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I. INTRODUCTION

A. BACKGROUND AND INTENT

The purpose of the Public Safety Element is to introduce safety considerations into the planning and decision-making processes of the City to reduce the risk of injury, loss of life, property damage and economic and social dislocation resulting from natural and manmade hazards. The element contains the City's goals and objectives aimed at reducing the risks associated with identified hazards. It provides information and implementing policies and programs to improve land use planning and introduce mitigating measures into the City's development process.

B. STATE LAW

Government Code Section 65302(g) requires each California city and county to include within its general plan a public safety element which must address the protection of the community from any reasonable risks associated with the effects of seismic and other geologically-induced hazards, flooding, and fires. The Public Safety Element is required to include mapping of known seismic and other geological hazards. Where applicable, it must also address evacuation routes, peak load, water supply requirements, minimum road widths and clearances around structures.

State law also allows cities to address any other locally relevant issues in its public safety element. In addition to those mentioned above, Carlsbad's Public Safety Element also addresses airport hazards, crime prevention, disaster preparedness and the protection from other local health and safety hazards such as fire, crime, hazardous materials, and oil spills.

Utilization of this element and implementation of the proposed action programs should help reduce the risks to which local residents and their property are now exposed, or could be subject to in the future. However, it should be recognized that the scope of the element is broad and the availability of data in many of the subject fields is limited. For these reasons, the Public Safety Element should not be considered as the final word in safety planning, but rather, it should be seen as a foundation to be strengthened and built upon in the future.

C. RELATIONSHIP TO OTHER ELEMENTS

Particularly strong relationships exist between the Public Safety Element and the Land Use and the Open Space and Conservation Elements. The Land Use Element should include the consideration of certain hazardous areas in the classification of land uses and their intensity. Through restrictions on the development of hazardous areas, identified by careful investigation as proposed in the Public Safety Element, the Land Use Element will supplement the policies and action programs of this element.

Areas subject to severe hazards especially those related to seismic or flood-prone conditions should be considered for a reduced level of development or open space protection as part of the Open Space and Conservation Element.

Because good accessibility on the transportation system is of vital importance in providing emergency services, the Public Safety Element is related to the Circulation Element.

Finally, the Public Safety Element also is related to the Housing Element and the Historic Preservation Element in that it identifies areas that may present hazardous conditions for residential structures and proposes precautionary measures related to older existing structures.

II. EXISTING CONDITIONS

A. GEOLOGIC AND SEISMIC HAZARDS

"There are no known active or potentially active faults located within the City limits."

Geotechnical and seismic hazards within the City of Carlsbad have a significant probability of occurring and causing potential damage to property and possible loss-of-life. These hazards include adverse geologic conditions such as out-of-slope bedding, landslides and mud flows, erosion, siltation, subsidence, ground shaking and other seismic effects from earthquakes on regional faults. Maps showing areas of known

geotechnical, geologic, seismic and other geologic hazards are on file in the Planning Department. The following is a summary of the findings contained in the Burkland and Associates geotechnical report (1974) as updated by the Geotechnical Hazard Analysis and Mapping Study prepared by Leighton and Associates, Inc. in 1992.

-On the basis of existing geotechnical information, approximately 85% of land within the City could be utilized for urban activity following routine geotechnical investigations of individual development sites.

-About 15% of land within the City has geologic conditions which would require that detailed geotechnical investigations be conducted at individual development sites to determine feasibility for urban use.

-Based on current geologic knowledge, there are no known active or potentially active faults located within the City limits. The closest known active fault is the Rose Canyon Fault Zone located approximately 3 to 4 miles offshore. Mapping of all known inactive faults located within the City are illustrated on Map 1: Seismic Faults.

-Erosion and the resulting siltation are existing geotechnical problems generally found within the undeveloped portions of the City limits.
-Potential geotechnical problems within the City limits may include natural and manufactured slope and bluff instability, excavation of hard rock, drainage, flooding, expansive and compressible soils, and secondary seismic effects.

-Those portions of the City underlain by deep, soft, saturated soils may be susceptible to the seismic hazards of liquefaction, lurch cracking, lateral spreading and local subsidence.

-The beach areas are susceptible to the seismic hazard of tsunami (tidal waves), and the lagoon areas are susceptible to the seismic hazard of seiche (raising and lowering of water surface).

-No Special Study zones, as required by the Alquist-Priolo Geologic Hazards Act, (as of the latest update of the Act in 1990) have been delineated within the City by the State Geologist, and based on the information developed in the Geotechnical Hazards Analysis and Mapping Study (1992), none are expected.

B. FLOOD HAZARDS

The City of Carlsbad has the potential for flood hazards along the entire coastline as well as the following major drainage basins:

1. Buena Vista Creek and Buena Vista Lagoon
2. Agua Hedionda Creek, its northern tributary, and the Agua Hedionda Lagoon
3. San Marcos Creek and its northern tributary
4. Batiquitos Lagoon
5. Encinitas Creek

These potential flood locations are identified on flood insurance rate maps (FIRM) that are supplied by the Federal Emergency Management Agency (FEMA). The maps are based on hydrologic (the distribution of water on the surface) analysis, and hydraulic (the movement of water) analysis. Data used in preparing the FIRMs includes information on historical storm systems, tides, waves, beach profiles, topography, and drainage patterns.

Also located within the City are two dams and a reservoir which have the potential for flooding. These include Calavera Dam, which flows into the northern tributary of the Agua Hedionda Creek, Squires Dam which flows into Agua Hedionda Creek itself and the Stanley Mahr Reservoir which flows into the San Marcos Creek. Further, there is the possibility of catastrophic dam failure inundation from Calavera Dam, Lake San Marcos Dam, Stanley Mahr Reservoir and Squires Dam in the case of seismic activity or sabotage. These dams are periodically inspected by the State of California Division of Dam Safety. Mapping of flooding due to catastrophic dam failure inundation is on file in the Planning Department.

The City addresses these flood hazard areas in its Floodplain Management Regulations (Carlsbad Municipal Code, Chapter 21.110) which require a Special Use Permit (SUP) for any development proposed in areas of special flood hazards and areas of flood-related erosion hazards. The Floodplain Management Regulations restrict or prohibit land uses considered unsafe in a floodplain. They address standards of construction such as anchoring of structures, construction materials and methods, and elevations and flood proofing. Also included

are standards for utilities such as water supply lines and sanitary sewage systems.

The FIRMs and Floodplain Management Regulations are used by City staff to review any proposed development within flood hazard areas (Map 2: 100 Year Floodplain Boundaries). Data are required from proposed developments that demonstrate that habitable structures will be kept above flood elevations. Special certifications are required to be signed by licensed professionals verifying compliance with these regulations.

Developments which do not fall under the Floodplain Management Regulations are also reviewed by the City Engineering Department for flooding potential. Proposed grading and drainage improvements are analyzed to ensure that drainage is not diverted from its natural drainage basin to another basin that was not designed to take that additional flow.

C. FIRE HAZARDS

The City of Carlsbad Fire Department currently provides fire protection and paramedic services to all of Carlsbad. The City was last surveyed by the Insurance Services Office (ISO) in 1992 receiving a Class 4 rating. Based upon the ISO rating system of 1 through 10, with the highest rating being 1 and 10 the lowest, the Carlsbad Fire Department offers adequate service.

The Carlsbad Fire Department currently maintains six stations throughout the City. The locations of the fire stations are dictated by Carlsbad's Growth Management Plan which calls for additional fire stations whenever there are more than 1,500 dwelling units outside a five minute road-response time from an existing station. Given the current traffic circulation master plan, all of Carlsbad at buildout can be served from the existing six sites, thus maintaining the growth management standard. As population increases, the demand for emergency services will increase. Fire stations are managed and planned to assure that additional personnel and equipment will be added as needed.

