CONSERVATION ELEMENT

Conservation

Although many of the words and specialized meaning used in connection with conservation were unfamiliar to the average person ten years ago, environmental concerns are not new. For nearly 100 years, special interest groups and individuals have been actively involved in the conservation of major natural resources: redwood forests, buffalo herds, areas of unique scenic quality. But recently conservation has become a major concern in urban areas.

Conservation is the planned management, preservation, and wise utilization of natural resources. Its objective is to prevent the wasteful exploitation or destruction or neglect of resources. It involves both identification of a community's natural resources and adoption of policies for their preservation, development and wise use.

The Conservation Element interrelates closely with many other elements of the General Plan. The most important relationships are with the conservation of energy and the efforts to balance supply and demand for water, to manage the stock of available land, and to reduce moving-source air pollution. Conservation considerations also directly affect the open space pattern of the City, particularly in defining areas not suitable for urbanization. The Urban Design Element which stresses, among other things, the management and preservation of natural areas and unique land qualities; minimum disturbance of natural terrain; public use of bayfront and shoreline; and water conservation.

Land resources

Topographically, San Diego is a broad coastal plain drained to the ocean by many canyons and valleys. It ranges in width from ten to 20 miles. Within this coastal plain there is a wide variety of significant land features: shoreline, river beds, floodplains, upland mesas, valleys, rolling hills, steep cliffs and mountains. Elevations range from sea level to nearly 1,600 feet within City limits. Perhaps the most characteristic topography is mesa terraces intersected by numerous canyons that drain to the ocean.

Land resources are considered to be the natural characteristics that make up the earth's surface. These include soils, beaches, hills, cliffs, canyons and agricultural lands. Erosion and flooding of these resources are related considerations.

FINDINGS

Landforms and Land

"Land" is an area within which development and other activities take place or are planned, and "Landforms" are distinctive natural topographic features of the San Diego area. Both land and land forms, in this sense, are in limited supply and must be considered natural as well as esthetic resources. Land uses which do not use the available land to best advantage or which destroy the topography detract from the City's appearance, deplete its stock of resources, and contribute to erosion and sedimentation.

Three legislative tools are currently used by the City to control the use and alteration of land and landform: the Land Development Control Ordinance, the Hillside Review Overlay Zone, and Planned Development regulations. The Land Development Control Ordinance seeks to provide for "the orderly administration of private contract work in the public rights-of-way and to protect the public interest and safety in the development of private property by 1) regulating grading, 2) establishing minimum standards governing slope stability and drainage, and 3) effecting ... the restoration of natural ground cover through appropriate erosion control planting and irrigation." Essentially, no person can undertake any land development work as defined in this ordinance without first having obtained a permit to do so.

The Hillside Review Zone Ordinance regulates the use of slopes exceeding 25 percent. Its purpose is to provide supplemental regulations to ensure that San Diego's canyons, valleys and hillsides are developed in a manner that respects and maintains the character of the landscape. No grading or construction is permitted within a Hillside Review Zone until the project is approved by the Planning Director or the Planning Commission.

Under Planned Residential Development and Planned Commercial Development regulations, departures are allowed from the usual development controls to permit clustering of units and their better integration with the topography, which serves to preserve natural landforms.

Beaches and Shoreline

The nearly 20 miles of San Diego's shoreline must be given a top rank among the City's most valuable assets.

Although constituting but a small fraction of the approximately 20,000 miles of ocean shoreline within the continental United States, the local shoreline is outstanding because of the uniformly high quality of its sandy beaches. In addition, such beaches in combination with a Mediterranean-type climate are found in few other areas of the world, much less in the United States. Sandy beaches and cliffs are the two dominant elements of the City shoreline. Mission Beach is an example of fine sandy beach, devoid of rocks or obstructions. The La Jolla Caves area is the other extreme, cliffs ascending directly from the water. There are also cliffs with beach, such as Torrey Pines Reserve; and other areas have pebbly or sandy beaches in small indentations in the cliffs, such as Bird Rock and Sunset Cliffs. In all, nearly 60 percent of the City's shoreline is beach, with 87 percent of the shoreline in public or semi-public ownership. In view of the heavy use, both recreational and research, that both beach and non-beach shoreline receive, it is obviously desirable that additional shoreline be acquired as opportunities present themselves.

The State Public Outdoor Recreation Commission recommends that the major portion of California's coast should be permanently available for public use. The California Coastal Act of 1976 responds to the public concern for protecting and enhancing coastal resources and directs local governments to prepare local coastal programs in accordance with the act's policies. The policies of the act, which must be followed in local coastal program, are designed to guide development in the coastal areas, beach and lagoon resource management, and conservation of the unique qualities and nature of the coast.

Erosion

As with landforms everywhere, San Diego's are under constant attack from forces of erosion. While most such forces are natural in origin, they receive increasing assistance from man's activities. Natural forces include heat and cold, the chemical and scouring action of water, wind, and tides, and the combined action of wind and water at the shoreline. Human interference includes improper grading, destruction of ground covers, dams and concrete stream channels, ocean jetties and breakwaters along the coast.

Though hillsides and slopes are naturally in constant downward motion, and this movement of sand and rock material is desirable to maintain beaches, extreme and localized erosion of slopes is not desirable. Development often results in removal of the natural plant cover and root systems and cutting into easily eroded, sterile, underlying material which cannot support subsequent growth. Not only does this process allow excessive erosion of the exposed earth, but also resultant changes in groundwater levels can dissolve the natural soil cementing agents and produce even further destruction of both the eroding area and the downstream areas.

