

PUBLIC FACILITIES, SERVICES AND SAFETY

Public Facilities, Services and Safety

The public facilities and services that have been identified are those that are publicly managed and which have a direct influence on the location and allocation of land use. These services are schools, libraries, police, fire, water, sanitation, and flood control.

The guiding goal in allocating services is to program these public facilities at a time and level to complement accompanying development. One should not precede the other, in fact the installation of public service can be used as a forceful tool in guiding and timing development in desired locations.

The Public Services, Facilities and Safety Element directly affects, and is directly affected by, those other General Plan elements that can be described as development-oriented. For without the entire range of services and facilities represented by this element, development is plainly infeasible. On the other hand, it is enormously important that the quality and quantity of the services and facilities provided be geared to the nature and intensity of the development that is prevailing and/or projected. But most important, that facilities and services be timely developed so as not to impact the capacity and ability of the City to provide the service.

FINDINGS

Schools

One of the most important of the public services is the provision of schools and the offering of quality education to the residents of the City. San Diego is fortunate in having many levels of education available; Universities and Colleges, an excellent Adult Education Program, numerous junior colleges, and the very necessary elementary and secondary school system. This section on schools will only address the lower educational level.

The San Diego Unified School District is the largest in the county serving the majority of the City. It is not, however, the only district serving City residents. In addition to the San Diego Unified School District there are 16 smaller districts, including elementary and secondary levels which service the suburban, peripheral areas of the City.

A serious persistent problem for most of the school districts has been the provision of schools in the rapidly developing areas of the City. The City of San Diego through Council Policy 600-10 requires that schools as well as other public facilities be available concurrent with need in the development. There is also City Council Policy 600-22 which requires certain basic information of the school districts pertaining to school availability and the impact on schools by proposed rezoning changes and new housing developments or redevelopments. The basis for this policy is to allow the City authorities a reasonable opportunity to make informed judgments and decisions on proposed developments. Under City Council Policy 600-22, developers must obtain a letter of school availability from the districts if developments are located outside of what is considered to be the older, urbanized areas of the City (see map). In areas where letters are not required, the school districts nonetheless, supply the City with school data pertinent to the proposed development.

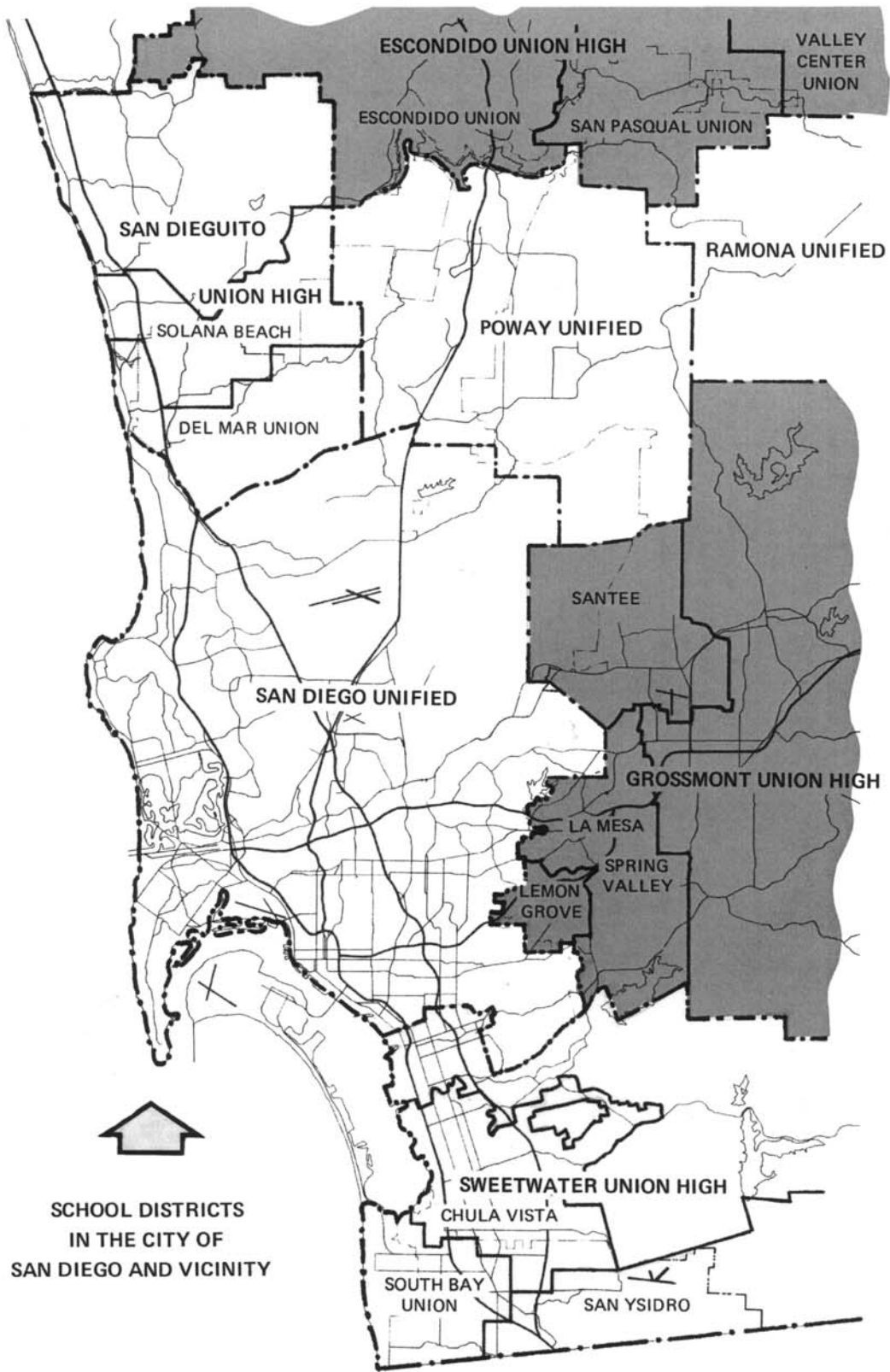
To implement the City of San Diego Council policies, the San Diego Unified School District in 1971, adopted a policy for determining the availability of schools. Currently, the policy, after being revised in 1977, contains procedures for determining capacities and school availability as well as guidelines for administering the policy as it relates to developer participation in providing school facilities. A fundamental factor in the applications of the district's policy is enrollment capacity for each school which is updated on an annual basis.