As a City surrounded by natural vegetation, Carlsbad is a medium fire hazard area for wildland fires which threaten both developed and undeveloped property. In addition, there are many inaccessible brush-covered canyons and hillsides in Carlsbad which add to the City's wildland fire hazard. During times of hot, dry weather with easterly winds, it is not uncommon to have several serious brush fires that require Carlsbad to use outside mutual-aid fire fighting help to control the fires. Some of the City's wildland, canyons, hillsides and other habitats are included in the Citywide Open Space System and discussed in the Open Space and Conservation Element. Goals, Objectives, and Implementing Policies and Programs addressing fire risk management in such areas are discussed in greater detail in the Open Space and Conservation Element.

Roughly 80 percent of the structure fires in Carlsbad are in single family residences. These fires typically involve common household contents such as furnishings, wood and plastics.

The Fire Department has signed automatic aid agreements with all surrounding communities when additional fire fighting resources are needed. The City is also part of both the San Diego County and State of California Master Mutual Aid Agreements and maintains a separate agreement with the California Department of Forestry.

The Carlsbad Fire Department has a weed abatement program which begins in April of each year. At that time, the City is surveyed for properties having weeds that have grown to such an extent that a fire hazard is created. Property owners are notified and given time to remove the weeds. If the weeds are not removed by the owner within the designated time frame, the fire department hires a weed abatement contractor to undertake the removal and charges the property owner for the City's cost.

The Carlsbad Fire Department requires a minimum flow of water for fire protection in accordance with the adopted Uniform Fire Code and the Insurance Services Office standards. Water mains serving single-family detached houses must provide a flow of 1,000 to 1,500 gallons per minute, in addition to the peak normal maximum daily consumption needs for a neighborhood. The required fire-flow standard for commercial, industrial, manufacturing and large apartment buildings varies from 1,500 to 5,000 gallons per minute, in addition to the peak normal daily consumption needs. This standard is based on type of construction, type of use and any built-in fire protection (sprinklers, etc.).

Clear emergency vehicle access to buildings is also important. Such access is regulated by the adopted Uniform Fire Code and adopted Carlsbad traffic circulation standards. Under the Fire Code, all portions of a building shall be within 150 feet of a serviceable fire access road. On public streets the minimum clear width required for emergency vehicles by the Fire Code is 20 feet. For example, a residential street with parking allowed on both sides would be not less than 36 feet in total width.

There are currently no water flow pressure deficiencies in Carlsbad. The Carlsbad Fire Marshal reviews proposed projects to ensure adequate fire hydrant locations, water flow pressure, and access for emergency vehicles. He also assures that other requirements of the Uniform Fire Code are met.

In addition to providing fire protection, the Carlsbad Fire Department provides advanced basic and emergency medical services through fire engines and paramedic ambulances. All fire fighters are certified to Emergency Medical Technician/Fire Service level as required by the State.

D. DISASTER PREPAREDNESS

The City of Carlsbad has adopted the "City of Carlsbad Emergency Plan", prepared in conjunction with the Unified San Diego County Emergency Services Organization (USDCESO). This plan addresses the City's planned response to extraordinary emergency situations associated with any type of natural disaster, technological incident, or State of War emergency. The plan includes the City as part of the Statewide Emergency Management System. The plan does not apply to day-to-day emergencies or the well-established and routine procedures used in coping with these situations. Instead, the operational concepts focus on those extraordinary emergencies which pose threats to life and property and the overall well being of the community.

The Emergency Plan was written within federal and state guidelines and is organized under two interacting emergency management systems. The basic plan is written under a system known as "Multi-Hazard Functional Planning". This simply means the emergency response organization is designed to respond to any type of emergency without having to modify it to "fit" a particular type of emergency. This system interfaces very closely with the second management system which is known as the "Incident Command System". It is based upon managing the five principal activities which take place during any larger scale emergency or disaster. They are: Command, Operations, Planning, Logistics and Finance. The City's Emergency Operations Center located at the Safety and Service Center is organized under the Incident Command System. The normal activities of most City departments lend themselves to supporting one or more of the five major activities; and City departments have been assigned responsibilities in the plan as it best relates to the work they normally do.

When an emergency is legally declared, government powers are broadened. The City Council becomes the Disaster Council and is able to focus its enhanced governing powers on the immediate needs to the community. The City Manager becomes the Director of Emergency Services with the authority to manage all emergency operations in the City. Selected department heads serve as members of the Command Section with major management roles in the emergency plan for guiding the overall strategy of the response organization.

"Depending on the scale of the emergency, [residents] will be relocated to the closest possible emergency center...the closest suitable public building or open area, such as schools and parks for emergency care and shelter areas."

Carlsbad's emergency plan follows the prevailing view of disaster planners that evacuation of neighborhoods during emergencies tends to complicate problem- solving and the movement of emergency vehicles. Residents will be relocated from their homes and businesses only when it is the best option. Depending on the scale of the emergency, they will be relocated to the closest possible emergency center. The City's plan uses the closest suitable public building or open area, such as schools and parks for emergency care and shelter areas. Medical supplies are pre-positioned at some city facilities. Agreements exist with other agencies to use their facilities during emergencies. Primary road arterials that could be used to move people are: El Camino Real, Carlsbad Boulevard, La Costa Avenue,

Rancho Santa Fe Road, and Carlsbad Village Drive.

Various training activities are conducted during the year, and culminate in an annual Citywide emergency simulation exercise, the results of which permit the City to continually refine the effectiveness of the City's emergency plan and response organization.

E. HAZARDOUS MATERIALS

There are some industrial sites within the City which store and use flammable materials and chemicals which are hazardous if inappropriately used. However, the sites are few in number relative to those found in other cities of Carlsbad's size and are heavily regulated by local, county, state and federal laws.

Carlsbad is traversed by a freeway, a railroad, and petroleum pipelines, as well as the oil and natural gas pipelines to the Encina Power Plant (Map 3: High Pressure Gas and Petroleum Transmission Lines). While the potential exists for a hazardous materials transportation emergency in Carlsbad, such emergencies are in fact historically rare; however, the Fire Department is prepared to deal with an incident should one occur.

If evacuation should become necessary due to a chemical spill or other accident which could result in the exposure of Carlsbad residents to dangerous conditions, it is the responsibility of the Police Department, in cooperation with the Fire Department, to conduct an orderly evacuation from endangered areas.

The City also belongs to the San Diego County Unified Disaster Council and Joint Powers Authority-Hazardous Materials Response Team, which responds to assist Carlsbad in a major chemical emergency.

The City also falls under the jurisdiction of the San Diego County Hazardous Waste Management Plan which is the primary planning document providing overall policy direction toward the effective management of the County's hazardous waste. The plan describes how 100% of San Diego County's hazardous waste stream can be safely managed within the County, and is the guide for local decisions regarding the management of hazardous wastes. Designed to protect the public health and the environment, the plan focuses on a hierarchy of hazardous waste management techniques, which include, in order of priority:

- source reduction,
- waste minimization,
- on-site treatment, and
- off-site treatment at a multi-use facility.

All new development proposals within Carlsbad must provide compliance with this plan.

F. CRIME HAZARDS

Police protection for Carlsbad residents is provided by the Carlsbad Police Department which operates from the Safety Center located on Orion Way. Among San Diego cities with municipal police departments, Carlsbad has the second lowest FBI Crime Index per 1,000 population.

Carlsbad has adopted a standard of a maximum six-minute response time for police service on priority-one emergency calls. Police service (or the number of officers serving the City) is based upon actual workload measures including response times, travel times, type of service, number of calls for service, and the time of day that calls are received. The City's future Geographic Information System (GIS) will provide the ability to analyze this information more accurately and to enable the City to provide police service concurrent with demand.