The eroding and depositing of shoreline beaches is also a continuing physiographic process. Whether growth or recession will occur in any given place depends on a number of interrelated factors, including the amount of available beach sand and the location of its source. Since streams and rivers are by far the most important source of sand, any change in their flow (as from damming or channeling) can permit erosion to prevail. Because of a significant diminution of the sand sources which rebuild them, many local beaches are now being eroded and are threatened with extinction. Groins and other projections from the shoreline also obstruct the natural movements of sand along the water's edge. In addition, where beaches have eroded, the cliffs are then left exposed to surf and wave action and there occurs a continuing recession of cliffs and bluffs. Sunset Cliffs, for example, has receded as much as one and a half foot per year in some locations.

Soils

Soils and land coincide, of course, but it is desirable to make a distinction between the two in order to discuss different aspects of the earth's surface. The relatively thin layer of weathered rock, organic matter and sediment which make up soils has the most direct implications for land use of any single natural characteristic of the environment. Certain types of soils are eminently suited to carrying the loads imposed by urban development. Other types are best suited to non-urban purposes. Soils also serve as the sole producer of the world's land-based food supply. As such, they are a vital natural resource and need to be dealt with as such, to be used and protected. Few other natural resources have such a direct bearing on man's affairs, whether it be to provide land for growing crops or for building cities.

All land has some degree of limitation in its capability to support urban development. Soil composition is a major consideration; topography, substructure, flood hazards and seismic problems are others. The latter are considered in detail in the Seismic Safety Element.

SLOPES IN EXCESS OF 25%

Soil tests are required by the City for all new subdivisions. In cases where a subdivision map is not required prior to construction of a building, the building inspector has the right to require a soil test prior to any construction. The Hillside Review Zone and Land Development Ordinance operate to protect the public health, safety and welfare by ensuring that development causes minimum disturbance of the soil and does not result in soil erosion, top soil loss, slide damage, flooding, or severe cutting and scarring of the terrain.

There is a wide variety of agricultural soil in San Diego. Soils in the area vary appreciably in origin, degree of weathering, depth and texture. The U.S. Soil Conservation Service has classified lands according to their productive capability, taking into account specific qualities of the soil slope of the land, degree of wetness, flooding hazards and other factors. Based on these classifications, San Diego's best agricultural soils are found in the broad river valleys of the area. Nearly three-fourths of the Sweetwater, upper San Diego and San Dieguito River Valleys is in the government's most productive classifications. Where fertile soils are found in combination with available water supply and suitable climate there is agricultural land.