Under the policy, developers are responsible for the cost of incremental facilities required to house the students expected to reside in the proposed development. This means that if there is space available for a portion of the students generated, the developer contributes only on behalf of those that can not be accommodated in existing facilities. The amount and type of contributions are determined on a case by case basis and may consist of land, temporary or permanent classrooms, support facilities or cash.

Other school districts which serve the City of San Diego school children have varied requirements for developers. Some require fees for all development, whether adults only, condominium or mobile homes. Others base their fees on the type of home and the number of bedrooms which serves as the basis for projecting student population. With the exception of those school districts who do not have problems with school availability, fees are usually required and availability letters granted after the fee agreements are finalized.

Another major problem for the San Diego Unified School District is the assurance of racial and ethnic balance in their schools. The court early in 1977, directed the district to present to the court "a detailed plan to further alleviate racial segregation in those minority schools identified." They further stated that some portion of the plan had to be operative during the school year 1977-1978 and that dates were to be designated for those portions of the plan to be implemented at a later date. The plan developed by the school district with the assistance of a 70 member Citizen's Advisory Commission creates a series of magnet programs. These are located mainly at those schools defined as racially unbalanced schools; also, there are programs in schools where the enrollment is predominately majority race students. In the latter case, these are referred to as mirror magnet school programs. The programs in the first implementing portion of the plan include specific course emphasis at each school. Examples of the programs are music and art, fundamentals (reading, writing and math), all courses taught in a foreign language, and Olympics (physical education).

Evaluation of the plan also prepared by the school district measures the degree of minority student isolation or non-isolation. This measure is based on one or all of the components built into the basic plan. These components include the district's racial/ethnic pupil census, an integration index, and isolation index, and a classroom teacher integration index. The evaluation plan is intended to assist the Board of Education, the court, the district and the community in assessing the growth and involvement of students in a meaningful integration effort.



Other lesser problems, in light of school integration and the very basic issue of the availability of schools in newly developing areas of the City, is the continual drop in enrollment in older sections of the City. School districts will be faced with this issue more and more in coming years as the number of school age children declines. This decline is a combination of various factors including lower birth rates, out migration, communities changing to predominately senior citizens and/or singles and young marrieds with no children.

GOALS

- A PUBLIC SCHOOL SYSTEM THAT ENABLES ALL STUDENTS TO REALIZE THEIR HIGHEST POTENTIALS AS INDIVIDUALS AND AS MEMBERS OF SOCIETY.
- ACTIVELY PURSUE THE IMPLEMENTATION OF THE BALANCED COMMUNITY CONCEPT, THEREBY CAUSING INTEGRATED SCHOOLS THROUGH INTEGRATED RESIDENTIAL NEIGHBORHOODS.