The Police Department has numerous programs designed to increase crime prevention including Drug Abuse Resistance Education (DARE), Business Watch, Neighborhood Watch, Operation CAT (Combat Auto Theft), Operation ID (property identification), Juvenile Diversion, and the Guide Program. These are supplemented by a problem solving approach used by officers to help solve community problems which often enlists the help of other City departments as well as county and state agencies.

G. McCLELLAN-PALOMAR AIRPORT

McClellan-Palomar Airport is located within the corporate city limits of Carlsbad, approximately four miles southeast of the Carlsbad Village Area. The airport, owned and operated by San Diego County, serves as a major general aviation facility for northern San Diego County. The San Diego

Association of Governments (SANDAG) is responsible for preparing comprehensive land use plans for the area surrounding the airport, based on aircraft-produced noise impacts and aircraft-produced accident potential considerations.

McClellan-Palomar Airport opened in 1959 with a 3,700 foot-long by 100 foot-wide runway which was later expanded to 4,700 feet by 150 feet in 1961. In 1973, an Airport Traffic Control Tower was placed in operation. It is currently operated from 6:00 a.m. to 9:00 p.m. daily. The Federal Aviation Administration (FAA) classifies the airport as a general utility facility--an airport mainly serving aircraft with a maximum gross takeoff weight of 12,500 pounds or less. However, some aircraft larger than 12,500 pounds but less than 60,000 pounds do operate at the airport. The limit of 60,000 pounds per aircraft will continue to limit the airport to general aviation; there are no plans for it to become a commercial airport.

The Comprehensive Land Use Plan, McClellan-Palomar Airport, prepared according to FAA requirements by SANDAG, identifies areas likely to be impacted by noise and flight activity created by aircraft operations at the airport. These impacted areas include the Airport Influence Area, the Clear Zone, and the Flight Activity Zone (Map 4: Airport Influence Area).

The Airport Influence Area encompasses those areas adjacent to the airport which could be impacted by noise levels exceeding the California State Noise Standards or where height restrictions would be needed to prevent obstructions of navigable air space. Depending on location, compatible land uses include non-residential uses such as office, industrial, commercial or low density residential uses such as single family dwellings.

The Clear Zones are land areas adjacent to the ends of the runway over which aircraft using the airport must pass for each operation, either arrival or departure. These areas are owned by the County and generally limited to open space types of land uses.

The Flight Activity Zone identifies land within the Influence Area which should be held free of intensive development (for example, more than ten dwelling units per acre), including high rise development and all uses which involve the assembly of large groups of people (more than 100). The plan recommends restricting development to industrial land uses with a small section at the southwestern corner designated as single family residential.

The City requires discretionary review of all proposed development projects within the Airport Influence Area. All parcels must process either a site development plan, planned industrial permit, or other discretionary permit. All projects are required to comply with Federal Aviation Administration regulations concerning the construction or alteration of structures that may affect navigable airspace.

H. OIL SPILLS

The City of Carlsbad has the potential of being impacted by coastline oil spills although such an occurrence is considered unlikely. If an oil spill were to occur, the authority and responsibility for clean up operations would be assumed by the U.S. Coast Guard, in conjunction with the State Lands Commission and the California Department of Fish and Game. The City, under its Disaster Preparedness Plan, would assume responsibility for any operations (such as traffic control) on land.

The only business in Carlsbad that has direct delivery from oil tankers is the San Diego Gas and Electric (SDG&E) Encina Power Plant located north of Cannon Road along Carlsbad Boulevard. Annually, this facility accepts oil deliveries from approximately four tankers and three barges. As can be seen below in Table 1: Oil Deliveries, this number has lessened over the last decade. The reduction is due primarily to increased utilization of natural gas rather than oil.

Table 1: OIL DELIVERIES

	Tankers / Yr	Barrels /Ea	Barges /Yr	Barrels /Yr
1983-85	39	250,000	3	50,000
1986-89	20	250,000	8	50,000
1990-91	4	250,000	10	50,000
1991-92	0	0	7	5@50,000 7@100,000
1992-93	0	0	14	7@50,000 7@100,000
1993-94	1	270,000	1	100,000

Oil delivered to the Encina plant is known as low sulphur residual oil. This is a liquid substance, heated to a temperature of 135 degrees Fahrenheit, which solidifies below a temperature of 90 degrees. Upon delivery, the heated oil is transported from the tanker through a 225 foot flexible line to a 20 inch diameter pipeline located 3,500 feet offshore from the power plant. Oil flow is gradually increased to a maximum of 12,000-14,000 barrels/hour. Deliveries are normally complete within 12-36 hours depending on the size of the cargo.

Oil spill hazards are considered minimal due to the type of oil transferred from the tankers through the pipeline to the plant. Should a leak occur, residual oil would solidify and be easier to clean up than crude oil. The chance of a shipwreck and subsequent oil spill are also considered negligible because the shoreline is not rocky, no other large vessels enter the area, and the site is well identified.

All oil transfer operations, as well as emergency cleanup operations, are defined by the Encina Marine Terminal Operations Manual/Contingency Plan and approved by the Coast Guard. SDG&E submitted a Final Contingency Plan to the Department of Fish and Game on April 1, 1994. Approval of the document is pending.

Inspection of all operations and equipment are conducted annually by certified personnel. An oil boom deployment exercise is conducted annually for equipment checkout and personnel training. This exercise is monitored by the Coast Guard, the State Lands Commission, and the Department of Fish and Game.

To reduce emergency response time by oil spill cleanup contractors, San Diego Gas and Electric maintains emergency response equipment on scene during all oil transfer operations. This equipment includes a 110 foot oil spill response vessel which carries 3,000 feet of oil containment boom. The vessel also carries skimming equipment, oil storage capacity, and miscellaneous absorbent materials. In addition, a 50 foot mooring vessel assists tankers and barges in safely mooring to the facility. Nine personnel operate these vessels including two certified divers. On shore, two certified operators operate the shore-side equipment required during oil transfers. They are in constant radio contact with vessel personnel. Shore-side equipment includes 1,600 feet of oil containment boom stored in a mobile trailer plus a large assortment of miscellaneous absorbent materials. All of this equipment would be available to the City of Carlsbad as well as nearby coastal communities in the event of oil spills affecting their shorelines or any of the lagoons.

I. ELECTRO-MAGNETIC FIELDS

Electro-magnetic fields (EMFs) are generated by the movement and consumption of electric power. High-voltage transmission lines, low-voltage distribution lines, substations, electrical service vaults, and household appliances all generate EMFs. Although there has been a great deal of scientific discussion regarding the impacts of EMF, there has been no "safe" level of exposure yet established for EMF effects. There are no federal or state-set EMF standards at this time; however, some municipal agencies are proposing a policy of "prudent avoidance". This policy allows decision-makers to review strategies to minimize EMF exposure, but only adopt those which look to be 'prudent' investments given their costs and current level of scientific understanding about possible risks.

It is the City's policy to monitor both research in this field as well as regulatory proposals of federal and state health and environmental agencies. However, until comprehensive land use procedures are developed and required by such an agency, the City does not propose to adopt any land use regulations for EMFs. Existing electrical transmission lines traversing the City are identified on Map 5: Electric Transmission Lines and Substations.

III. GOALS, OBJECTIVES AND IMPLEMENTING POLICIES & ACTION PROGRAMS

GENERAL

A. Goal

A City which minimizes injury, loss of life and damage to property resulting from fire, flood, crime, hazardous material, or seismic disaster occurrence.

GEOLOGY AND SEISMIC SAFETY

A. Goal

A City which minimizes injury, loss of life, and damage to property resulting from potential geologic and seismic disasters.