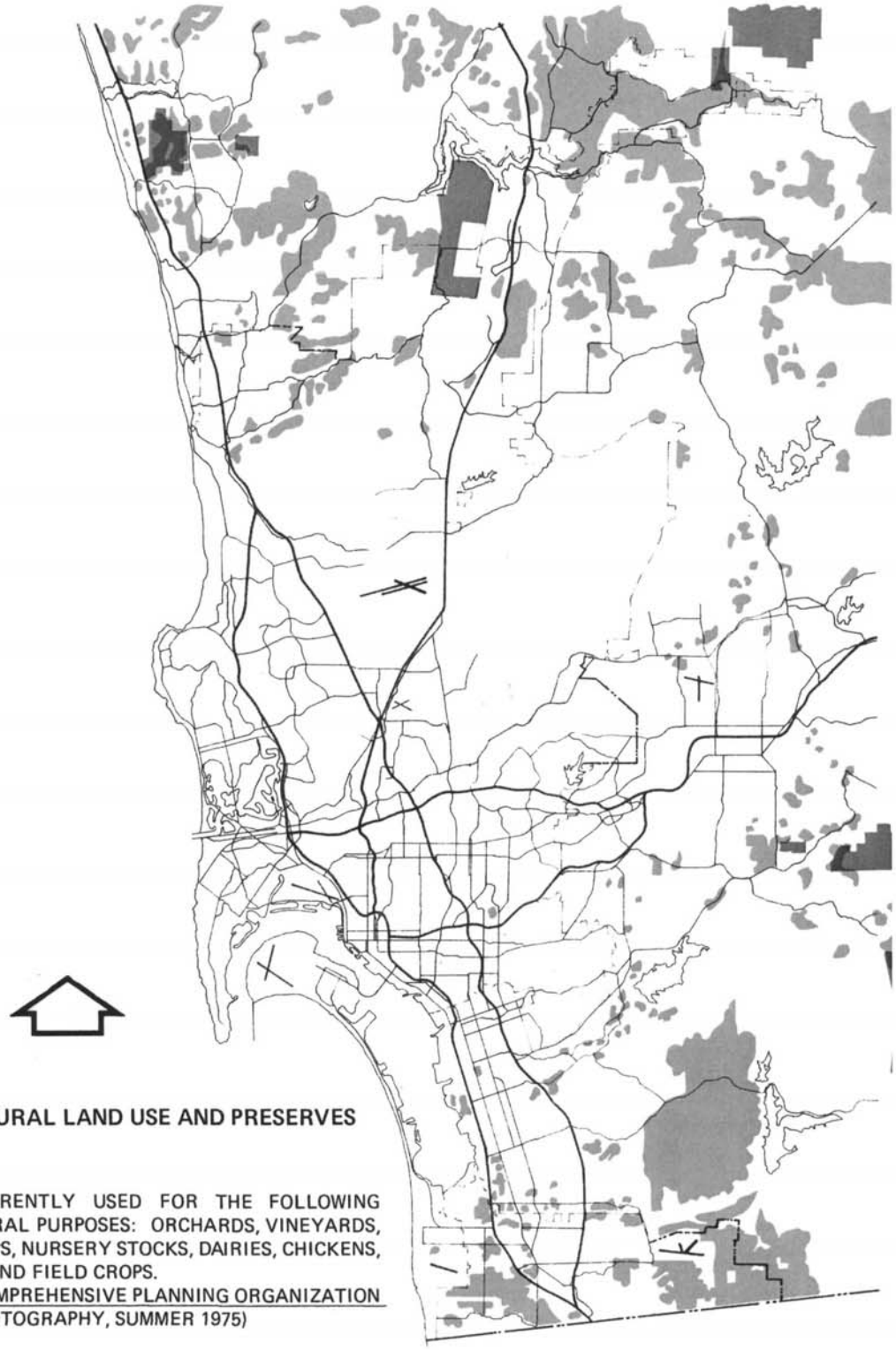
Agricultural Land

There are still many locations in San Diego which have the productive soil and the other requisites to be especially well suited for agricultural purposes, but this stock of prime agricultural land is diminishing rapidly. These lands represent a valuable natural resource. They could well be important for food production in the future even if not at the present time: the demand for certain vegetable and flower crops could increase, or there could conceivably be an increased future need for locally-produced food. Unfortunately, land used for agriculture is frequently a prime target for urbanization since it is generally level, easily excavated, well drained, and has good access. Also unfortunate is the fact that, for all practical purposes, once agrarian lands are built on they are thereafter lost to agriculture.

Agriculture can fill an important role in several of the objectives of the General Plan: a diversification of land uses, a tool of growth management, a means to prevent sprawl, an important open space use, preservation of floodplains, and to provide variety in the urban scene. It is also a significant contributor to the City's economic base.

Agriculture is an important factor in the local economy. Because of San Diego's particular combination of climate and soil types, an agricultural industry has developed here which produces significant amounts of off-season and specialty crops: avocados, citrus, tomatoes, flowers and nursery stock. As a "basic" industry, it is responsible for an important multiplier effect throughout the area's economy. It also enables residents to buy fresh products locally grown, and to be familiar with the agrarian scene.

Urban pressures on local agriculture are more the cause of its decline than lack of markets or appropriate growing conditions: increased land values, taxes, availability and cost of water, and seawater intrusion are the major problems. As urban growth extends into agricultural areas, the demand for land increases and prices escalate. Consequently the farmer finds it difficult to retain land he already owns or to purchase any additional that may be needed to increase operating efficiency. Along with higher land values comes increased taxes, which add to operating costs.



AGRICULTURAL LAND USE AND PRESERVES

AREAS CURRENTLY USED FOR THE FOLLOWING AGRICULTURAL PURPOSES: ORCHARDS, VINEYARDS, TRUCK CROPS, NURSERY STOCKS, DAIRIES, CHICKENS, RANCHING AND FIELD CROPS.
SOURCE: COMPREHENSIVE PLANNING ORGANIZATION (AERIAL PHOTOGRAPHY, SUMMER 1975)

AREAS PLACED IN PRESERVES PURSUANT TO THE CALIFORNIA LAND CONSERVATION ACT OF 1965 (WILLIAMSON ACT).
SOURCE: COUNTY OF SAN DIEGO.

Lowering of the groundwater table in many areas has both necessitated the use of more expensive imported water for irrigation and also has allowed seawater intrusion which is detrimental to many crops. As a result of these developments, agriculture in San Diego has dwindled from widespread prevalence to a relatively few concentrations in the South Bay, San Pasqual Valley, and the areas east of Cardiff, Encinitas and Leucadia. A continuing overall decline in acreage devoted to agriculture can reasonably be expected.

GOALS

- WISE MANAGEMENT AND UTILIZATION OF THE CITY'S REMAINING LAND RESOURCES, AND PRESERVATION OF ITS UNIQUE LANDFORMS, AND THE CHARACTER THEY IMPART TO SAN DIEGO.

- ACCESSIBILITY AND AVAILABILITY OF ALL BEACHES AND SHORELINE FOR PUBLIC USE.

- CONSERVATION OF BEACHES AND SHORELINE TO MAINTAIN AND ENHANCE THEIR BENEFITS FOR PRESENT AND FUTURE SAN DIEGO RESIDENTS AND VISITORS.

- RETENTION OF PREMIUM AGRICULTURALLY PRODUCTIVE LANDS IN AGRICULTURAL USAGE.

GUIDELINES AND STANDARDS

Land and Landforms

- Within the limits of other restraints, both other urbanized areas and those areas where urbanization has already begun should be filled in or built out before the City's remaining stock of large vacant and agricultural lands are developed.

- Floodplains, steep slopes, canyons, coastal and waterfront lands should be left undeveloped, or minimally developed consistent with their special qualities and limitations.

- Only sites best suited to development should be used. Steeply sloping or highly erodable land or natural stream channels should be left as open space or agricultural land. Construction should be clustered to minimize its effects.

- Grading should be kept to a minimum. Canyons should not be filled. Existing trees and ground covers should be retained as much as possible. Natural drainage systems should be preserved.

Beaches and Shoreline

- The use of beaches and shorelines should be limited to appropriate ocean-oriented recreational and educational uses.

- Scenic overlook areas should be protected from private and unrelated uses.