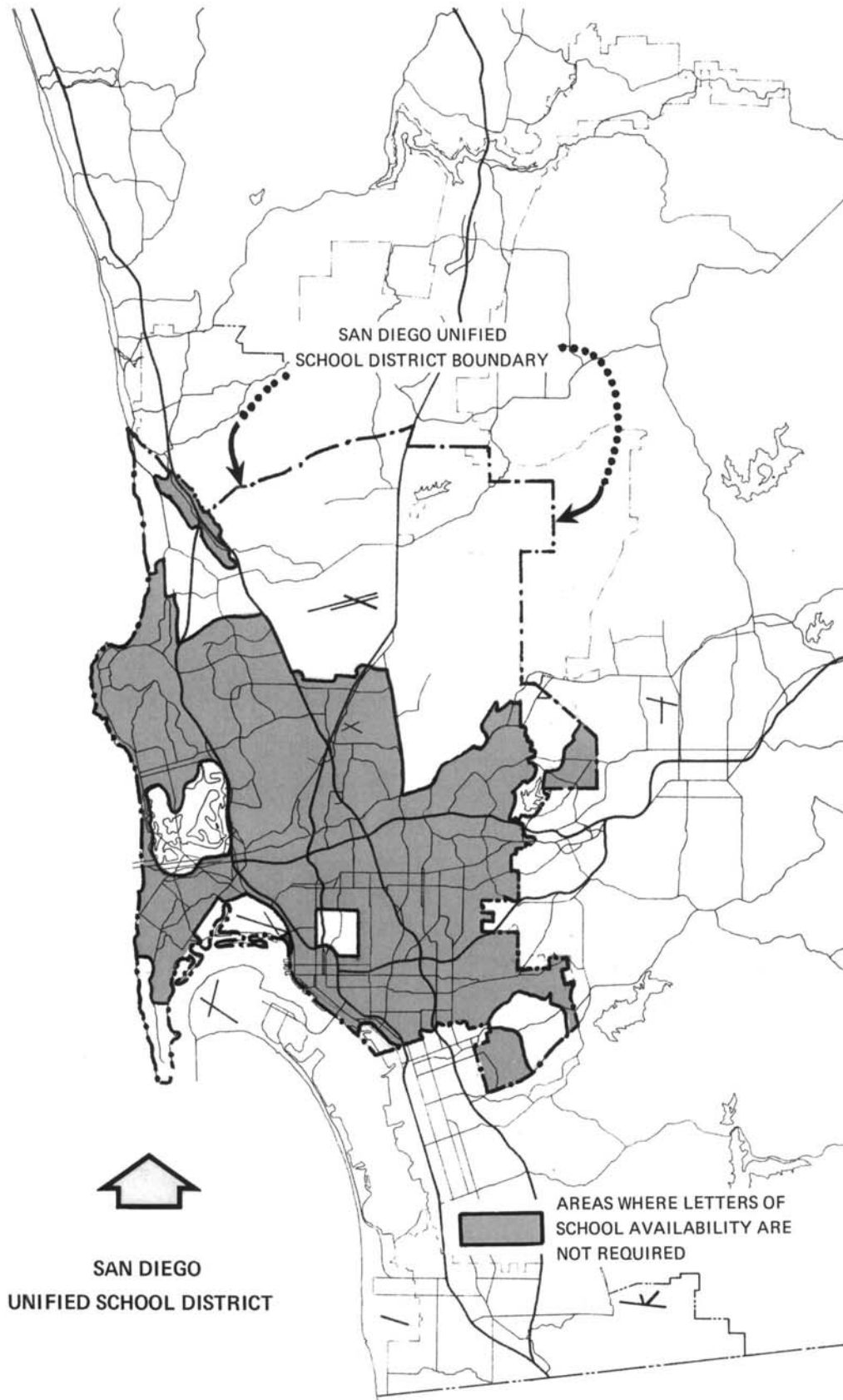
GUIDELINES AND STANDARDS

Site Size

- Elementary Schools - 10 net usable acres
- Junior High School - 30 net usable acres
- Senior High School - 45 net usable acres

Capacity

The San Diego Unified School District's "Policy for Determining the Availability of Schools" provides that annually during the first week in December recommended enrollment capacities for each school in the district be presented for Board of Education adoption. Current capacity is defined as ". . . the number of students which may be served within the school's existing facilities, taking into account the educational program and staff assignment practices in effect at the school. For some schools, a maximum capacity is also established. These are schools in areas where there has been recently increasing enrollment and where the school's enrollment approaches or exceeds the school's current capacity. The policy defines maximum capacity as ". . . the greatest number of students who can be provided a quality educational program and school environment if the school's existing facilities are augmented or improved in a specific manner."



Space is determined to be available at a school if one of the following circumstances exists:

- Current capacity accommodates the projected enrollment
- Developer contribution increases school capacity
- New development improves racial balance at the school

Geographic Location

- Schools should be located away from fault zones and outside areas susceptible to landsliding and flooding
- Schools should not be located in areas subject to excessive noise

RECOMMENDATIONS

- Cooperatively assist the school districts in resolving problems arising over the availability of schools in newly developing areas of the City
- Consider better utilization of land by the construction of multi-story school buildings
- Continued joint usage of schools with adult education and community programs
- Consider at all times the architectural design of the school facility and its place in the neighborhood and community
- Explore alternatives to the standard asphalt and cyclone-fenced playgrounds
- Consider attendance boundary adjustments for the purpose of achieving a more balanced enrollment distribution

FINDINGS

Libraries

The function of a library system is to provide to the public at large a major source of information, research and recreation as well as being a major cultural center for the City. Providing this service to a culturally and ethnically diverse public is difficult. Added to this is the problem of a rapidly expanding population both in numbers and geographic location.

In recognition of the essential unity of knowledge and of the desirability of promoting the public library's function in San Diego by ready access to library materials, the underlying theory is that of centralization respecting alike,

- a. the organization of the physical plant, equipment and materials of the library, and
- b. the responsibility for the unified, effective administration of the same.

