CONSERVATION ELEMENT

HAWTHORNE GENERAL PLAN • 1989

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CITY OF HAWTHORNE GENERAL PLAN

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City of Hawthorne

#487

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SECTION I - INTRODUCTION TO THE CONSERVATION ELEMENT

Purpose

The purpose of the Conservation Element is to identify and examine the community's natural resources and to develop policies for the protection and preservation of these resources so that they may be available for the use and enjoyment of the community in the years to come.

In addition to the natural resources shared in the community, there are man-made resources, which are of a common public value as well. These resources include public utilities and infrastructure. Sewer lines, water supply lines, drainage channels and energy transmission lines are critical components of a city's man-made resource base. A portion of this element will be concerned with these resources.

SECTION II - EXISTING CONDITIONS

Incorporated in 1922, the City of Hawthorne is a highly urbanized community, and as a consequence native plants and animals, minerals and natural water courses, are virtually non-existent. Soils have been highly disturbed as a result of development.

Climate

Hawthorne is located in the Los Angeles Basin, which is characterized by a mediterranean, semi-arid climate. This is typified by mild, sunny winters with occasional rainfall, and warm, dry summers. Most of the rain falls from December through March.

Hawthorne's close proximity to the Pacific Ocean has a great influence on its climate. Temperatures in the summer months are somewhat lower than in communities located further inland. Average temperatures range from 49° Fahrenheit (F) to 67°F in winter, and from 65°F to 78°F in summer. Average yearly rainfall is approximately 12.08 inches, with the wettest months being January and February, averaging 2.75 inches, and the driest months in July and August, averaging 0.05 inches. The City enjoys prevailing cool west-southwesterly breezes from the Pacific Ocean. Daytime velocities average eight miles per hour (m.p.h.) with late night breezes from one-to-two m.p.h. increasing to 12 m.p.h. in the late afternoon. During the late fall and early winter months, the warm, dry Santa Ana breezes occasionally blow in from the deserts located to the east.

Air Quality

Air pollution is the presence of substances in the air which exceed naturally occurring levels and are detrimental to the community. Air pollution can cause direct impacts on human health, cause poor plant growth, accelerate deterioration of buildings, and impact visual aesthetics. The main source of air pollution is from motor vehicles, natural gas used for cooking and heating, and electrical generating plants that provide electricity to the City.

Due to Southern California's geophysical form, the Los Angeles basin experiences frequent summertime temperature inversion layers which aggravate air quality levels. Photochemical smog, a result of vehicle emissions reacting with sunlight, obscures views and creates a health hazard.

Because of their regional nature, air pollution control activities represent joint efforts between local, state and federal governments. Coordination of these activities is the responsibility of the California Air Resources Board. While the responsibility for the control of motor vehicle emissions is shared by the Air Resources Board and the Environmental Protection Agency, local authorities are charged with responsibility for the control of pollutants emitted by stationary sources. The South Coast Air Quality Management District (SCAQMD) monitors and enforces air quality standards for stationary pollutant sources.

The Lennox air monitoring station services the Hawthorne area. The SCAQMD reports that air quality levels in this part of the western Los Angeles Basin exceed California ambient air quality standards for all pollutants except sulfur dioxide and that the most widespread number of violations are associated with ozone and carbon monoxide. Ozone problems typically occur in the warm summer and fall seasons; carbon monoxide levels are typically highest in the fall and winter seasons. Suspended particulates also pose problems.

In terms of the land use characteristics of the City of Hawthorne, with the major industrial centers, the airport and heavy vehicle traffic as a result of these employment centers, Hawthorne faces major challenges in meeting its regional responsibility to controlling air quality. For this reason it is imperative that Hawthorne consider air quality in the planning process, as well as in day-to-day activities, by considering the environmental impact of major traffic generating projects, by locating sensitive land uses away from major arterials streets, and by encouraging alternate modes of transportation, such as light rail, vanpooling, carpools, mass transit buses, trolleys, jitneys, etc.

Maintaining ambient air quality levels is of paramount concern to many Californians. The South Coast Air Basin will continue to be a nonattainment area for those pollutants that are monitored. Yet it should be recognized that air quality has improved somewhat in the South Coast Basin over the last decade, despite continued population growth, vehicle use, and economic activity.

Groundwater

Freshwater-bearing sediments extend from a depth of about 300 feet to a depth of approximately 1,500 feet below the surface of the City. These sediments range in geologic age from Recent to Pleistocene.