- Important tidepools and lagoons and marine canyons should be protected and preserved for recreational and research activities.

Erosion, Soils

- Watershed management and floodplain regulation should provide for the natural sand flow to beaches.

- The impact of all public and private alterations of cliffs and shoreline should be carefully studied, with the goal of minimizing erosion.

- Runoff, sedimentation, and erosion both during and after construction should be carefully studied and controlled.

Agricultural Lands

- Open space acquisition that facilitates conservation of important agricultural lands should receive priority.

- Prime productive agricultural lands should be retained in permanent agricultural zones.

RECOMMENDATIONS

Land and Landforms, Erosion, Soils

- Encourage use of planned residential development and planned commercial development procedures in canyons and on hillsides.

- Continue studies of proposed revisions to floodplain zoning and development of floodplain development guidelines.

- Develop a Mission Valley community plan which recognizes and enhances its floodplain and riverbed character.

- Continue study of proposed revisions to the Hillside Review Ordinance and development of hillside development guidelines.

Beaches and Shoreline

- Provide suitable access to all public beach and shoreline areas.

- Acquire remaining private beach and shoreline areas for public use.

Agricultural Lands

- Adopt enabling legislation to permit owners of prime agricultural lands to take advantage of the provisions of the Williamson Act.

- Continue water reclamation research programs with the aim of providing inexpensive means of leaching soils and preventing salt water intrusion in addition to cheaper irrigation.

Water Resources

The use, conservation, supply and distribution of water are critical issues in every city. Since almost every urban activity is dependent to some extent on water, it is in the best interests of the public to ensure that water supplies are properly planned and managed. A second major consideration is the impact of water on the landscape: in the form of runoff, flooding, groundwater levels and surface water features. A third aspect is the use and preservation of water for recreational or esthetic purposes, including the support of water-based wildlife and plant life.

Water management and conservation must directly provide for all these considerations.

FINDINGS

Rivers, Stream, Lakes, Reservoirs

There are five major rivers within or partially within the City: the San Dieguito, San Diego, Sweetwater, Otay and Tijuana Rivers. Due mainly to the dry climate and local impounding reservoirs, most of these are normally dry except during periods of abnormally heavy rainfall. In addition to the five rivers, there are also numerous canyons and creeks which drain the area.

The City's available water is stored in surface lakes and underground basins. There are three fresh-water lakes within the City, used to store potable water: Lake Murray, Miramar Reservoir, and Lake Hodges. The City also owns and operates seven more reservoirs within San Diego County (Upper Otay, Lower Otay, El Capitan, San Vicente, Sutherland, Barrett and Morena) and several small storage facilities, and major water filtration and treatment installations at Miramar, Murray and Otay Reservoirs. In addition to the surface lakes, there are numerous groundwater basins throughout the area which are important for agricultural production. These include the San Dieguito Valley, Lake Hodges basin, San Pasqual Valley, San Diego River basin, and the Tijuana River basin. Contamination and pollution of stored water are controlled by strict enforcement of sanitation rules at the reservoirs and watersheds. The City also maintains strict control over the quality of its filtered and treated "delivered" water.

The City has three sources of water for domestic, commercial and industrial uses. Ninety percent of the local water supply is imported, via two aqueducts, from the Metropolitan Water District of Southern California. This imported water is stored in the City's holding reservoirs. These reservoirs are also designed to collect surface runoff from their watershed areas which, during years of normal to heavy precipitation, can be a significant amount.

As a supplementary source, the City draws from wells in the Lakeside areas when the groundwater table and water quality permit. Existing aqueducts and storage facilities are capable of providing enough water to support the City's estimated population until about the year 2000, longer if stricter conservation measures were enforced.

Because San Diego must rely so heavily on imported water, efforts should be directed toward eliminating water waste and wise use of available supplies. Efforts in this direction should include landscaping requirements that increase use of drought-tolerant species, and irrigation devices which reduce wasteful runoff (drip irrigation). Other efforts would logically include watershed management to increase yield and minimize siltation; control of evaporation losses; acquisition of additional watersheds and collecting lakes; and programs aimed at sea water conversion and waste water reclamation.

San Diego's water management and planning efforts are coordinated with federal and state programs and with other regional and local programs through the Regional Water Quality Control Board, the State Department of Water Resources, the San Diego County Water Authority, and the Comprehensive Planning Organization. Through its participation in the latter organization, San Diego is working to develop an area wide water quality management program consistent with Section 208 of the Federal Water Pollution Control Act Amendments of 1972.

Ocean, Bays, Lagoons

The City of San Diego has jurisdiction over the Pacific Ocean offshore area, which extends from the tip of Point Loma northerly to the City's northern boundary near Sorrento Valley, and three nautical miles seaward from the mean low tide line. Within this area, kelp is harvested commercially; many varieties of fish and shellfish attract commercial fishermen; the varied sea floor topography and the clear water are ideal for oceanographic research activities; and many recreational activities take place.

San Diego Bay is one of the world's best natural harbors and is the second largest in California. It serves as the center of the Eleventh Naval District's activities; it also provides facilities for commercial and sports fishing, recreational activities, oceanic research, and major shipbuilding and repair facilities. It supports a wildlife sanctuary and salt evaporation beds in its southern extremity.

Mission Bay originally was a marshy lagoon draining the San Diego River and various canyon creeks. It has been dredged and developed to accommodate aquatic recreation water skiing, swimming, boating, and small boat harboring. There are extensive beaches, five resort hotels. Sea World, landscaped areas, and a wildlife preserve.