At the same time, it is recognized as desirable to provide for the library requirements of the community by means of branch libraries. In such instances, it is not intended that the branch libraries be self-contained or shall comprise all the materials possessed by the central library. In order to meet the ever-changing needs of the residents of San Diego, the library system must be allowed to become flexible in terms of the location and size of the branch facility. The current situation in San Diego is that the system is locked into conformity by communities who perceive the branch library as a landmark. A factor that cannot be overlooked.

The fact that the City of San Diego Library System is the largest and most complete in the two adjoining counties accounts for the heavy use by nonresidents. The Serra Cooperative Library System, instituted in the 1960s permits nonresidents to use City libraries at no charge. It is estimated that about 10 percent of the usage at the central library is from people living outside of the City. The branches receive less non-resident patronage.

Central Library

The main library located in downtown San Diego is the third such facility for San Diego residents. Patronage at this facility and the books and staff needed to service residents have grown to a point where a larger and more efficient structure is now necessary. Inadequacies have been determined in at least four areas: shelving capacity, reader seat capacity, public comfort and convenience and staff work space. The decision has been made that the central library will remain in the downtown area, and expand at its present site, when feasible.

District Library Service

Not now a part of the library system, the concept of district centers may well be a future consideration. District libraries are basically regional in scope serving and providing a much broader service to the community and surrounding area. The regional or district library would be the first reference point when information or books could not be supplied at the community level. Book capacity in the library would be from 100,000 to 125,000 volumes, with at least 300 periodicals, and 200 records and cassettes.

If the regional library concept is ever to be applied in San Diego, it would not reduce the community libraries established except for the one that is replaced. The replaced library would be enlarged to accommodate the staff and books needed to serve a broader geographic area.

GOAL

- TO CONTRIBUTE TO THE MAINTENANCE AND IMPROVEMENT OF THE QUALITY OF LIFE IN THE CITY OF SAN DIEGO BY ASSURING ACCESS TO ORGANIZED RESEARCH, INFORMATIONAL, RECREATIONAL AND EDUCATIONAL RESOURCE COLLECTIONS OF ALL MEDIA.

GUIDELINES AND STANDARDS

The standards for libraries are currently being reviewed by Public Safety and Services Committee.

Population - The service area should be at least 18,000 to 20,000 residents before a permanent library facility is warranted with anticipated growth reaching about 30,000 within a period of 20 years after the branch is opened.

Branch Size - The maximum service area is a two mile radius. The site should be accessible by foot and auto. Since the automobile is the prime source of transportation, it is important to locate the facility in the vicinity of major streets; but public transportation should also be a significant locational consideration.

Book Capacity and Use - Based on experience in San Diego, the branch should house 2.7 volumes per sq. ft. on opening and an eventual capacity of 4.4 volumes or more.

Additional considerations which are not standards but none the less important when evaluating a contemporary, comprehensive library system are:

1. Library location should be in response to population distribution, not because a community desires one.
2. Library service and location should be flexible over time. Demands of residents can change as the social characteristics change. As for instance, a shift from a family dominated community to senior citizens.
3. Library location should be in an area of intense people activity and where the trip can be combined with other shopping chores.
4. The facility should have the flexibility of conversion to other uses when and if the need arises. In this respect, leasing or initially constructing a building that can be easily converted to commercial or office use warrants consideration.

RECOMMENDATIONS

- Evaluate yearly the existing libraries for continued use or necessary expansion or relocation.
- Library sites should be located when an area of the City is master planned for development. Construction of the library to begin when the population reaches at least 18,000 people.
- Continue to explore the concept of district/regional libraries which serve more than just the City of San Diego and are financed on a regional basis.
- Decisions on library effectiveness to be balanced with community influence and based on broader needs of the City.

- Implement the conversion of library inventory into machine readable form as rapidly as funds permit.

FINDINGS

Police

Both recent residential development patterns and expected future ones place demands on the location of physical facilities for police services. The geographic spread of residential and commercial development within the City limits and the limited expansion possibilities of existing police facilities initiated an evaluation of this public service by an independent consulting firm. The study concluded that decentralization of the major operations with an administration center in the downtown area and several substations would have a beneficial effect on police services and serve the needs of the City for the next 25 to 30 years.

Decentralization of substations provides a better working knowledge for patrolmen of particular communities while having general knowledge of the entire City. It also provides a greater degree of visibility and accessibility to community residents. For police personnel, there would be a savings in travel and an overall savings in equipment, fuel and manpower. Finally, accountability and responsibility for the delivery of police services to the communities surrounding the substations would be fixed with the police captain commanding that station.

Presently, there are two substations in the City, one in San Ysidro, and the other north of University City. The central facility in downtown San Diego also functions as a substation for the central part of San Diego. With decentralization, a new administration and technical center would be constructed or relocated in an existing structure in the downtown. New substations would be built over the next 30 years in different areas of the City and beat boundaries changed to provide better service to City residents.