The Recent deposits extend to a depth of about 60 feet below the surface. These deposits are represented by both continental alluvium and aeolian sand. The borings from well driller's logs indicate fine sand, silty clay, and clay deposits. No significant water production zones are known to exist within the Recent series.

Gage Aquifer

Pleistocene formations are locally designated as the Upper Pleistocene formulation and the Low, or San Pedro and Pico, Pleistocene formations. Upper Pleistocene formations extend from beneath the Recent sediments to a depth of 240 feet, which is the base of the Gage Aquifer. The topmost 50 feet of this formation is composed primarily of clay and sandy clay with intermittent zones of fine sands and infrequent streaks of gravel.

Historically the Gage Aquifer has been considered a significant water-producing zone in the West Basin. However, because of over-draft and lateral percolation, this aquifer no longer transmits exploitable quantities of water in the Hawthorne vicinity. In addition, the fine grained character of the materials in the zones that underlie the City is another factor which renders the Gage Aquifer undesirable for exploitation by high production water wells.

Silverado Aquifer

The San Pedro or Lower Pleistocene Formation lies beneath the Gage Aquifer and extends to a depth of about 600 feet below the surface. Within this 360 foot section of continental and marine sediments lies the Silverado Aquifer, the most significant water-bearing zone in the West Basin.

In the Hawthorne area the top of the Silverado Aquifer occurs at a depth of approximately 300 feet below the surface of the earth. This aquifer averages 150 feet in depth. Medium-to-coarse sand and gravel make up the major portion of this aquifer, allowing it the high transmission and storage capacity required for high production water wells. Thus, well production for the City of Hawthorne has traditionally been derived predominantly from the Silverado Aquifer.

Sunnyside Aquifer

Beneath the San Pedro formation lies the Pico formation. Also of the Pliocene era, the Pico formation is comprised predominantly of marine shale and siltstone. Although these are not considered water-bearing deposits, the Pico formation does contain localized zones of water-bearing sediments which are designated elsewhere in the West

Basin as the Sunnyside Aquifer. As no wells are known to penetrate this aquifer in the Hawthorne vicinity, little is known concerning the size or depth of this aquifer.

Landform

Hawthorne is located in the Centinela Valley. The Centinela Valley is not really a valley at all, but rather a semi-flat plain stretching roughly from the Baldwin Hills on the north to the Palos Verdes Hills on the south. The terrain of Hawthorne is flat and relatively featureless. No significant landforms exist in the City today.

Soils

As recorded in 1919 by the United States Geological Survey Office, the predominant soil types in the City are Ramona Loam and Montezuma Clay Adobe.

Ramona Loam is a very fertile soil suitable for growing a wide variety of grains and fruits. It is composed of clay, silt and sand, and has good drainage characteristics. This porosity allows water to readily percolate into the soil, providing for groundwater replenishment.

The Montezuma clay adobe soil is considered a fertile, sticky and heavy soil which is hard to manage. This is considered an expansive soil. The soil grain porosity is such that during periods of heavy rainfall most of the water will not be absorbed by this soil and substantial surface runoff can result. This necessitates designing flood control storm drains which can accommodate heavier surface flow.

In addition, Ramona Clay Loam, Yolo Loam, Yolo Sandy Loam, Handford Loam and Dublin Clay Adobe can be found within limited geographic areas on the northeast side of the City and in portions of the south central and south eastern sections of Hawthorne. The Dublin City Adobe and Hanford Loam soils have a low to moderate potential for liquifaction, which will be addressed in the Safety Element.

Hydrology

Water is a critical issue in Southern California because of our semi-arid environment and our heavy reliance on imported water. Over 85 percent of our water in Southern California is imported. Imported water comes from Northern California, the eastern Sierras, the Owens Valley, and the Colorado River. In fact, the watersheds that supply Southern California now encompasses one-twelfth of the continental United States.

The regional water agency, which monitors the local water companies is the West Coast Basin Municipal Water District (WCBMWD). The WCBMWD adjudicates water rights in the area bounded by the Ballona Escarpment, the Newport-Inglewood Fault, San Pedro Bay, and the Pacific Ocean, a relatively small groundwater basin underlying the southwestern part of the Los Angeles Coastal Plan. The basin's 160 square miles include 20 incorporated cities.

Ground water levels in the West Coast Basin are considered severely depleted. Useable capacity in the basin is less than ten percent, although the storage capacity is high.