Coastal lagoons form one of the major features of the San Diego coastline and are important vegetation, wildlife and marine life habitats. Los Peñasquitos Lagoon and the Tijuana Slough are especially valuable, since very few such areas are left in Southern California.

Fisheries

Many commercial and sport-fishing boats operate out of San Diego Harbor and Mission Bay. These bring in fish and shellfish both from the coastal Offshore Area and from more distant areas. For various reasons, the local fishing industry has been declining for the past 25 years - as it has elsewhere in the state. Expectations are that it will continue to do so; however, fishing is still one of San Diego's large industries.

Pollution

Local water quality is strongly influenced by the region's topography and climate. Because of the rainfall patterns, geologic conditions and nature of the terrain, surface runoff is frequently affected by sand and gravel operations, local flooding, agricultural wastes, and the transport of saline waters. Since nearly all the wastewater in the region is either reclaimed or discharged through an ocean outfall, there are relatively few problems with inland surface waters due to point-source wasters. Non-point source pollution is much more difficult to evaluate; and San Diego, like many other regions of California, lacks adequate data in this general field. Discharge of treated municipal waste through the Point Loma outfall has generally not caused any serious problems, but may have long range, ill-defined adverse impacts on the ocean. However, required compliance with the State Water Quality Control Board's Ocean Plan is expected to provide an adequate margin of safety.

San Diego Bay has water quality problems due to thermal discharge from three San Diego Gas and Electric Company power generating plants, sewage discharge from boats and ships, and industrial waste from the North Island Naval Air Station. Corrective programs are under way for the latter two. The thermal discharges apparently do no significant environmental damage, but do not conform to state regulations. Water quality within the bay generally approximates that of the outside coastal waters, and authorized discharges into it are restricted to brine, storm water, flume and cooling water.

For various reasons, Mission Bay and the coastal lagoons have higher pollution levels than San Diego Bay. Waste runoff during storms, particularly from Mexico in the Tijuana Slough, and contributing factors. The poor flushing characteristics of Mission Bay and Los Peñasquitos Lagoon, plus waste discharges from small craft in Mission Bay, also help lower their water quality below that of the coastal waters.

GOALS

- INCREASED UTILIZATION OF LOCAL WATER RESOURCES.
- DECREASED RELIANCE ON IMPORTED WATER.
- ACHIEVEMENT AND MAINTENANCE OF A HIGH LEVEL OF WATER QUALITY IN ALL WATER BODIES UNDER CITY JURISDICTION.

- PROVISION OF WATER SUPPLIES ADEQUATE FOR PRESENT USES, TO ACCOMMODATE FUTURE GROWTH, TO ATTRACT AND SUPPORT COMMERCIAL AND INDUSTRIAL EXPANSION, AND TO SUPPLY LOCAL AGRICULTURE.

- PRESERVATION OF LOCAL COMMERCIAL AND SPORT FISHING INDUSTRIES.

GUIDELINES AND STANDARDS

- Water quality objectives and criteria of the Regional Water Quality Control Board and the State Water Resources Control Board should be achieved and maintained.

- Because intensive use is already made of available local ground and surface water, efforts should be directed toward development of innovative water supply techniques: reclamation, sea water conversion, watershed management.

- Because of the possibility that local supply could take on future importance, local basic food-producing industries such as fishing should be preserved and expanded as much as possible.

RECOMMENDATIONS

- Implement watershed management practices designed to increase quantity and quality of runoff and collection.

- Continue efforts to reduce evaporative losses in City reservoirs.

- Continue active participation in water reclamation and seawater conversion programs.

- Continue efforts to improve quality of ocean outfall discharges.

- Strictly enforce regulations concerning sewage discharge from vessels into Mission Bay and San Diego Bay.

- Publicize voluntary water conservation measures which focus on reducing waste, have little or no effect on the quality of life, and decrease the possibility of rationing and other undesirable restrictions.

- Work with local fishing industry representatives to enhance their possibilities of economic survival in San Diego.

- Encourage local water agencies to use state-mandated powers to enforce conservation measures that eliminate or penalize wasteful uses of water.

Mineral Resources

There are many valuable minerals found in the San Diego region, ranging from gold to crushed rock. Production of metals and gemstones and other more glamorous minerals has been limited for many years because of high extraction costs. In terms of both quantity and economic value, sand and gravel and crushed rock are by far the most valuable mineral resources extracted and processed in the area now. Evaporative production of salt in the lower parts of San Diego Bay is also of economic importance.

FINDINGS

Sand and Gravel

There are basically four sources of construction materials in San Diego: alluvium, Poway conglomerate, San Diego formation, and meta-volcanic rock. Alluvium is soil, sand, gravel or similar material deposited by flowing water. It is found in all of the major river valleys, and is the most desirable source of sand because it is relatively free of rocks and debris. Poway conglomerate is a mixture of cobbles, pebbles, boulders, clay, sand and silt bound together as a solid mass. It is the major local source of sand, gravel, road base material and aggregate for asphaltic concrete. The San Diego formation consists of alternating layers of silt, sand and gravel. Sand and gravel for construction materials is being taken from this formation near the International Border and is potentially a major source for the southern metropolitan area. Metavolcanic rock is a hard blue rock characterized by homogeneity, purity and high density. It is crushed to produce a high grade aggregate that competes economically with that processed from Poway conglomerate.

