage new development and redevelopment to consider innovative water conservation techniques such as gray water recycling.
  - 2.3 Conduct further study on the cost-effectiveness of Wastewater Reclamation for use in landscape irrigation.
  - 2.4 Institute a public information program with the objective of achieving installation of water-saving devices in 50% of the existing dwelling units by the year 2000.
- 3.0 Implement monitoring program of groundwater resources in the Santa Barbara basin.
  - 3.1 Monitor groundwater basin pumping and continue testing program to determine the safe yield of Santa Barbara basin.
  - 3.2 Develop long-term strategies for the extraction, use, and replenishment of water from the basin.

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People and Organizations Contacted:

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M. L. Days, Planning Division, City of Santa Barbara.

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John Helmer, Office of Land Use Controls.

Paul Kelly, 12/01/78; California Department of Fish and Game: Head of Least Tern Recovery Team.

Nan Lawler, 12/12/78; private citizen who did work on tarantulas in Coastal Perennial Grassland.

Sandy Wilbur, 12/11/78; Research Biologist for U.S. Fish and Wildlife; Team Leader, Light-footed Clapper Rail Recovery Team.

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**APPENDIX A**

**CULTURAL AND HISTORIC RESOURCES**

## APPENDIX A: CULTURAL AND HISTORIC RESOURCES

### DESIGNATED LANDMARKS<sup>1</sup>

1. Arlington Theatre, 1317 State Street (1929-30)
2. Arrellanes/Kirk Adobe, 421 E. Figueroa Street (ca. 1860)
3. Botiller/Grand Adobe, 1023 Bath Street (ca. 1850)
4. Buenaventuro Pico Adobe, 920 Anacapa Street (ca. 1850)
5. Caneda Adobe, or Whittaker Adobe, 123 E. Canon Perdido Street (1788)
6. Carrillo Adobe, or Hill-Carrillo Adobe, 11 E. Carrillo Street (1826)
7. Santa Barbara County Courthouse, Anacapa at Anapamu Street (1929)
8. Covarrubias Adobe, 715 Santa Barbara Street (1817)
9. De la Guerra Adobe, or Casa De la Guerra, 11 E. De la Guerra Street (1819-26)
10. El Paseo, E. De la Guerra, State, and Anacapa Streets (1922-23+)
11. El Cuartel, 122 E. Canon Perdido Street (1788)
12. Fernald House, 414 W. Montecito Street (and Carriage House) (1862 & 1877)
13. Guard House, E. De la Guerra Street at Presidio Avenue (ca. 1830)
14. Gonzalez/Ramirez Adobe, 835 Laguna Street (1825)
15. Historic Adobe, 715 Santa Barbara Street (ca. 1830)
16. Hunt/Stambach House, 821 Coronel Street (1879)
17. Lugo Adobe, 114½ E. De la Guerra Street (ca. 1850)
18. Miranda Adobe, Presidio Avenue (ca. 1840)
19. Mission Santa Barbara, Upper Laguna Street (1786)
20. Orena Adobes, E. De la Guerra and Anacapa Streets (1849, 1858)
21. Refugio Cordero Adobe, 820 Santa Barbara Street (1850?)
22. Rochin/Birabent Adobe, 820 Santa Barbara Street (1856)
23. Santiago De la Guerra Adobe, 110 E. De la Guerra Street (ca. 1812?)
24. Tree of Light, NW Corner Chapala and Carrillo Streets (ca. 1878)
25. Trussell/Winchester Adobe, 412 W. Montecito Street (1854)
26. Savoy Hotel, 409 State Street (1888-89)

### STRUCTURES OF MERIT DESIGNATED BY LANDMARK COMMITTEE

27. Old Physicians Building, 1421 State Street (1920, 27, 29, 30)
28. Upper Hawley Block, 1227-1233 State Street (ca. 1888)

29. Sherman House, 625 Chapala Street (1876)

### **STATE HISTORIC LANDMARKS IN SANTA BARBARA CITY<sup>2</sup>**

- Burton Mound, E. Mason Street & Burton Circle
- (9) Casa de la Guerra, 11 E. De la Guerra St.
- (8) Covarrubias Adobe 715 Santa Barbara St.
- (19) Mission Santa Barbara, Upper Laguna St.  
Lobero Theatre, 33 E. Canon Perdido St.
- (25) Trussell-Winchester Adobe (Hastings), 412 W. Montecito St.
- (6) Carrillo Adobe, 11 E. Carrillo St.  
Santa Barbara Presidio, E. Canon Perdido, Anacapa, Santa Barbara Streets

### **LISTED ON NATIONAL REGISTER OF HISTORIC PLACES<sup>2</sup>**

- (19) Mission Santa Barbara, Upper Laguna Street
- (14) Gonzales-Ramirez Adobe, 835 Laguna Street
- (10) El Paseo and Casa de la Guerra, 11 E. De la Guerra St. to State St. and Anacapa St.  
Santa Barbara Presidio Includes ruins in vicinity of E. Canon Perdido, Anacapa, Santa Barbara Streets and historic buildings, i.e., Caneda Adobe (5), El Cuartel (11), Rochin-Birabent Adobe (22), Pico Adobe (4), Cota- Knox House, chapel site.