Thirty-six years ago groundwater pumping caused an intrusion of sea water into the Basin and legal action was begun to halt the overdraft and prevent serious damage to the Basin. Since then, salt water intrusion in the basin has been effectively halted by the West Coast Basin Barrier Project, consisting of a line of 120 injection wells that parallel the coastline from Los Angeles International Airport to Palos Verdes Hills. Los Angeles County Department of Public Works, which operated the project, injects State Water Project and Colorado River water into the barrier to create a pressure ridge that impedes the inland movement of a salt water front and maintains protective ground water elevations in the Silverado aquifer.

Groundwater Volume

The volume of groundwater stored in the West Coast Basin is constantly changed by variations in subsurface inflow and outflow, artificial recharge, extractions, and to a lesser degree, precipitation. The Silverado Aquifer underlying most of the West Coast Basin (including Hawthorne) is the most productive aquifer in the Basin. Ranging from 100-500 feet in thickness, it yields 80 to 90 percent of the ground water extracted annually.

Water supply and water use conditions have remained relatively stable in the Basin over the past 20 years, which has averaged about 60,000 acre-feet extracted annually. Growth in water requirements has been met by new supplemental sources and the trend is for continued increases in imported water. In 1985-86 the West Coast Basin imported 257,917 acre-feet and extracted 54,708 acre-feet of water.

City Water Needs

The Hawthorne Water Department supplies approximately two-thirds of the City's water demand. The other one-third is supplied by the Southern California Water Company. In existence since the early 1920's, each water company services about half of the geographic area of the City.

As a member of the West Coast Basin, the City Water Department has an adjudicated right to withdraw 1,882 acre-feet of water annually. Of this amount, the City sets aside 600 acre-feet in a water reserve account. So, in actuality, the City withdraws 1,282 acre-feet of water a year. The remainder of the City's need, 4,619 acre-feet, is imported from the Colorado River and State Water Project through the Metropolitan Water District. This yields a yearly supply of 5,866 acre-feet a year.

Southern California Water Company

Established in 1929, the Southern California Water Company services 5,300 customers in the City of Hawthorne. They provide 3,800 acre-feet of water annually. Three clear water wells in the vicinity pump 15 percent of this water, or 600 acre-feet. The remaining 85 percent or 3,200 acre-feet is imported from State Water Project and Colorado River water through the Metropolitan Water District. The manager of the Southern California Water Company Western Division anticipates that future water requirements for the area will be met through imported rather than well water resources.

Future Water Demands

In November of 1986 the City Water Department had an independent consultant, Boyle Engineering Corporation, evaluate the City's Water Department needs. They found that major redevelopment efforts underway in the City could significantly impact the intensity and patterns of water use. In addition, the annexations which have been occurring due to the new configurations of the land (because of the Century Freeway routing through Hawthorne) will also have an impact on future water demands.

Northrop, the City's largest water user, uses a great deal of water in their manufacturing process, primarily for rinsing, cooling and industrial boilers. Their projections of water usage through 1995 vary from an increase of 13 percent for normal expansion to 35 percent for normal expansion, plus their obtaining larger government contracts. Boyle Engineering used a "conservative projection" of a 35 percent increase in overall water demand to project future water requirements for the City.

Water Pollution Control

The Regional Water Quality Control Board is assigned the task of monitoring ground and surface water quality. Local governments may adopt ordinances pertaining to water quality only if they are more restrictive than state law. Hawthorne, like most local governments, relies on the ability of the Regional Board and its staff to monitor ground and surface waters and set standards which will protect the health and safety of its constituents.

The Regional Water Quality Control Board provides a valuable service to the people of Hawthorne which the City could not accomplish on its own. By participating in the Sea Water Intrusion Barrier Project and the In-lieu Water Replenishment Program, Hawthorne is helping to conserve and protect our ground water resources.

In addition to underground water pollution from salt water intrusion, commercial, residential and industrial users may also cause water contamination. To prevent this, the City may require installation of cross-connection or backflow prevention devices to insure that where water mains may break, contaminated water will not enter the water supply system.

Recently the City created a Hazardous Materials Specialist position in the Fire Department. This individual is charged with monitoring the storage, transportation and disposal of hazardous materials. This position will help the City to further insure that water quality standards are maintained.

Drainage and Flooding

The hydrological characteristics of the watersheds within Hawthorne have been markedly changed through the process of urbanization. The major drainage course within the City is the Dominguez Channel, which acts solely as a flood control, surface run-off collector.

The risk of flooding in Hawthorne is considered low because the City does not lie in the inundation path of any significant dams nor does it fall within the floodplain of any major streamway. Surface runoff is contained and transported by the extensive storm drain system throughout the City to the point where flood control insurance is no longer needed in Hawthorne.