Based on current per capita consumption and anticipated future trends, the total estimated supply of sand and gravel resources currently owned or controlled by the local industry appreciably exceeds the projected demand through 1995. There is no guarantee, however, that the areas relied on for future supply will always be available for mining. Furthermore, in establishing policies for exhaustible resources, there is an obligation to consider the needs of future generations beyond any cut-off date. There is now no City zoning classification specifically designed to protect present or future construction material resources.

There are a number of objectionable characteristics that typically accompany the extraction, processing and transportation of sand and gravel products. These include noise, vibration, air pollution, dust, traffic slowdowns, and unattractive appearance of sites. There are also the health and safety hazards that accompany heavy earth-moving equipment, settling ponds, pits, and steep hillsides.

Rehabilitation of depleted sites is another major problem of the sand and gravel industry. There are three alternative approaches to this: 1) do little or nothing; 2) defer restoration until the site is worked-out; 3) progressive rehabilitation, concurrent with the mining operation. The latter is preferable for a number of reasons. It controls and minimizes neighborhood and operational conflicts which normally arise near an operating site. It is less costly than post-operational rehabilitation. It reduces surrounding air and water pollution caused by the mining operation.

And, since it involves early determination of the site's reuse, the end result is a more attractive and useable site.

Salt

Salt is produced in San Diego by solar evaporation of seawater near the mouth of the Otay River, at the south end of San Diego Bay. This method of salt production is possible in very few areas of the world because of the requisite climate (warm, dry, windy summers), area, and local market (salt has a high transport cost). Most of the salt produced in San Diego is used locally, with some going to the Los Angeles area. Bittern, a byproduct of the evaporation process, is also sold locally for production of magnesium chloride.

The total production of San Diego's salt ponds has remained fairly constant for the past twenty years. Markets which were formerly supplied in Arizona are new being largely supplied by salt mined there. Salt from evaporative ponds in Baja California is now competing with San Diego's salt production.

Salt ponds are of value in providing nesting and feeding areas for local and migratory birds, and breeding grounds for numerous mollusks and shellfish. They also provide an appropriate use for open space designations in the area.

GOALS

- PROTECTION OF MAJOR MINERAL DEPOSITS AGAINST ENCROACHMENT BY LAND USES WHICH WOULD MAKE THEIR EXTRACTION UNDESIRABLE OR IMPOSSIBLE.

- PRODUCTION OF SAND AND GRAVEL WITH MINIMAL HARM AND DISTURBANCE TO ADJACENT PERSONS AND PROPERTIES.

- PLANNED REHABILITATION OF DEPLETED MINERAL AREAS TO FACILITATE DESIRABLE REUSES COMPATIBLE WITH LOCAL DEVELOPMENT OBJECTIVES.

- CONSERVATION OF CONSTRUCTION MATERIAL RESOURCES TO PROVIDE FOR THE CITY'S GROWTH AND DEVELOPMENT NEEDS NOW AND IN THE NEAR AND DISTANT FUTURE.

- PRESERVATION OF THE LOCAL SALT INDUSTRY.


SAND AND GRAVEL RESOURCES
SAN DIEGO METROPOLITAN AREA
ALLUVIUM
METAVOLCANIC
POWAY CONGLOMERATE
SAN DIEGO FORMATION

GUIDELINES AND STANDARDS

- Local sand and gravel production is essential to the City's present and future construction, growth, and development.

- As an essential industry, extraction and processing of construction materials must be integrated with other existing and proposed land uses.

- As with other exhaustible resources, conservation measures should assure an adequate supply of accessible material for future as well as for present use.

- As a relatively unique local industry, with both present and historic interest, economic value, utility as an open space use, and importance as an ecological habitat, local evaporative production of salt should be protected.

RECOMMENDATIONS

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Sand and Gravel

- Develop and adopt a mineral resources zoning classification that:

    - protects resources for present and future needs.

    - substantially reduces operational and environmental conflicts with other land uses.

    - terminates non-conforming status for presently unregulated mining operations.

    - provides for full progressive rehabilitation of worked-out extraction and processing sites.

Salt

- Support the San Diego Unified Port District in its efforts to encourage continuation of the local salt production industry.

Ecological Resources

Ecology is defined as the science dealing with the relationship of living things to one another and to their environment. An ecological system is, therefore, a community of living things and their immediate environment.

A great variety of vegetation and wildlife exists in the ocean and coastal waters, valleys and canyons, and the foothill areas within the City of San Diego. Many plants and animal species have been present in these areas for thousands of years and have evolved through natural selection to a state of balance with and adaptation to the local environment. Several rare and/or endangered species of both wildlife and vegetation are to the found within the City.

Both wildlife and vegetation are of greater benefit to man than is often realized. Both serve as early warning agents of environmental damage which, unchecked, could be harmful to man. Vegetation produces oxygen, absorbs noise, and inhibits erosion. Both interact with the shared environment in countless beneficial ways: organic matter contributes to soil accumulation; vegetation cools and purifies the air, and improves watershed yield; animal life serves recreational, leisure and study purposes, and is an essential link in the chain of processes that maintain the quality of man's environment.

FINDINGS

Vegetation and Wildlife, Major Habitats

Los Peñasquitos Canyon is the last major river-oriented woodland in San Diego that has remained ecologically intact. It is the natural home for many species of birds, mammals, reptiles, amphibians and invertebrates as well as for trees and other plants. The lagoon and marsh complex consists of flatlands and tidal flats with occasional deep channels. Proximity to the University of California campus makes it attractive as a research site. It is the home of a large variety of plant and marine life and riparian mammals and birds.