B. Objectives

B.1 To establish a development project review process that allows consideration of seismic and geologic hazards at the earliest possible point in the development process, preferably before comprehensive engineering work has commenced.

B.2 To develop a program to identify existing potentially hazardous structures in the City of Carlsbad. These structures shall be abated or modified within a reasonable period of time, or their usage or occupancy modified when loss of life is a factor.

B.3 To work with other agencies to increase public awareness of geologic and seismic hazards.

B.4 To institute policies and programs that observe physical constraints in the City of Carlsbad regarding seismic and geologic problems and integrate them into the planning and development review process.

C. Implementing Policies and Action Programs

C.1 Review and revise all applicable City codes, ordinances, and policies, where necessary, to ensure compatibility with the geologic and seismic information contained in this element (e.g. grading ordinance, environmental protection ordinance).

C.2 Require project applicants to submit evidence that structures are designed to meet ground response characteristics of their individual site.

C.3 Prohibit the location of critical structures directly across known faults unless a geotechnical and/or seismic investigation is performed to show that the fault is neither active nor potentially active.

C.4 Use the City's geotechnical maps (prepared by Leighton & Associates, Inc., 1992) as generalized guidelines for planning purposes and in determining the type of geotechnical report to be required as well as the extent of the report. These maps include the Geotechnical Hazards/ Constraints Map, Land Use Capability Map, Fault Location and Seismically-Induced Ground Shaking Map, Mineral Resources and Catastrophic Dam Failure Inundation, and the Tsunami and Seiche Hazard Zone Map. (These maps are on file in the Planning Department.)

C.5 Require applicants to conduct detailed geologic and seismic investigations at sites where the construction of critical structures (high-occupancy structures and those which must remain in operation during emergencies) and structures over four stories are under consideration.

C.6 Enforce the State Map Act provision that subdivision maps may be denied if a project site is not physically suitable for either the type or density of a proposed development.

C.7 Require qualified professionals in the fields of Soil Engineering and Engineering Geology to review grading plans and inspect areas of excavation during and after grading, to evaluate slope stability and other geotechnical conditions that may affect site development and public safety. It is imperative in areas of known or suspected landslides and/or adverse geologic conditions to ascertain slope stability before and after development. The following determinations should be made in these cases: extent of landslide, depth-to-slide plane, soil types and strengths, presence of clay seams and ground water conditions.

C.8 Establish procedures to efficiently process required geotechnical reports. All reports dealing with geology should be produced, reviewed, and approved by geotechnically competent persons. However, only in those cases where city staff cannot adequately review and assess geologic reports should outside consulting help be sought.

C.9 Establish a program to identify and evaluate existing potentially hazardous structures. This work should include the assistance of a structural engineer experienced in this field.

The following structures shall be identified:
1) Structures, built prior to 1933;
2) Public buildings, especially ones with emergency service potential; and
3) Major public utilities.

C.10 Abate or modify potentially hazardous structures when loss of life is a potential factor. If the demolition of residential structures is required, an adequate relocation program for legal residents of the structure shall be instituted.

C.11 Develop recommendations regarding unreinforced masonry, aged and dilapidated structures and structurally unstable architectural appendages and ornaments, such as parapets or marquees.

C.12 Require installation of appropriate siltation and erosion control measures on proposed building and development sites wherever there is a potential for soil erosion.

C.13 Expand the City's data base in geology and related disciplines and, in addition, cooperate in a regionwide program, if one is established.

C.14 Review and update periodically the information contained in this element to reflect the latest geotechnical data available.

C.15 Recognize that geotechnical conditions including soil engineering, geologic and seismic conditions included in the Geotechnical Hazards Analysis and Mapping Study (Leighton & Associates, Inc., 1992) are generalized in nature and should be used for planning purposes only. Site specific investigations, either routine or detailed (depending upon the proposed development and existing geotechnical conditions of the site), should be performed prior to the granting of approval to proceed with development. Geotechnical Hazards Maps are available in the Planning Department.

C.16 Require an investigation by a qualified engineering geologist, where it has been determined that a probable seismic hazard exists.

C.17 Design all structures in accordance with the seismic design standards of the Uniform Building Code and State building requirements.

FLOOD HAZARDS

A. Goal

A City which minimizes injury, loss of life, and damage to property resulting from the occurrence of floods.

B. Objectives

B.1 To develop standards and criteria to reduce flood hazards and implement them by adopting new codes and ordinances or strengthening existing ones.

B.2 To restrict or prohibit uses which are dangerous to the health and safety of people or adversely affect property due to water and erosion hazards, or which result in damaging increases in erosion or flood height or velocities.

B.3 To continue to pursue flood control programs through such means as: application of the grading ordinance, the flood plain overlay zone, and the recommendations of the Open Space and Conservation and the Public Safety Elements.

B.4 To seek the cooperation and coordination of all jurisdictions and agencies such as the San Diego County Flood Control District, involved in the mitigation of flood hazards.

C. Implementing Policies and Action Programs

C.1 Enforce the Colby-Alquist Floodplain Management Act which prohibits the placement of structures in the floodway, except for public utility or communication lines.

C.2 Require a Special Use Permit for all development proposed within the 100-year floodplain. Review all such proposals to ensure that all building elevations are higher than the peak flow level of a 100-year flood and do not adversely impact other properties.

C.3 Require all proposed drainage facilities to comply with the City's "Standard Design Criteria" to ensure they are properly sized to handle 100-year flood conditions.

C.4 Comply with all requirements of the State Department of Water Resources' Division of Dam Safety to ensure adequate flood control.

C.5 Review all new development proposals to ensure compliance with those sections of Titles 18 and 20 pertaining to drainage and flood control structures.

C.6 Comply with Federal Emergency Management Agency requirements to have a program of identifying flood hazard areas and controlling development within these areas in order for residents to qualify for federal flood insurance.

C.7 Require installation of protective structures or other design measures to protect proposed building and development sites from the effects of flooding or wave action.

FIRE AND EMERGENCY MEDICAL SERVICES

A. Goals

A.1 A City which minimizes the injury, the loss of life and damage to property resulting from fire hazards.

A.2 A City which optimizes the organization and delivery of emergency services.

B. Objectives

B.1 To reduce fire hazards to an acceptable level of risk.

B.2 To maintain an initial emergency travel response time of five (5) minutes.

B.3 To maintain close coordination between planned improvements to the circulation system within the City of Carlsbad and the location of fire stations to assure adequate levels of service and response times to all areas of the community.

B.4 To require a minimum flow of water for fire protection in accordance with adopted City Uniform Fire Code.

B.5 To consider, in land use decisions, site constraints in terms of hazards and current levels of emergency service delivery capabilities. In areas where population or building densities may be inappropriate to the hazards present, measures shall be taken to mitigate the risk of life and property loss.

B.6 To coordinate the delivery of fire protection services through mutual aid agreements with other agencies when appropriate.

C. Implementing Policies and Action Programs

C.1 Enforce the Uniform Building and Fire Codes, adopted by the City, to provide fire protection standards for all existing and proposed structures.

C.2 Review new development proposals to consider emergency access, fire hydrant locations, fire flow requirements, and wildland fire hazards.

C.3 Require new development to provide the installation of emergency water systems and all-weather access roads prior to the placement of combustible materials on the site.

C.4 Continue the use of local ordinances to expand the use of automatic fire sprinklers (above the minimums required by regional

model building codes) and require wood roofs to be fire retardant, especially in new commercial and residential construction.

C.5 Inspect all new or altered buildings and structures to be sure they conform with applicable fire, building and life safety codes.

C.6 Administer a weed abatement program to limit fire hazards in and around developed areas.

DISASTER PREPAREDNESS

A. Goal

A City which provides for emergency response during and after catastrophic events.