Plant Life

Native plant communities originally found in Hawthorne were of the coastal sagebrush variety. Coastal sagebrush or coastal sage scrub was commonly found in the Los Angeles Basin. This plant community is described as a "low, dense, shrub formation dominated by California sagebrush, white sage, black sage and common buckwheat." These grey-green, small-leaved, drought-tolerant shrubs are able to withstand the poor saline soils and the windy conditions of the coastal environment. The early Spanish and Mexican settlers grazed cattle on these plants.

By the late 1880's vineyards, cornfields, and fruit trees had been planted. Scotsman Robert Burnett and Canadian Daniel Freeman were responsible for planting thousands of eucalyptus, pepper, almond, olive and citrus trees here. Fields of wildflower bloomed, including poppies, lupines, wild mustard, wild horseradish and pink verbena.

In 1875-76 a severe drought hit the ranchers and over 22,000 head of cattle were lost. Soon after, dry farming of beans and barley began. By the 1920's grain farming was the basis of the local economy. Only the Japanese farmers were able to use intensive farming techniques and water saving measures to grow other crops for local consumption. Japanese nurseries still operate here in Hawthorne today.

By the 1930's Hawthorne was rapidly becoming an urban, industrial center. Development replaced native vegetation and new ornamental plants were introduced.

Wildlife

Hawthorne's wildlife population consists of the typical urban menagerie of gophers and mice, insects, small birds and reptiles and other species that have adapted themselves to urbanization. Displacement of wildlife has no real meaning in Hawthorne today.

Electrical Energy

Electrical energy is supplied by the Southern California Edison Company to the consumers in the City. Electric power supplied to the City comes principally from natural gas steam generation plants in El Segundo, Redondo and Huntington Beach, and from nuclear power at the San Onofre Power Plant. The Redondo and Huntington Beach sources are able to switch over to oil generation power if necessary.

Natural gas is still the most economical source of energy, and this is where the majority of electrical power comes from today. Forecasts for the future are that natural gas resources, although non-renewable, will carry us into the 21st Century.

Natural Gas

Natural gas supplied to the South Basin area in general, and the City of Hawthorne in particular, comes primarily from the Southern California Gas Company. Although deregulated to a great extent, the gas consumers throughout the state have largely remained loyal customers of the big distributors. Southern California gas provides 35% of its product to residential users, 33% to the electric utilities (Southern California Edison is their biggest single customer), 19% to industrial buyers and 13% to commercial entities. Gas is transported to Hawthorne largely from the El Paso, Texas region and through the Northwestern Pipeline Company. Supplies are forecasted to remain adequate into the 21st Century.

Natural gas is not a renewable resource and as such, when these supplies are depleted, we must turn to other, more expensive, forms of energy. Discovering and developing renewable non-polluting energy resources should be a top priority for all consumers.

Transportation

Gasoline is our major source of transportation energy. Yet, burning these fossil fuels is causing problems with the ozone level and air quality. Natural gas and petroleum reserves are non-renewable resources and are not expected to last indefinitely. Utilizing alternate clean-burning sources of transportation energy such as methane, propane and ethyl alcohol, should be encouraged.

SECTION III - ISSUES AND OPPORTUNITIES

Although the City of Hawthorne is essentially built-out and provides few natural resources in terms of energy sources or scenic and biological value, the City contributes to the to quality and use of regional natural resources such as air and water quality, water supply, and energy.

As the City continues to develop, it needs to consider the implications of further development in terms of availability of necessary resources and the impact of such development on the surrounding community.

The following factors discussed in this section were identified as the major issues and opportunities to be addressed in the Conservation Element.

Water Quality and Supply

Increasing population and development has created high demand for clean, high quality drinking water. As a result, once plentiful supplies have been reduced in both quantity and quality to levels where additional measures to ensure adequate future supplies have become necessary. The City needs to realize the importance of water in guiding future planning efforts.

Various programs exist which the City can use to educate the population, encourage conservation, and to ensure that supplies will be adequate to support the current and future needs and requirements of the City. A program of utilizing reclaimed water for irrigation of public parks and open spaces will help to conserve higher quality water necessary for domestic needs.

Air Quality

The entire South Coast Air Basin is considered a non-attainment area for air pollutants with increasingly higher levels of pollutants such as carbon monoxide, nitrogen dioxide, and sulfur dioxide being emitted by the increasing reliance on single-occupancy vehicles. Programs to encourage alternate modes of travel would help the City contribute to a regional improvement in air quality.