The Torrey Pines Mesa includes portions of Torrey Pines Park, owned by the City of San Diego, and the Torrey Pines State Reserve owned by the state of California. The major attraction of this area is the Torrey Pine, which is found in only one other area of the world. There are also many other species of native plants.

The City has jurisdiction over two important tidal areas. The La Jolla Intertidal Area includes the shoreline and subtidal region between Bird Rock and Point La Jolla. The Point Loma Intertidal area includes the shoreline from the U.S. Coastguard Lighthouse to Sunset Cliffs. These areas support intertidal and subtidal fish, invertebrates and plants, as well as a number of migratory land and shore birds.

The Kendall-Frost Mission Bay Marsh Preserve is owned by the University of California and located in Mission Bay. It is the habitat of many birds and waterfowl, and numerous small sea organisms such as crabs and sea anemones.

The Pacific Ocean Offshore Area is rich in marine species because of the varied topography and the presence of the cold California current. It is dominated by the giant kelp, and kelp beds are the living environment for many fish and shellfish. A number of migratory sea animals are also found here, including seals, sea elephants, whales, sea lions and porpoises. Numerous shore and sea birds feed in the area.

Much of Mission Valley, Mission Gorge and the Otay River Valley contain riparian vegetation of significant value. The San Diego River Control Channel, and the South San Diego Bay Tidal Flats and adjacent marshes and salt evaporators, both support large populations of resident and migratory shore birds and waterfowl. In addition, they both accommodate many species of fishes, invertebrates, and plants. South San Diego Bay is also the only Elegant Tern nesting site in the United States.

NATURAL RESOURCE PRESERVATION AREAS

WETLANDS, RIVERS, RESERVOIRS, WILDLIFE HABITAT
SIGNIFICANT ECOLOGICAL SYSTEMS.

The Tijuana River Slough and adjacent area to the east includes one of the finest saltwater marshes along the California coastline. At least five endangered species of birds frequent the marsh. The slough may be the only location in this country where a rare plant species, Salt-marsh Bird's Beak, still exists. It is also the habitat and/or breeding ground of many other birds, fowl, invertebrates, mammals, reptiles and fish.

Vernal (spring) pools are an important natural resource in San Diego. These pools are usually found on mesa tops. They are depressions that fill with water during the rainy season and because of climatic and soil conditions remain up to several weeks. They occur in scattered locations in western North America, including Mexico. The two major parts of the San Diego area that still contain vernal pools in a natural state are Otay Mesa in the county and Kearny Mesa-Mira Mesa in the City. Because of their ephemeral nature, these pools are unsuitable for plants and animals typically found in permanent ponds. But, a variety of other organisms have adapted to them and have become so specialized that they are found only in these temporary pools. Several such plant species are found only in the vernal pools of the San Diego area and directly south in Baja California; Abrams Mesa Mint occurs only on Kearney and Mira mesas and no where else in the world. Abrams Mesa Mint, Adders-Tongue Fern, San Diego Coyote-Thistle and Orcutt's Brodiaea all are found in local vernal pools and are listed by the California Native Plant Society and the U.S. Fish and Wildlife Service as endangered or threatened species.

Additional native vegetation and wildlife habitats of significance are found in the large undeveloped mountain and canyon areas of Cowles, Fortuna and Black Mountains and Tecolote, Chollas, Alvarado and Lopez canyons.

Endangered Species

The California Department of Fish and Game has identified several San Diego birds as either endangered or rare. An endangered species is one whose prospects of reproduction and survival are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. Local birds classified as endangered include five that frequent the marsh at Tijuana River Slough: the California Brown Pelican, American Peregrine Falcon, Beldings Savannah Sparrow, Light-footed Clapper Rail, and California Least Tern. A rare animal is a species or sub-species that, although not presently threatened with extinction, is found in such small numbers throughout its range that it may easily become endangered.

Human Threats

In addition to natural forces, acts of man may threaten many species of vegetation and wildlife. Such acts include: the alteration or destruction of a unique habitat necessary for survival of a species; population reduction by hunting, fishing or harassment; introduction of foreign species that competes or carries diseases; pollution of the environment.

In San Diego, the alteration or destruction of habitats through the process of urbanization is the most serious threat to both vegetation and wildlife. Dredging of lagoons for marinas, siltation of

water bodies by development and filling of canyons for building sites are three examples of development destroying the potential for plant and animal survival.

Offroad vehicle use has caused extensive plant destruction and interfered with wildlife activity in many areas. Vegetation removal is the single most-destructive action that affects wildlife. Although man's actions can enhance the environment for some species, the majority of man-modified habitats are ecologically poor compared with those that have evolved naturally. Riparian or water-related habitats are particularly sensitive to human interference: they support a more diverse population than most other habitat types, constitute a tiny percent of total City land area, and tend to be urbanized at a faster rate than any other type of wildlife area.

GOALS

- ACCEPTANCE OF A LAND ETHIC THAT INVOLVES THE BALANCED COEXISTENCE OF MAN, VEGETATION AND WILDLIFE.

- PROTECTION OF ALL WILDLIFE AND VEGETATION THAT DOES NOT CONSTITUTE A CLEAR AND DIRECT DANGER TO MAN.

GUIDELINES AND STANDARDS

- Vegetation, wildlife and wildland areas are important resources that have identifiable immediate and long-term values for man.

- The preservation, maintenance and enhancement of a vegetation, fish or wildlife species is directly dependent on the condition and extent of its habitat.