Development Review

Police Departments in many American cities including San Diego's have become active in implementing programs concerning "defensible or visible space." This terminology is used to describe an environment, usually residential, whose building layout and site plan function to permit residents to become the key agents in ensuring their own security. A residential area, however, is defensible not only to the extent that residents choose to adopt this role, but is also a choice facilitated by the design of the development.

It is felt that resident's adoption of territorial attitudes and policing measures are perhaps the strongest deterrents to criminal activity. Application of the concept of visible space to apartments and other multiple family developments appears especially desirable, since the past expression of territoriality by the residents of such developments has not often been noted.

The idea of visible space is accomplished by designing housing developments in which the units are grouped together, where the placement of access ways, parking areas, public and private

areas and other shared facilities are so designed and defined so as to foster their observation by residents.

Implementation of the visible space concept is partially being achieved through the review by various City department of all proposed developments. The Police Department in particular, looks at the street design in relation to the housing development and at the building configuration when provided. Detailed floor plans and building elevations are not required for subdivision applications, therefore, thorough review of the architectural spaces cannot be accomplished.

Additional precautions suggested by the police department to improve security and safety for buildings focuses upon the hardware at existing openings including door hardware, sliding glass doors and windows. There is a demonstrated need for improved equipment and its use by property owners.

GOAL

- CONTINUE TO PROVIDE THE HIGHEST SERVICE LEVEL POSSIBLE OUT OF FACILITIES LOCATED IN AREAS OF THE CITY SITED TO SERVE THE DEMANDS.

GUIDELINES AND STANDARDS

- The Police Facilities Plan has been designed to fulfill Police Department standards through the year 2000.

RECOMMENDATIONS

- The administrative and technical center (central headquarters) should be located in Centre City on a site easily accessible to major street and freeways.
- New substations should be located as near as possible in the geographic center of the area to be covered and also accessible to major streets and freeways.
- Well located sites should be set aside for police substations at the time an area of the City is opened for development.
- Police personnel should be continually involved in the review process of all new developments to encourage utilization of the defensible space concept.

FINDINGS

Fire

The main objective of providing fire service to City residents is to prevent fires from occurring and to suppress them when they do. Provision of this service depends on adequate equipment numbers of qualified personnel, effective alarm systems and the proper siting of fire stations. With a few exceptions, the major part of the City has good fire protection, especially the older

areas. In newly developing sections of the City there are problems of proper site location and funding. The actual development pattern that emerges in these new areas sometimes precludes the timely reservation and acquisition of projected sites and necessitates the provision of temporary quarters. Usually, the temporary facility is housed for a time in one of the homes in the community until a permanent facility is constructed. Besides the problem of location, the City must determine means of funding the site acquisition, development of the facility and the day-to-day station operation.

The potential fire hazards that can occur in San Diego are classified as: canyon fires in developed areas; fire in high-rise structures; dense developments of combustible exterior construction with inadequate separation and/or access; aircraft crashes in developed areas; and earthquake caused fires. Of the five, canyon fires have the greatest potential for bringing about a general conflagration.

Fire control in canyons in developed areas is largely dependent upon a successful program of vegetational control having been previously carried out. Vegetational control typically involves the trimming and/or removal of flammable plants in close proximity to buildings, and their replacement by plants of lesser fire hazard potential.

The remaining classes of fire hazards noted possess distinctly lesser conflagration potentials. Currently, applicable building and fire codes and internal safety features should serve to minimize the threat. The occurrence of aircraft crashes in developed areas is statistically somewhat remote. Earthquake-caused fires would appear to present no particular problems where new construction is concerned, inasmuch as updated building and fire codes are designed to deal with the foreseeable hazards.

GOAL

- PUBLIC FIRE PROTECTION THAT PROVIDES THE OPTIMUM DEGREE OF SECURITY AGAINST FIRE LOSS.

GUIDELINES AND STANDARDS

- Fire stations should be located to provide rapid response time within the urbanized area and near major thoroughfares.
- Minimum site area should be ½ acre but with room for expansion.
- Station sites should be sufficiently buffered from adjacent land uses especially if located in residential areas.
- Sites should be acquired before or concurrent with surrounding urban development.

RECOMMENDATIONS

- Provide a continual review relationship with the fire department, for their examination of all land use developments.
- Provide adequate fire service for all areas of the community.

FINDINGS

Disaster Preparedness - San Diego Emergency Plan

Pursuant to the authority conveyed by the California Emergency Services Act, the City Council enacted the Emergency Services Ordinance in February 1974. The ordinance created the City of San Diego Disaster Council who was charged with developing and recommending for City Council adoption an emergency plan for the City. The plan provides for the effective mobilization of all the resources of the City, both public and private, to meet any condition constituting a local emergency; and provide for the organization, powers and duties, services and staff of the emergency organization.

The San Diego Emergency Plan was adopted by the City Council in June 1974. The purpose of the plan is to:

- Provide a basis for the conduct and coordination and the management of critical resources during emergencies.
- Establish a mutual understanding of the authority, responsibilities, functions and operations of civil government in the City of San Diego during an emergency.
- Provide a basis for incorporating into the City emergency organization those nongovernmental agencies and organizations having resources necessary to meet foreseeable emergency requirements.