Energy

The City relies heavily on electrical power generation and natural gas, a non-renewable energy source, to run machinery, lights, cooking, and heating. The burning of natural gas for power generation also contributes to declining air quality. Continued growth and development will result in increased consumption and reduced supplies.

The City can encourage a lifestyle less dependent on non-renewable energy sources by encouraging development of alternative energy sources, educating its residents on efficient use of energy, and promoting recyling of paper, glass, aluminum, and plastics.

SECTION IV - CONSERVATION ELEMENT GOALS AND POLICIES

The City of Hawthorne is committed to providing the community with a full measure of efficient and economical services and facilities. The intent and purpose of these goals and policies are to provide direction for maintaining or upgrading the water supply system, to ensure adequate water levels, to improve air quality and to promote and encourage energy conservation.

GOAL 1.0: MAINTAIN A SAFE, CLEAN DRINKING WATER SUPPLY CAPABLE OF ADEQUATELY MEETING NORMAL AND EMERGENCY DEMANDS IN THE CITY THROUGH SOUND CONSERVATION AND MANAGEMENT PRACTICE.

POLICY 1.1: The City shall preserve and protect the existing water resources, including domestic and imported sources.

POLICY 1.2: The City shall take measures to replenish and expand our ground water resources.

POLICY 1.3: The City shall actively promote "water education", especially within our own community.

POLICY 1.4: The City shall practice and promote sound resource management techniques, discouraging wasting water and encouraging saving, recycling and reusing water.

POLICY 1.5: All mature trees on public property, especially native trees indigenous to California should be protected.

POLICY 1.6: The City shall continue to upgrade its water delivery system as outlined in the Water System Engineering Report of November 1986, authored by Boyle Engineering Corporation.

POLICY 1.7: The City shall develop a "recommended plants list" which encourages the use of native and drought tolerant and water conserving landscapes with low-flow (drip) irrigation systems.

POLICY 1.8: The City will continue to participate in the West Coast Basin Water Replenishment and Sea Water Intrusion Barrier programs and support equitable State Water Resources Board planning policies.

POLICY 1.9: The City will continue to support the Regional Water Quality Board and the Los Angeles Health and Sanitation Departments, and be prepared to aid these agencies in performing their vital functions, through provision of City staff and facilities, should the need arise.

GOAL 2.0: PROTECT AND UPGRADE OUR AIR RESOURCES SO THAT AMBIENT AIR QUALITY STANDARDS ARE MET ON A CONSISTENT BASIS.

POLICY 2.1: The City shall cooperate with and support the California Air Resources Board and the South Coast Air Quality Management District in their efforts to maintain ambient air quality levels.

POLICY 2.2: The City shall encourage alternate modes of transportation including vanpooling, carpooling, bicycling and mass transit use.

POLICY 2.3: The City shall encourage development plans that are less automobile oriented.

POLICY 2.4: The City shall promote an integration of land uses so that alternative modes of transportation such as walking and bicycling, can be utilized for movement between uses.

POLICY 2.5: The City shall adopt a citywide plan of bicycle routes, and will incorporate bicycle facilities at park-and-ride locations and, where appropriate, along the bicycle routes.

POLICY 2.6: The City will develop a ride-sharing program for municipal employees.

GOAL 3.0: ENCOURAGE THE EFFICIENT USE OF ENERGY AND PROMOTE THE CONSERVATION OF NON-RENEWABLE ENERGY SOURCES.

POLICY 3.1: The City shall encourage the development of alternative renewable energy resources such as wind, solar and co-generation.

POLICY 3.2: The City shall encourage the development of smaller scale energy projects and decentralized facilities.

POLICY 3.3: The City shall promote community-wide education programs with regard to using energy wisely.

POLICY 3.4: The City shall cooperate with and support the efforts of the Public Utilities Commission in making energy affordable and accessible for everyone.

POLICY 3.5: The City shall encourage the recycling of paper, metal, plastic and glass wastes.

POLICY 3.6: The City should consider the use of reclaimed water for irrigation of public parks and open spaces.

POLICY 3.7: The City shall continue to explore possibilities for a co-generation facility to heat the Municipal Swimming Pool and possibilities for utilizing thermal energy storage techniques to heat and cool Civic Center buildings.

POLICY 3.8: The City should make an energy evaluation check a routine part of the plan checking process.

POLICY 3.9: The City shall develop a monitoring program to identify municipal energy consumption trends and make this information available to the general public.

POLICY 3.10: The City shall work with Southern California Edison Company, Southern California Gas Company and Northrop Corporation to formulate specific guidelines designed to use energy more efficiently and control energy waste in the City.