B. Objectives

B.1 To undertake periodic disaster exercises to test and improve jurisdictional and inter-departmental coordination and response to emergencies brought about by catastrophes such as fire, flood, earthquakes, and hazardous spills.

B.2 To establish and maintain safe and effective evacuation routes.

C. Implementing Policies and Action Programs

C.1 Maintain and periodically update the City of Carlsbad Emergency Plan as appropriate information becomes available. Revisions shall refine the overall City Emergency Plan to include specific emergency requirements and activities for potential disasters.

C.2 Promote public awareness of possible natural and man-made hazards, measures which can be taken to protect lives and property, response plans, and evacuation routes.

HAZARDOUS MATERIALS

A. Goal

A City which minimizes injury, loss of life, and damage to property resulting from hazardous materials disaster occurrence.

B. Objectives

B.1 To limit the hazards associated with the manufacture, use, transfer, storage and disposal of hazardous materials and hazardous wastes through enforcement of applicable local, county, state and federal regulations.

B.2 To comply with San Diego County's Hazardous Waste Management Plan.

B.3 To regulate locations for the manufacture, storage, and use of hazardous materials within the City through implementation of Title 20 of the Carlsbad Municipal Code, the Zoning Ordinance.

C. Implementing Policies and Action Programs

C.1 Review land use decisions to consider constraints presented by the potential for on-site and off-site contamination by use, transfer, storage, or land disposal of hazardous materials and wastes. Land use decisions should be consistent with federal, state and county environmental regulations.

C.2 Provide for hazardous materials emergency incident responses. Coordinate such responses with applicable federal, state and county agencies.

C.3 Maintain regulations which require proper storage and disposal of hazardous materials to reduce the likelihood of leakage, explosions, or fire, and to properly contain potential spills from leaving the site.

C.4 Enhance and expand the use of desiltation/pollutant basins to function as hazardous material spill control facilities to prevent the spread of contaminants to downstream areas.

CRIME HAZARDS

A. Goal

A City which minimizes injury, loss of life, and damage to property resulting from crime.

B. Objectives

B.1 To maintain a high standard for the delivery of law enforcement services, including a commitment to the use of state-of-the-art equipment and management techniques.

B.2 To provide sworn staff in sufficient numbers to support basic patrol services consistent with patterns observed in progressive departments serving cities in the population range comparable to Carlsbad.

B.3 To strive to provide civilian staff in sufficient numbers to support sworn staff in services such as crime prevention, investigative support, crime scene investigation, and taking reports at incident scenes.

B.4 To encourage crime prevention through the planning process by establishing specific design criteria and standards to be used in the review of land use development.

C. Implementing Policies and Action Programs

C.1 Authorize and encourage representatives of the Carlsbad Police Department to participate in interdepartmental conferences to review specific land use development proposals as they relate to street access and safety to minimize opportunities for crimes to occur.

C.2 Maintain and update guidelines for the utilization of street and public building lighting systems that conserve energy and meet Palomar Observatory requirements as well as help in crime prevention.

C.3 Maintain efforts to educate the public about crime deterrence through programs like the Neighborhood Watch Program within residential neighborhoods and the Business Watch Program within commercial and industrial areas. Encourage similar community-oriented policing and problem-solving techniques in working with the community to reduce crime.

C.4 Remain active in crime prevention by working with human care agencies, recreational agencies, educational services and community groups to:

1. reduce victimization;
2. encourage recreational opportunities to provide off-school hour activities for youth; and
3. maintain awareness of potential problem areas.

AIRPORT HAZARDS

A. Goal

A City which minimizes noise and safety hazards within areas around the airport.

B. Objective

To ensure that development in the Airport Influence Area occurs in compliance with relevant adopted policies.

C. Implementing Policies and Action Programs

C.1 Coordinate with the San Diego Association of Governments and the Federal Aviation Administration to protect public health, safety and welfare by ensuring the orderly operation of the Airport and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around the airport.

C.2 Comply, to the extent possible and consistent with City noise and land use policies, with the requirements and recommendations of the Regional Airport Land Use Commission and the Federal Aviation Administration regarding development proposals within the Airport Influence Area.

C.3 Review development proposals in the Airport Influence Area to ensure that design features are incorporated into proposed site plans which specifically address aircraft crash and noise hazards.

OIL SPILLS

A. Goal

A City which minimizes injuries, loss of life and property damage resulting from oil spills.

B. Objective

To encourage and cooperate with the federal government, state agencies and San Diego Gas and Electric to develop an emergency oil cleanup plan.

C. Implementing Policies and Action Programs

C.1 Support U.S. Coast Guard responsibilities (under the Encina Marine Terminal Operations Contingency Plan) for directing and regulating all oil transfer operations and emergency cleanup operations.

C.2 Support SDG&E compliance with the provisions of all agency oil spill response Final Contingency Plans when adopted.

C.3 Support the joint annual inspections of all operations and equipment conducted by the U.S. Coast Guard, the California Department of Fish and Game, and the San Diego Gas and Electric Company.

C.4 Support the efforts of the San Diego Gas and Electric Company in providing and maintaining emergency cleanup equipment in the event of an oil spill.

ELECTRO-MAGNETIC FIELDS

A. Goal

A City which actively pursues the latest information on EMFs to respond as quickly as possible, if necessary to reduce public exposure to EMFs.