Essentially, the emergency plan sets forth operational concepts and schedules for both peacetime and wartime emergencies; defines the organizational structure that becomes operative during emergencies; and assigns tasks and responsibilities to each of the units of the emergency organization. The plan becomes effective under any of the following conditions:

- When a state of war emergency exists.
- When the governor has proclaimed a state of emergency in an area including this City.
- On the order of the mayor or the director of emergency services, provided that the existence or threatened existence of a local emergency has been proclaimed in accordance with the provisions of the City's Emergency Services Ordinance.

The Unified San Diego County Emergency Services Organization functions as the organizational vehicle in the local operational area. It was created by joint powers agreement among the county of San Diego and the 13 cities. In order that the members of USD-CESO may act in concert during an emergency, their respective plans are standardized in such key subject areas as: concept of operations; responsibilities; organizational structure; and terminology.

GOALS

- REDUCTION OF DISRUPTIONS IN THE DELIVERY OF VITAL PUBLIC AND PRIVATE SERVICES DURING AND FOLLOWING DISASTERS.
- PROMPT AND EFFICIENT RESTORATION OF NORMAL CITY FUNCTIONS AND ACTIVITIES, FOLLOWING DISASTERS.

RECOMMENDATIONS

- In areas of very high hazard potential, preclude new development if possible; if not, limit improvements to those which pose the least threat to life and property.
- In conjunction with the Unified County Emergency Services Organization, undertake a public information program to create and sustain awareness of local disaster plans and to foster positive community response and cooperation in emergencies.

FINDINGS

Water Service

A major concern of residents of California is not just maintaining the quality of water but being assured of a continual supply. Water like many other natural resources has been added to the list of periodic diminishing supply. Even though the condition was considered temporary beginning in 1976, the fact that California experienced the worst drought in the state's history initiated a program of water conservation. The Metropolitan Water District of Southern California in 1977, relinquished their entitlement for water from the State Water Project for that year, because of their need for water in Northern California. Reliance on a water supply for Southern California then came solely from the Colorado River. As a result of a 1964 Supreme Court Decision, the supply of Colorado River water to the Metropolitan Water District by mid-1977, was to be reduced and the reduction to be made up by water from Northern California (State Water Project). Water from the state project will eventually provide two-thirds of the City's imported water with the remaining one-third coming from the Colorado River.

A long standing, but nevertheless increasingly critical, issue relates to whether water should be imported from Northern California in order to accommodate southland growth. Some argue that this will, in time, produce an unhealthy excess of population in many Southern California's urban areas, while simultaneously stunting the growth potential of northern communities.

Although the resolution of this issue obviously transcends San Diego's power alone to decide, the crisis surrounding the results of the drought initiated an evaluation of state water laws to ensure a more equitable distribution in the future.

Another side effect of the drought was renewed interest in wastewater reclamation and reuse. Continual evaluation of this method of water recovery is carried on as policies change on the state level favoring the wastewater reclamation process. Many of the water districts in the county including San Diego are in the planning stage for reclamation plants, and the area-wide Water Quality Management Plan prepared by the Comprehensive Planning Organization contains a section for a regional reclamation facilities plan. This plan set forth a schedule and identifies the institutional and financial arrangements for planning, construction and operation of the facilities.

Unlike other public services wholly managed by the City of San Diego, water and sewers transcends jurisdictional boundaries and decisions made can influence development patterns to a great extent not only in the City of San Diego but in adjoining areas. Because of water's life-sustaining qualities, the extension of service into undeveloped areas influences very powerfully the direction and timing of new urban growth.

GOAL

- CONTINUOUSLY MONITOR THE GROWTH PATTERN OF THE CITY OF SAN DIEGO IN ORDER TO ENSURE THAT WATER IS AND WILL BE AVAILABLE ON AN EQUITABLE BASIS.

RECOMMENDATIONS

- Support and initiate programs of water conservation and reclamation and which would include:
 - Requirements that all new construction and remodeling after a certain date must have water saving devices installed. This will require changes in the building code.
 - Reevaluation of landscaping requirements with emphasis on plants and trees that are drought resistant.
 - Emphasis, when possible, on cluster development (planned unit developments) that utilizes common open space, recreation and other services.
 - Maintain a forceful program of water reclamation planning, working toward plant construction and full operation.
 - Work toward an acceptable regional approach to water management.

FINDINGS

Sanitation-Liquid Wastes

In recent years, the issue of continued unmanaged growth, as it relates to the capacity of the metropolitan sewer system has provoked serious evaluation of the system as an instrument in phasing new development. Virtually all of the City of San Diego is sewered, but the capacity of the treatment plant at the present time is limited. Permission to expand the capacity must be granted by the Environmental Protection Agency who requires that the quality of treatment must be upgraded by the installation of a secondary treatment plant. Also, because San Diego is in a critical air basin, no capacity expansion will be permitted until it is demonstrated that additional population growth will not impair the air quality. It is contended that San Diego does not need a secondary treatment plant because the monitoring of the ocean outfall on Point Loma has shown no adverse environmental effect to the ocean water and sea life. The question of air quality is to prove and have accepted the degree to which air pollution is self generated versus that which is transported from other metropolitan areas.