- To maintain a viable, self-perpetuating ecosystem, examples of each habitat and plant community must be preserved.

- Conservation of endangered species must include management of all resources necessary for their survival.

- Priority should be given open space acquisition that also serves to preserve important ecological resources.

RECOMMENDATIONS

- Adopt enabling legislation to permit use of the Williamson Act for protection of wildlife habitats.

- Control use of off-road vehicles.

- Include consideration of important ecological resources in the application of floodplain and hillside zoning and the proposed development guidelines.

- Establish policies and procedures for protection and preservation of all trees and significant plantings within the City.

- Continue educational efforts regarding the value of and needs of the environment, both formal (e.g., school systems) and informal (e.g., public recreational programs).

Other Resources: Air

Probably no single natural resource has such direct and intractable bearing on the public health, safety and welfare as air. It is one of the basic ingredients of the environment, essential to most forms of life. Unlike other resources it permits no substitutes, cannot be imported when local supplies are deteriorated, and allows no reduced-use conservation measures. However, like other resources, its quality has been extensively deteriorated by urbanization and development. Unfortunately, most of the facts about air pollution and proposed means of improving air quality are in direct conflict with well-established and emotionally volatile patterns of thought and behavior. Since smog first appeared in Los Angeles in 1945, there has been a general unwillingness on the part of both government and the public to cope with the problem or to accept the implications of major-source identification. It is only quite recently that concerned citizen pressures have precipitated the massive governmental intervention and involvement which dominate the air quality scene today.

FINDINGS

Almost without exception, human activities all create some type of pollution. When these activities are concentrated in space, and when climate and geographic and atmospheric conditions restrict air currents, waste products collect in the air. The result is air pollution. Pollutants can be smoke, dust, fumes, vapors, pollens, or any toxic substance that interferes with the use of air by men and other living things. Many economic as well as health effects or pollutants have been identified: they can erode and discolor building materials, break down rubber and paint and fabrics, slow growth of and/or kill plants, and increase the risk of cancer and respiratory ailments. It is reasonable to assume that there are other effects that have not yet been identified.

The management of air resources is dependent on both local and regional activities and controls. The resource itself is clearly regional, since air cannot be confined to the boundaries of any political jurisdiction. For this reason, air quality surveillance and pollution abatement authority must be vested in an area-wide agency. However, the generation of air pollution is local in nature and can be substantially affected by local land use and transportation decisions. Particularly in San Diego, where autos are the major source of air pollution, local decisions about the intensity of land use, residential densities, the location of major destinations in relation to residential development, the design of streets and highways, and the transportation choices available to the populace all determine to a great extent the amount of air pollution in the City.

Air quality in San Diego is directly affected by climate and geography as well as by the quantity or pollutants discharged. The geographic pattern of high mountains partially surrounding the urbanized area operates to hold and concentrate pollution within the local air basin. Three

particular aspects of climate aggravate the situation: amount of sunlight, temperature inversions, and wind patterns. San Diego has 73 percent of the maximum possible yearly sunshine, which is the energy that converts primary pollutants into the more complex and harmful ones called smog. Inversions create a lid effect to hold in locally produced contaminants. And local wind patterns also act to retain air pollution within the region. These factors, in combination with steadily increasing population and vehicle traffic, create severe air pollution problems for the City.

Although motor vehicles and aircraft are responsible for the greatest part of local air pollution, there are other significant sources. The most important of these are sand and gravel operations, manufacturing, various processing and product handling operations both on land and at sea, and pollutant transfer from the areas both north and south of the San Diego Air Basin. Control measures for a number of these sources are already being implemented.

The San Diego Air Basin has shown a steady decrease in air pollution levels since 1969. However, the rate of decrease has leveled out. Projections indicate that pollution levels will begin increasing again in the near future if population continues to increase at current rates and control measures remain static. These projections and the various state and federal air quality requirements have resulted in a Regional Air Quality Strategy, developed jointly by the Comprehensive Planning Organization, California Department of Transportation, San Diego County, the Air Pollution Control District, and the City of San Diego. Its goal is to provide a central set of policies which local planning agencies may implement in order to meet federal and state air quality standards.

GOALS

TO PROTECT AND ENHANCE THE QUALITY OF SAN DIEGO'S AIR RESOURCES SO AS TO PROMOTE THE PUBLIC HEALTH AND WELFARE AND THE PRODUCTIVE CAPACITY OF ITS POPULATION AND NATURAL ENVIRONMENT.

GUIDELINES AND STANDARDS

- The City should seek tactics for control of air quality which have the least possible disruptive effects on present ways of life.

- Priority should be given pollution-control measures which also serve to further other goals of the General Plan.

- Public participation, understanding, acceptance and support of air quality policies should be considered essential to their success and should be actively encouraged.

RECOMMENDATIONS

- Provide attractive less-polluting alternatives to the use of private autos.
    - improve public transit.
    - suburban park-and-ride facilities.
    - separated bike lanes.
    - car and van pooling.
- Promote more efficient operation of motor vehicles by such means as driver education, vehicle inspection and maintenance, and traffic flow improvements.
- Promote the development of relatively self-contained neighborhoods and communities which provide an appropriate balance of necessary land uses, facilities, and services thereby decreasing the number and length of passenger car trips.
- Encourage fill-in and vertical growth of the City, rather than a pattern of horizontal development.
- Improve control and regulation of sand and gravel operations and petroleum loading activities.