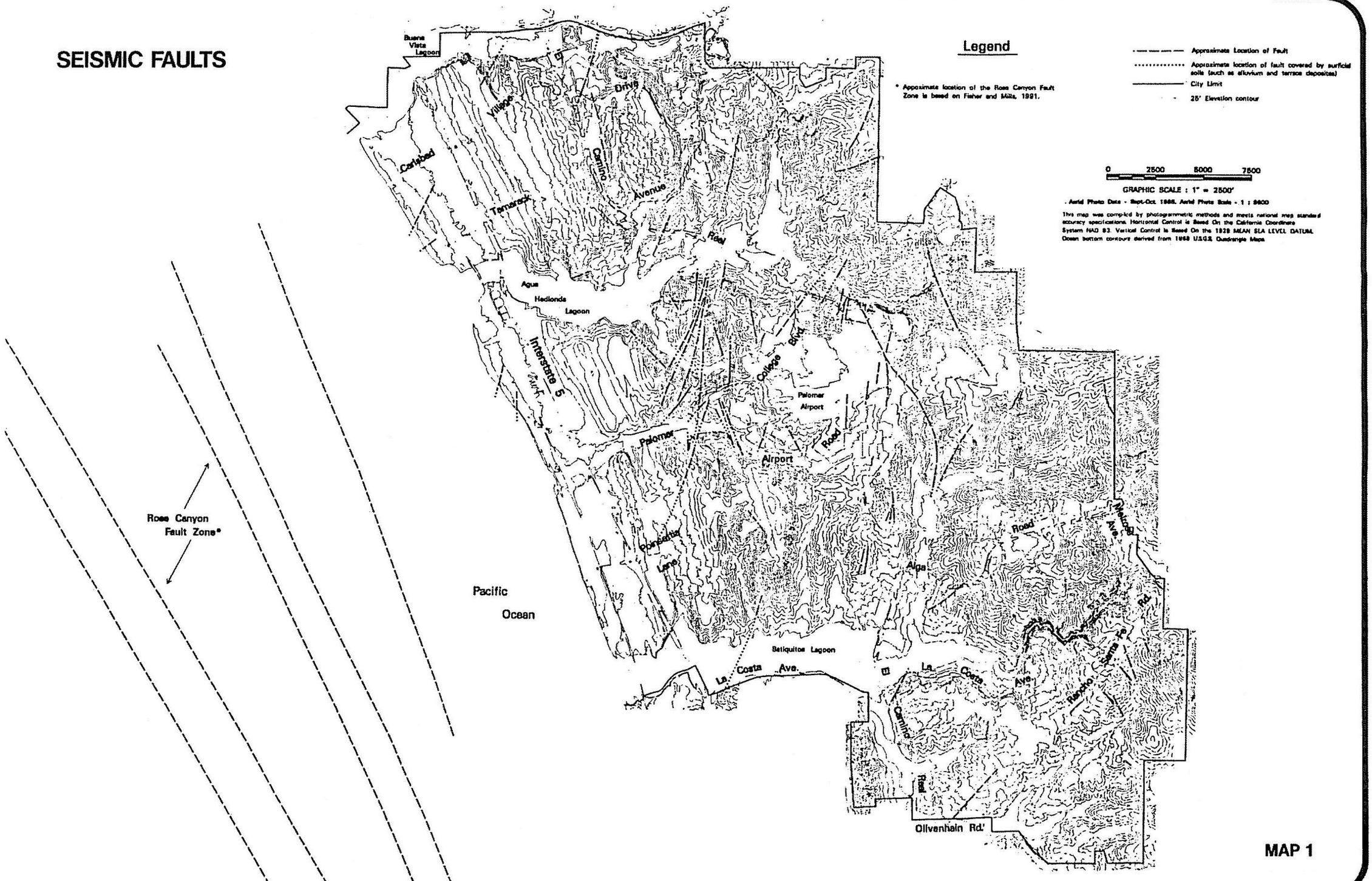
B. Objective

To update City policies and ordinances, when and if it is necessary, as additional information regarding the impacts of electromagnetic fields becomes available.

C. Implementing Policies and Action Programs

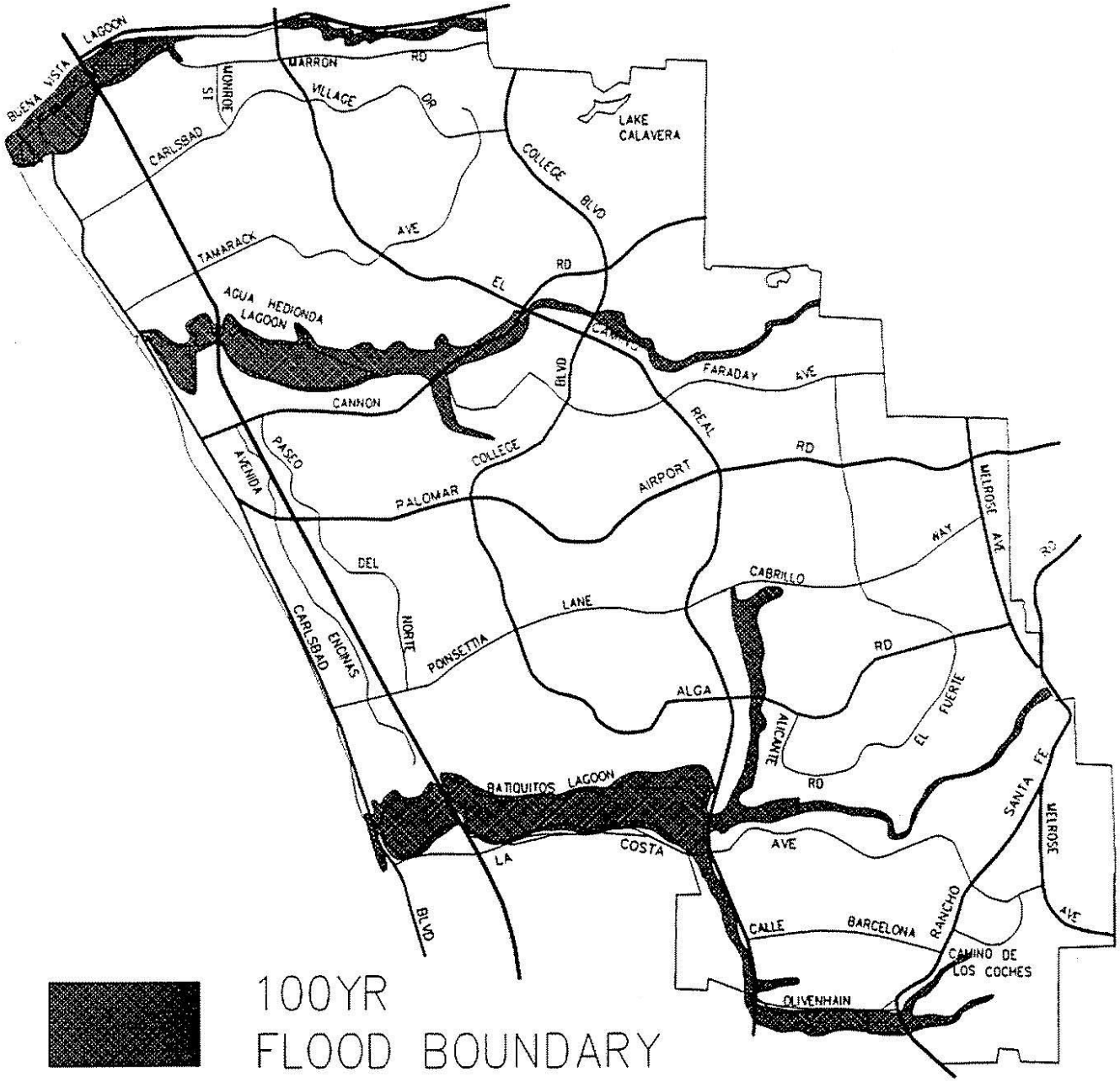
Monitor research in this field as well as the regulatory proposals of federal and state health and environmental agencies. Until comprehensive procedures are developed and required by such an agency, do not adopt land use or other regulations for EMFs. Work with SDG&E to provide information regarding transmission line field strength data to concerned parties.