The awareness generated by the concerns of growth and the eventual impact on needed services is far more important than the outcome of other issues (secondary treatment plants) which in time are resolved on the basis of compromise. Looking toward the long-range, the goal should be to pursue a means of total reclamation of usable water from sewerage, plus utilizing all the byproducts of the treatment process.

GOAL

- PURSUE A RECYCLEABLE APPROACH TO LIQUID WASTE MANAGEMENT.

Recommendations

- Permit the extension of sewerage lines only when in conformance with adopted regional, City and community plans, and the holding and treating capacity of the existing plants.
- Actively work toward the waiver of a secondary treatment plant.
- Continue the program of seeking a means of waste water reclamation.

FINDINGS

Sanitation - Solid Wastes

Refuse disposal has commanded increasing attention in past years, primarily because of the rapidly rising volumes of material to be collected and disposed, and the greater difficulties attached to disposal due to public attitudes toward the location of landfill sites. If this service is to be operated efficiently at a reasonable cost, then the disposal site should be located close to the generating source of waste products, which in this case are the people living in San Diego. There are at present nine sanitary fills in what is considered the coastal area of San Diego

County. Of these nine sites, five have a projected closing date by 1978. One located in Oceanside will be filled by 1982 and the remaining three have a life span until the year 2000. None of the three sanitary landfills which have a capacity to the year 2000 are located close to population concentrations, and only one is the City of San Diego.

The two basic problems associated with solid waste management is first, the assumed right of the public to consume and to accept without questioning, products that are marketed in packages that are not necessary or in containers that cannot be recycled. And, two, finding a method or means of disposing of the waste material. The first problem is a side effect of affluence and which is being recognized to some extent. However, the accumulated effect is very difficult to reverse and would require national policy and commitment to affect substantial change. The second problem, decisions made on locating additional landfill sites and or alternative methods of disposal are directly influenced by negative community attitudes.

GOAL

- PURSUE A REGIONAL SYSTEM OF SOLID WASTE MANAGEMENT THAT IS OPERATED BY ONE AGENCY WITH THE MAJOR TASK OF ENFORCEABLY MANAGING THE GENERATION, COLLECTION, STORAGE, REUSE AND DISPOSAL OF SOLID WASTE.

RECOMMENDATIONS

- Sanitary landfill sites to be located regionally providing efficient service and cost.
- Develop resource recovery plants, similar to the El Cajon Demonstration Project constructed under an Environmental Protection Grant.
- Continue to pursue new techniques and methods of solid waste disposal so as to phase out the use of sanitary landfills.
- Encourage the use of existing recycling centers for glass and paper through continual public awareness programs.
- Utilize land fill sites when closed for beneficial public use: parks, wildlife habitats.

FINDINGS

Drainage and Flood Control

It is paradoxical that areas such as San Diego which suffer from a chronic shortage of water are nonetheless periodically subject to flooding. Due to lack of vegetation and increased exposure to the sun, the ground surface of semi-arid areas is less able to accommodate extremely heavy rainfall than are lands in more humid climates. Thus, during peak rainy periods, the ground passages rapidly become sealed and the rate of runoff accelerated. Runoff is further increased,

of course, by urbanization - since wherever the ground surface is covered by pavement or some impermeable structure, direct absorption of precipitation by the underlying soil is precluded.

The City's numerous canyons and valleys comprise an efficient natural drainage system that results in a low ratio of floodplain area to total land area. Moreover, many of the floodplains are of such narrow width that floodwaters would be relatively confined and therefore limited in their potential destructiveness. However, the San Dieguito, San Diego, and Tijuana River floodplains do attain appreciable widths; and, in the case of the San Diego River Valley, substantial flood damage does occur because of the extensive development that has already taken place.

Two basic alternative approaches to flood control are the protective and the preventive. The protective approach stresses engineering works that encourage or depend upon urbanization for their justification. In contrast, the preventive approach advocates retention of all or a substantial part of the floodplain in an essentially natural condition through the application of strict developmental controls.

For many years, the protective approach was relatively questioned, and flood control programs typically proposed the construction of reservoirs, levees, and lined channels. However, adverse features associable with the protective approach have caused it to come increasingly under sharp criticism. These features include the great cost and the unaesthetic character of the improvement, the "sterilization" of wide swaths of land where flood control channels are built, and, in many instances, the permanent loss of significant plant and animal habitats.