### **NATIONAL HISTORIC LANDMARKS<sup>3</sup>**

- (19) Mission Santa Barbara
- (14) Gonzales-Ramirez Adobe

### **NOTEWORTHY STRUCTURES OF IMPORTANCE**

Royal Presidio remains	
Cota-Knox Building	914 Anacapa Street
Former Church	2020 Chapala Street
Old Mission Waterworks and grist mill	
Railroad Station	209 State St., and Roundhouse E. Cabrillo Blvd.
Upham Hotel	1404 De la Vina Street
Lobero Theatre	E. Canon Perdido St., and Anacapa St.



Meridian Studios	114 E. De la Guerra Street
Mortimer Cook House	1407 Chapala Street
House	501 Chapala Street
Edwards House	1721 Santa Barbara St.
Orella Adobe (incorporated portion of Copper Coffee Pot Restaurant)	
Redwood Inn	124 W. Cota Street
House of Paintings (Darling House)	Rancheria Street
Old Courtroom	25 E. De la Guerra Street
Streetcar Stop	Alameda Padre Serra at Lasuen Road
Fithian (Park) Building	600 Block State Street
Hitching Posts, stepping blocks, cut sandstone curbs, and old streetlights	
Moreton Bay Fig Tree and Portola Site	E. Montecito Street
House	1822 Santa Barbara Street
House	31 E. Pedregosa Street
Rice House	131 E. Arrellaga Street
House	422 W. De la Guerra Street
Tinker House	Modoc Road and Mission Street
House	1632 Chapala Street
House	15 E. Valerio Street
Hernster House	136 W. Cota Street
House	535 N. Quarantina Street
The Tea House Restaurant	301 E. Canon Perdido Street
Cottage	710 Anacapa Street
Yellow House at the Bird Refuge	50 Los Patos Way
Former Grocery Store	800 De la Vina Street
House	302 W. Micheltorena Street
Brinkerhoff Avenue Cottages	
Knights of Columbus Hall	925 De la Vina Street
Peshine House	925 San Andres Street
El Caserio Studio Cottage	900 block Garden Street
S. side 300 blk. E. Canon Perdido Street (portion)	
Historical Society Museum	136 E. De la Guerra Street

El Presidio office building	800 Anacapa Street
San Marcos Building	State at Anapamu Streets
Museum of Art (former Post Office)	1130 State Street
St. Anthony's Seminary	2300 Garden Street
Little Town Club	27 E. Carrillo Street
Mihran Studios	17-21 E. Carrillo Street
Masonic Temple	16 E. Carrillo Street
News-Press Building	De la Guerra Plaza
House	20, 30 to 36 W. Valerio Street
Plaza Rubio homes	

## **APPENDIX B**

### **VISUAL RESOURCES**

## APPENDIX B: VISUAL RESOURCES

### TREES DESIGNATED BY THE CITY OF SANTA BARBARA AS "HISTORIC TREES" AND "SPECIMEN TREES" UNDER MUNICIPAL CODE

#### Historic Trees

Moreton Bay Fig Tree ( <i>Ficus macrophylla</i> )	Chapala & E. Montecito Streets	Sept. 1, 1970
Arlington Silk Oak ( <i>Grevillea robusta</i> )	309 State Street	Sept. 1, 1970
Four Large Olive Trees ( <i>Olea europea</i> )	NE Garden & Los Olivos Streets	Sept. 1, 1970
S. B. Orchid Tree ( <i>Bauhinia forficata</i> )	NE Garden & Carrillo Streets	April 20, 1976
Sailor's Sycamore ( <i>Platanus racemosa</i> )	SW Milpas & Quinientos Streets	April 20, 1976
Arroyo Burro Sycamore ( <i>Platanus racemosa</i> )	315 N. Ontare Road	April 20, 1976

#### Specimen Trees

Indian Laurel Fig Tree	100 E. Constance Avenue
Moreton Bay Fig Tree	1816 Santa Barbara Street