SEISMIC FAULTS



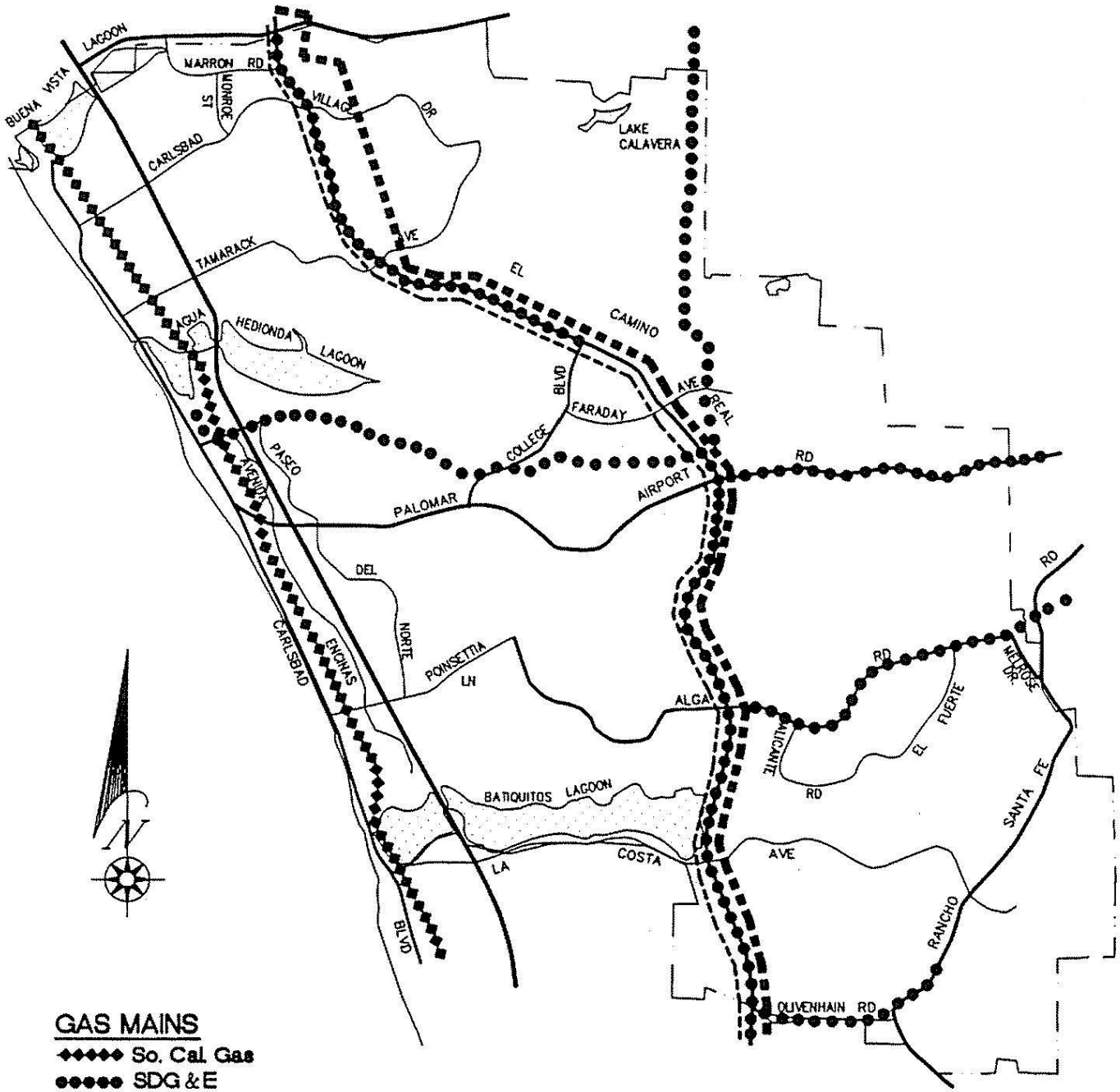
MAP 1

100 YEAR FLOOD BOUNDARIES



MAP 2

HIGH PRESSURE GAS & PETROLEUM MAINS



GAS MAINS

◆◆◆◆◆ So. Cal. Gas

●●●●● SDG & E

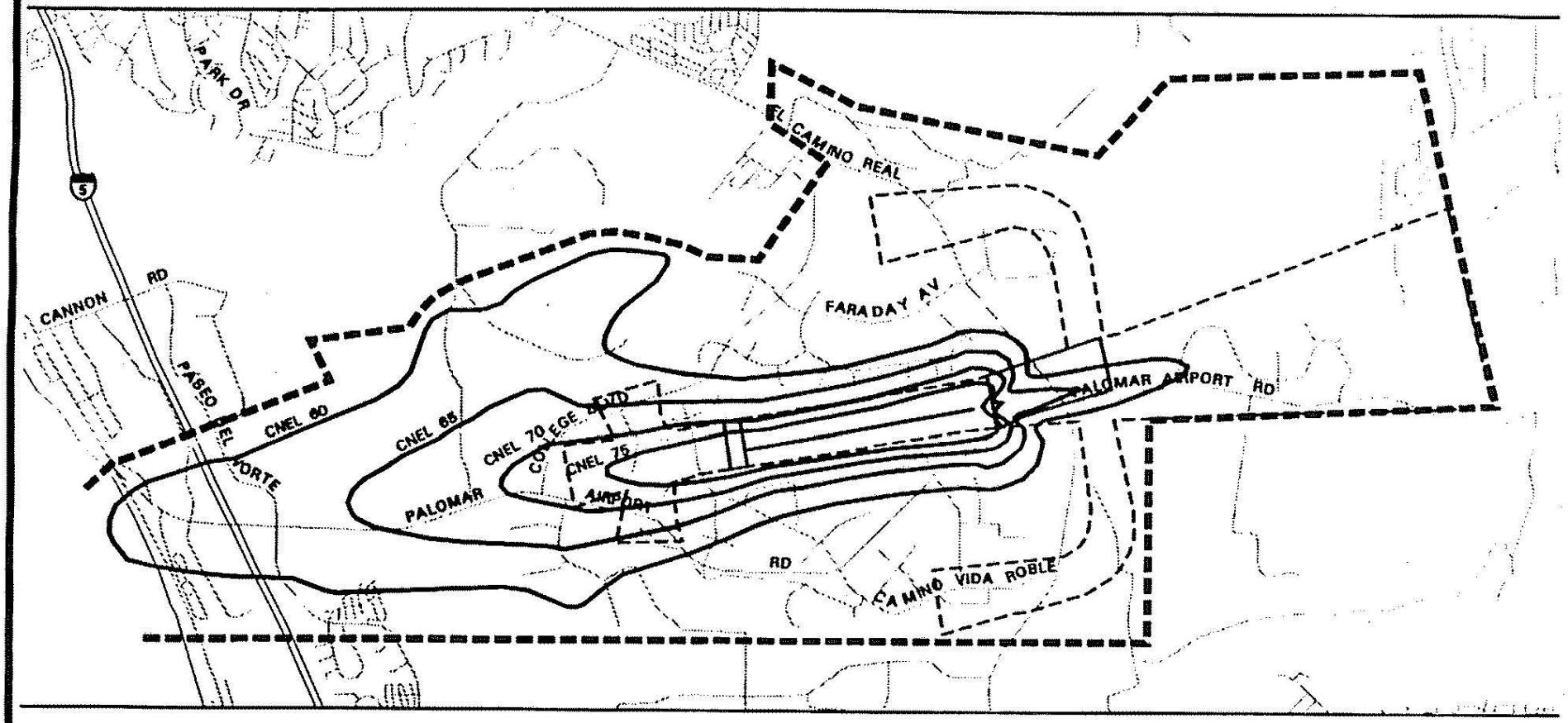
PETROLEUM MAINS

- - - - - 10" San Diego Pipeline

▪▪▪▪ 16" San Diego Pipeline

MAP 3

AIRPORT INFLUENCE AREA



FEET
0 1600 3200

San Diego
ASSOCIATION OF
GOVERNMENTS

February 17, 1994

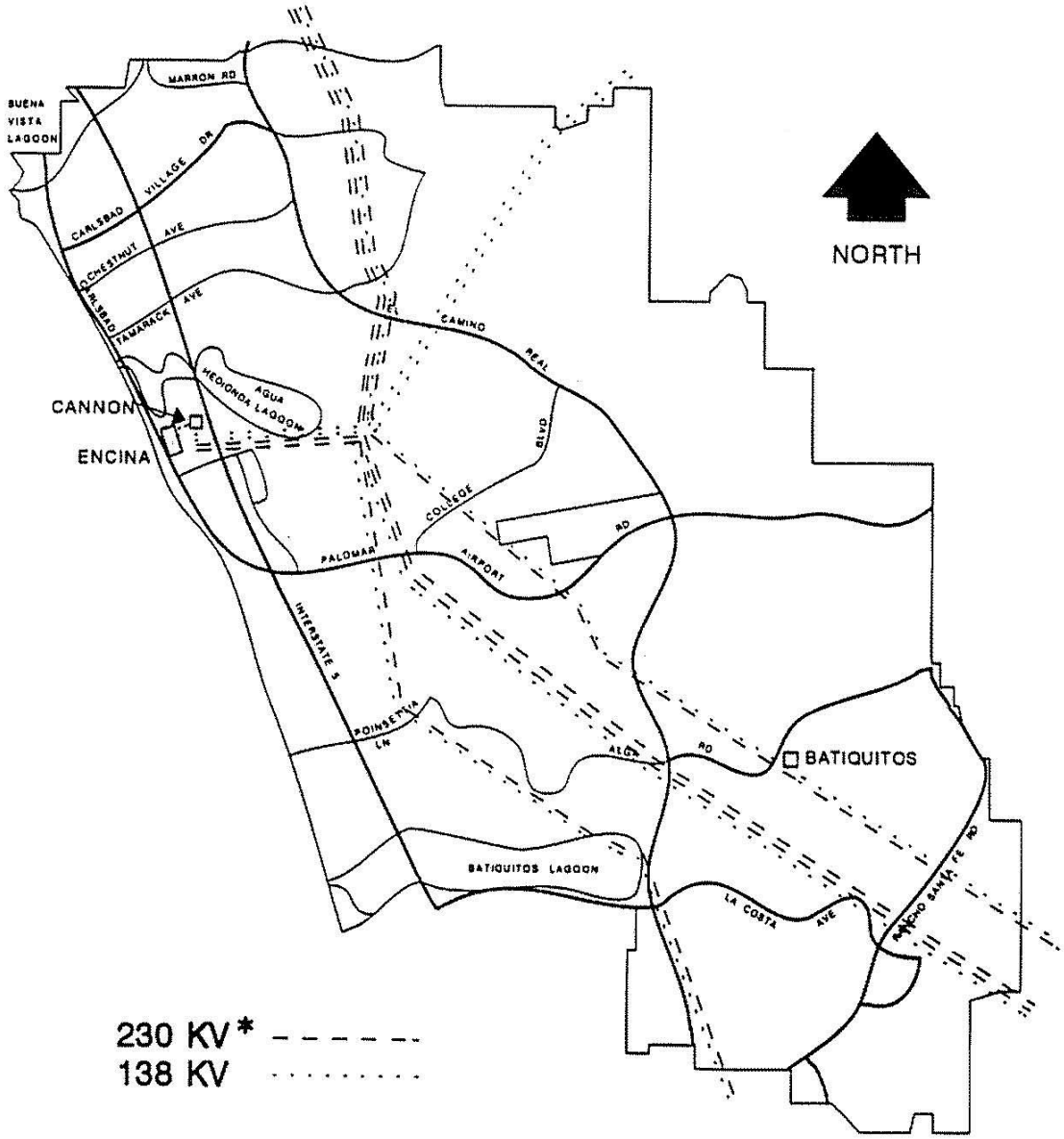
Runway Protection Zone

Flight Activity Zone

Airport Influence Area

MAP 4

ELECTRIC TRANSMISSION LINES AND SUBSTATIONS



* thousands of volts

MAP 5

V. GLOSSARY

ACCEPTABLE RISK	The level of risk below which no specific action by local government is deemed necessary.
AVOIDABLE RISK	Risk not necessary to take because individual or public goals can be achieved at the same time or at less total "cost" by other means without taking the risk.
CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)	The state agency in charge of transportation planning, construction and maintenance of the state's highway system.
CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)	Requires the assessment of projects for environmental effects, establishes procedures for preparing and processing environmental documents and includes requirements for the monitoring of environmental mitigation conditions placed on a project.
CALTRANS	See California Department of Transportation.
CAPITAL IMPROVEMENT PROGRAM (Plan) (CIP)	A city's governmental budget that programs public facilities to fit its fiscal capability some years into the future. Capital improvement programs are usually projected five years in advance and should be updated annually, so as to provide a link to the annual budgeting process.
CEQA	See California Environmental Quality Act.
CITYWIDE FACILITIES AND IMPROVEMENTS PLAN	A plan which identifies the public facilities which will be needed when the City is completely developed.
DEFENSIBLE SPACE	Concept of urban space designed to inhibit crime by utilizing the proprietary concerns of residents. Key ingredients in designing defensible space include: improving the natural capability of residents to visually survey the public areas of their residential environment; enhancing spheres of territorial influence within which residents can easily adopt proprietary attitude; and, enhancing safety through the strategic geographic locations of intensively used community facilities.

DEPTH-TO-SLIDE PLANE	The distance from the ground to the rupture surface of a landslide .
FIRE HAZARD	Any condition or action which may increase the potential of fire to a greater degree than that customarily recognized as normal by official agencies responsible for fire prevention or suppression, or which may obstruct, delay, hinder or interfere with the operations of the fire agency or the egress of occupants in the event of fire.
FIRE HAZARDOUS AREAS	Any land covered with grass, grain, brush or forest, land situated close enough to such areas that are seriously exposed to flying brands, situated on slopes or isolated in such a manner that a fire would be difficult to suppress or would result in substantial fire or erosion damage.
FIRE PREVENTION	The function of approving building plans; inspecting buildings, their contents, and their fire protection equipment to buildings, their contents, and their fire protection equipment to eliminate or minimize hazardous conditions or operations; public education; and investigating the causes of fires to serve as a guide for future fire prevention priorities.