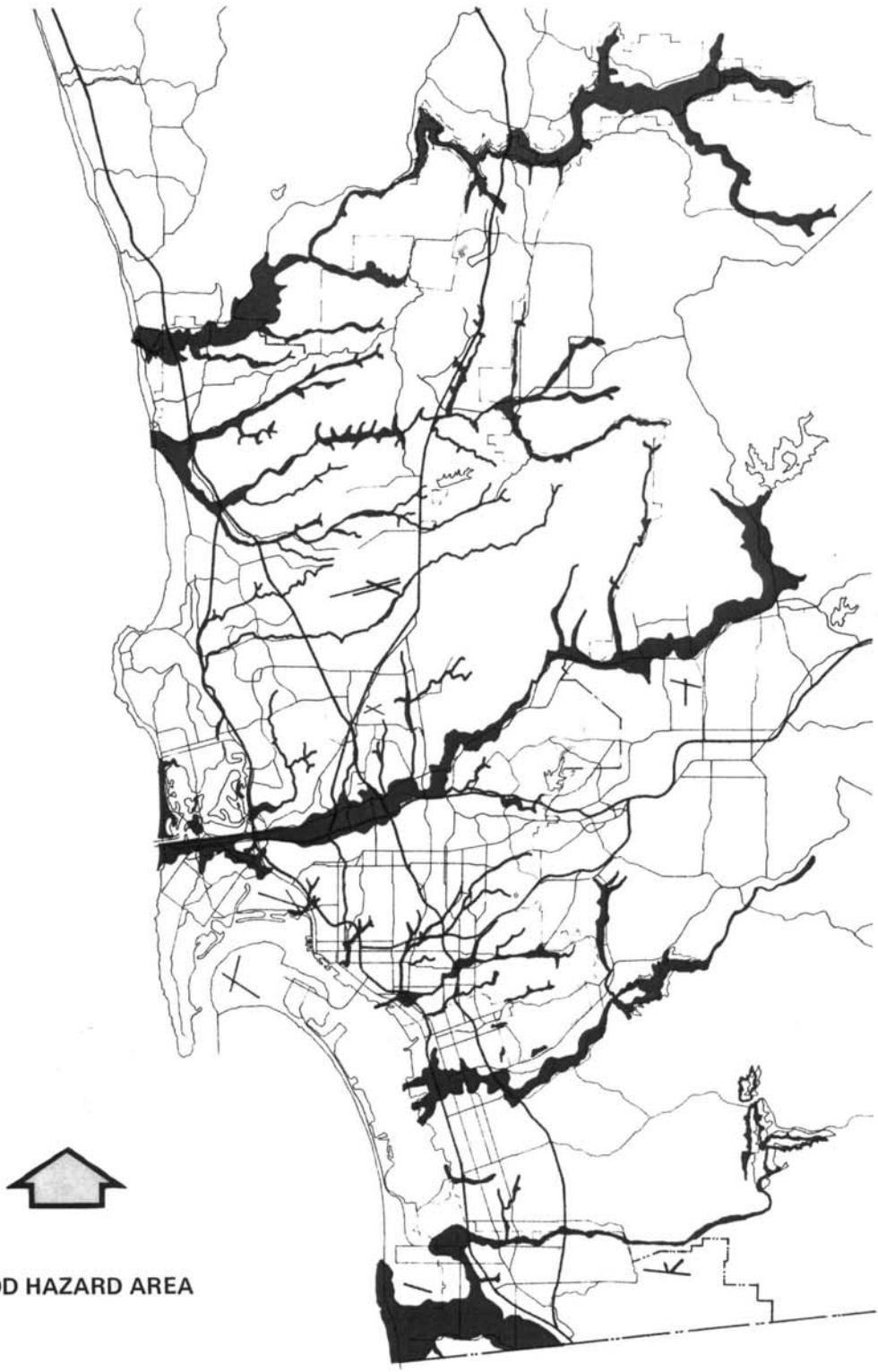
The most commonly employed tool in the preventive approach is floodplain zoning, which designates districts subject to flooding and restricts the usage of those areas in order to minimize damage. While San Diego has long had zoning classifications designed to restrict the use of floodplains, studies of recognized deficiencies resulted in the 1973 adoption of two new zones: the FW (Floodway) and FPF (Floodplain Fringe). The FW Zone severely restricts building in the area designated as the natural floodway. The FPF Zone, which would be applicable to the remainder of the original floodplain, permits normal development provided that appropriate measures are taken to minimize flood damage.

GOAL

- TO PRESERVE AS MUCH AS POSSIBLE THE NATURAL ATTRIBUTES OF BOTH THE FLOODPLAIN AND FLOODWAY WITHOUT ENDANGERING LOSS OF LIFE AND PROPERTY.

GUIDELINES AND STANDARDS

The design and construction of drainage facilities should be predicated on protecting flood-prone areas against loss of life, significant property damage, and disruption of traffic or utility services. Underground facilities should be provided in areas where the natural topography has been disturbed, or where runoff exceeds the absorptive capacity of the existing natural surface or subsurface drainage systems.



FLOOD HAZARD AREA

AREAS SUBJECT TO INUNDATION DURING A 100 YEAR
FREQUENCY FLOOD. (A FLOOD WHICH HAS A 1% PROBABILITY
OF OCCURRING IN ANY GIVEN YEAR.)
SOURCE: PRELIMINARY INFORMATION FROM FEDERAL
INSURANCE ADMINISTRATION.