FIRE PROTECTION SERVICES	Any official agency charged with the responsibility of protecting life and/or property through such operations which may be necessary to extinguish or control any fire, perform any rescue operation, investigate suspected or reported fires, gas leaks, or other hazardous conditions or situation.
FLOODPLAIN	Land area adjacent to a watercourse which is subject to inundation of floodwaters expected from a 100-year flood.
FLOODWAY	A river channel and adjacent land area within a floodplain needed to carry a 100-year frequency flood without increasing the water surface elevation more than 1 foot at any point. The boundary of the 100-year floodway shall be determined using data contained on the City's National Flood Insurance Maps.
GMP	See Growth Management Plan

GROWTH MANAGEMENT PROGRAM/PLAN (GMP)	A comprehensive approach to land use planning now and in the future. It links residential, commercial and industrial development directly to the availability of public services and facilities. It sets limits on the total number of housing units to be built and increases the total amount of open space to be preserved in the City.
GROWTH MANAGEMENT ZONE	A geographically-defined area in the City, the boundaries of which were based upon logical facilities and improvements planning relationships. Under the City's Growth Management Plan, there are 25 zones and a plan for facilities and improvements is required for each zone before development can occur.
HYDRAULIC	Operated by the resistance offered, or the pressure transmitted when a quantity of liquid (as water or oil) is forced through a comparatively small orifice or through a tube.
HYDROLOGY	The science dealing with the properties, distribution and circulation of water and snow.
LATERAL SPREADING	Shallow-angle slope failure caused by liquefaction or a subsurface layer .
LFMP	See Local Facilities Management Plan.
LIQUEFACTION	The process of becoming liquid. Liquefaction is caused by strong vibratory motion in saturated, loose, sandy soils. As a result of the conditions required to cause liquefaction, in Carlsbad, areas of possible liquefaction are limited to alluvial soils in the valleys and low-lying areas of the City.
LOCAL FACILITY MANAGEMENT PLAN (LFMP)	Shows how and when the following facilities and improvements necessary to accommodate development within the zone will be installed or financed; City administrative facilities, library, wastewater treatment, parks, drainage, circulation, fire facilities, open space, schools, sewer facilities and water facilities.
LURCH CRACKING	Phenomenon associated with strong earthquakes whereby the ground is disturbed and cracked by earthquake oscillation.

PUBLIC FACILITIES	Uses or structures that provide services to the public such as a library, City Hall, fire station, police station, park, traffic signal or major street.
RIGHT-OF-WAY	The area of land which has been dedicated for public use for transportation purposes (i.e. a street, freeway or railroad) .
SANDAG	See San Diego Association of Governments (SANDAG).
SAN DIEGO ASSOCIATION OF GOVERNMENTS (SANDAG)	The regional planning agency for the San Diego Region of which Carlsbad is a member agency.
SUBSIDENCE	The gradual sinking of land as a result of natural or manmade causes.
UNACCEPTABLE RISK	Level of risk above which specific action by government is deemed to be necessary to protect life and property.